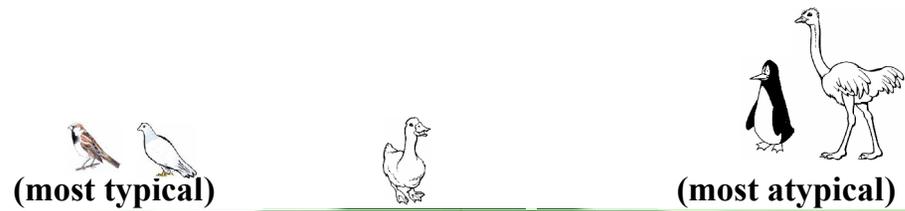

**Multidimensional adjectives as
conjunctive and disjunctive,
A corpus-based study**



**Galit Weidman Sassoon,
Ben Gurion University of the Negev**

Nominal concepts are mean-based (1/2)

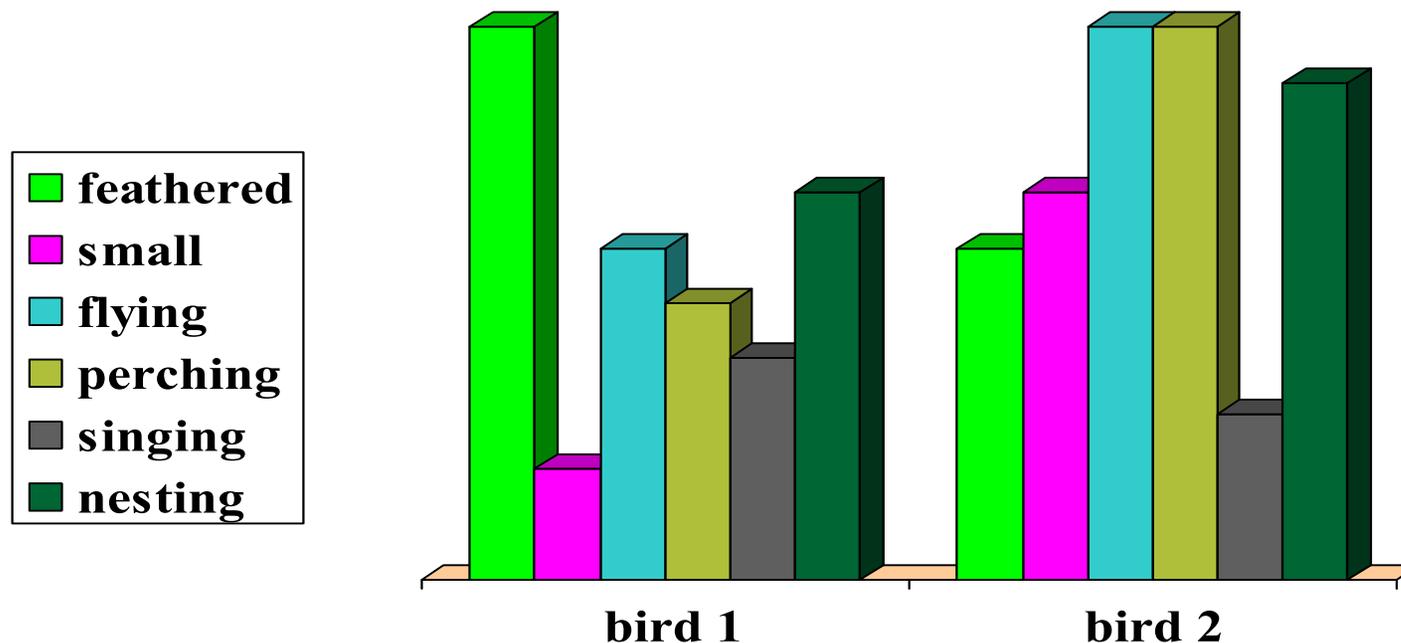
Murphy 2002; Hampton 1998; Cognitive linguists
(Lakoff 1987):



An entity is classified as a bird iff (roughly) its mean degree in the dimensions of bird, **small size, flying, perching, etc.** (or of some bird exemplar) exceeds the standard.

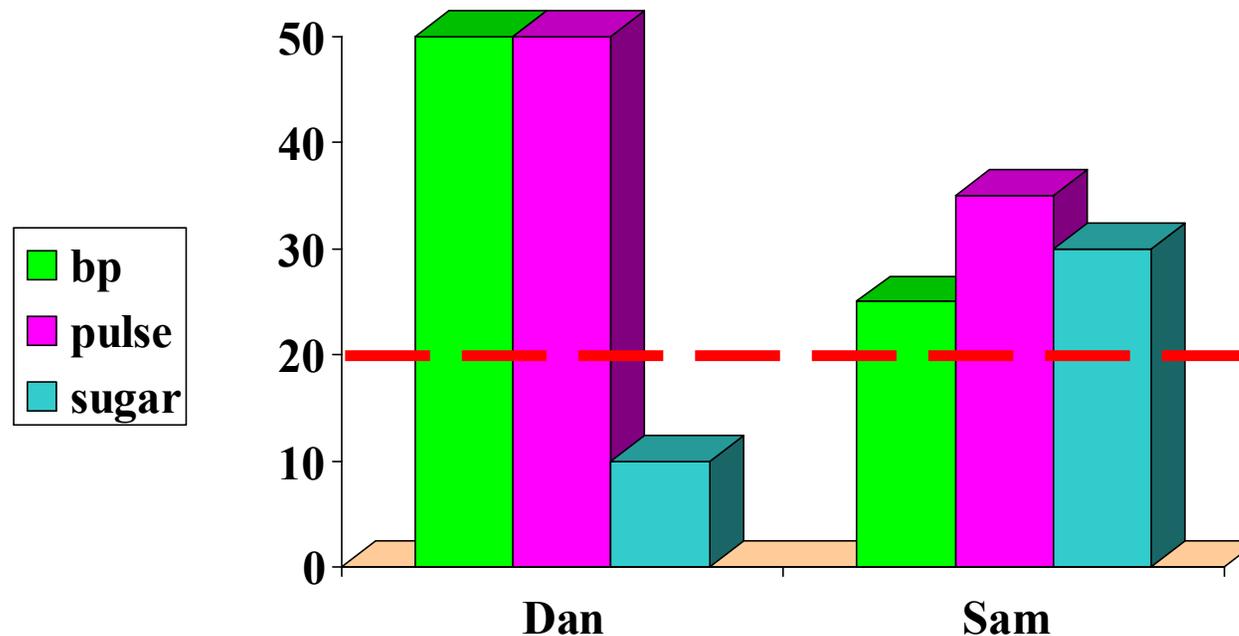
Nominal concepts are mean-based (2/2)

The dimensions are not necessary conditions for membership. Only the mean in the dimension counts.



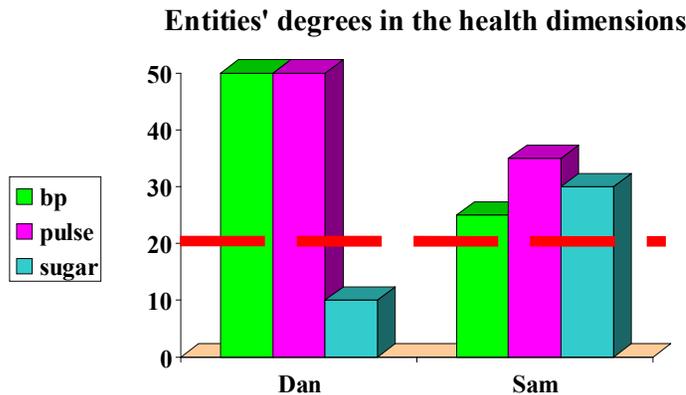
Are adjectives mean-based? (1/2)

Context: Entities' degrees in the health dimensions



- ❑ Health is measured by bp, pulse and sugar
- ❑ Dan is maximally healthy wrt bp and pulse, but not in the norm wrt sugar
- ❑ Sam's degrees are all in the normative range, yet the lowest possible
- ❑ (Dan's mean is higher than Sam's – 37 vs. 30).

Are adjectives mean based? (1/2)



NO!

Intuition: Sam is healthy and Dan is sick;

So Sam is healthier (although Dan's mean is higher)

It is not the case that we compare Sam's mean in the dimensions to Dan's mean.

Had we done that, we would have judged Dan to be healthier than Sam.

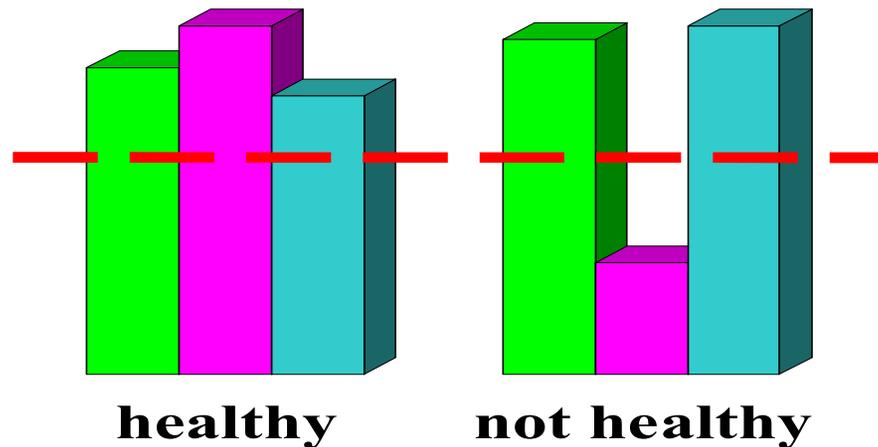
My proposal (1/4)

I. Conjunctive Adjectives

(healthy, identical, typical, normal, familiar, good...)

Entities must reach the standard in *all* the dimensions.

Intuition: If one is healthy in every respect except she has the flu, strictly speaking, she is *not healthy*.



My proposal (2/4)

Conjunctive Adjectives

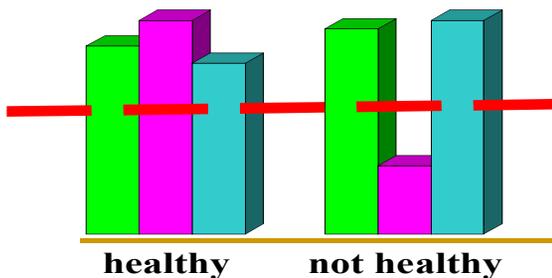
(*healthy, identical, typical, normal*):

The default interpretation involves (implicit) universal quantification on dimensions.

$[[\text{Dan is healthy}]]_c = 1$ $\forall Q \in \text{PREDICATE},$
 Q is a respect of *healthy* in c ,
 $[[\text{Dan is } Q]]_c = 1$

(Dan is healthy wrt **all** *healthy*'s dimensions in c :

bp and pulse and sugar)



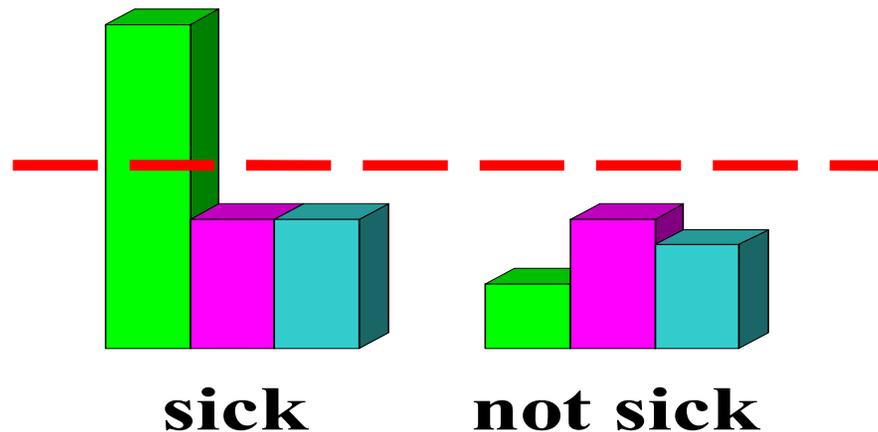
My proposal (3/4)

II. Disjunctive Adjectives

(*sick, different, atypical, abnormal, bad, innovative...*)

Entities must reach the standard in but one dimension.

Intuition: Entities that violate some health dimension in a context are considered *sick*.



My proposal (4/4)

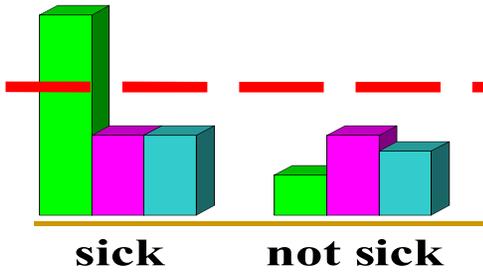
Disjunctive Adjectives

(*sick, different, atypical, abnormal*)

The default interpretation involves (implicit) existential quantification on dimensions.

$[[\text{Dan is sick}]]_c = 1$ iff $\exists Q \in \text{PREDICATE}$,
 Q is a respect of *sick* in c ,
 $[[\text{Dan is } Q]]_c = 1$

(Dan is sick wrt **some** dimension of *sick* in c : *bp* or *pulse* or *sugar*)



Exception phrases

Only universal quantification licenses exception phrases:

- (1) *Everybody except for Dan is singing*
- (2) *Nobody except for Dan is singing*
- (3)* *Somebody except for Dan is singing*

Prediction 1

Except-phrases can operate on the dimension-set of an adjective, as in *healthy except for bp*, but:

This is more likely to happen in *conjunctive adjectives* than in *disjunctive ones*.

In disjunctives this requires accommodating a non-default universal quantifier (as in *sick in every respect except bp*).

Fact 1



Dimension-set readings are felicitous only with conjunctive adjectives:

- (1) *I am a 64-year-old man, healthy except for high bp*
- (2)# ... *sick except for (normative) bp*

$[[\text{Dan is healthy except wrt bp}]]_c = 1$ iff

$\forall Q \in \text{PREDICATE}, Q \neq \text{bp}, Q$ is a respect of *healthy* in c :

$[[\text{Dan is } Q]]_c = 1$

(Dan is healthy wrt **every** dimension **except bp** in c)

Negation

On my proposal:

A negated conj. adjective (like *not healthy*) denotes the entities that fail to fall under **some** 'healthy' dimension.

$[[\text{Dan is not healthy}]]_c = 1$ iff

- $\neg \forall Q \in \text{PREDICATE}, Q$ is a respect of healthy in c , $[[\text{Dan is } Q]]_c = 1$ **iff**
- $\exists Q \in \text{PREDICATE}, Q$ is a respect of healthy in c , $[[\text{Dan is } Q]]_c \neq 1$
- (Dan is not healthy wrt **some** dimension in c)

A negated disj. adjective (like *not sick*) denotes the entities that fall under **no** 'sick' dimension.

$[[\text{Dan is not sick}]]_c = 1$ iff

- $\neg \exists Q \in \text{PREDICATE}, Q$ is a respect of sick in c , $[[\text{Dan is } Q]]_c = 1$ **iff**
- $\forall Q \in \text{PREDICATE}, Q$ is a respect of sick in c , $[[\text{Dan is } Q]]_c \neq 1$
- (Dan is sick wrt **no** dimension in c)

Prediction 2

Under negation ‘*except*’ is likely to operate on the dimension -set of disjunctive, not conjunctive, adjectives:

Fact 2



Dimension-set readings are felicitous only with negated disjunctive adjectives:

(1) # *They are not healthy, except for (normative) bp*

(2) *They are not sick, except for high bp*

$[[\text{Dan is not sick except wrt bp}]]_c = 1$ iff

$\forall Q \in \text{PREDICATE}, Q \neq \text{bp}, Q$ is a respect of *sick* in c ,

$[[\text{Dan is } Q]]_c \neq 1$

(Dan is sick wrt **no** dimension **except bp** in c)

A corpus-based study (1/10)

Method:

1. Count the different uses of ‘**except**’ with conj. / disj. adjectives in the first ~70 Google results with each.

The image displays six sequential Google search interface elements, each representing a search for a specific adjective followed by the word "except". Each element consists of the Google logo, a search input field containing the phrase in quotes, a "Search" button, and a snippet of search results. The adjectives are: "healthy", "sick", "typical", "atypical", "identical", and "different". The results snippets are partially visible, showing "Results 1 - 70 of about 37,000 ...", "Results 1 - 70 of ...", "Results...", "R", and "..." respectively.

Google™ “healthy except” Search Results 1 - 70 of about 37,000 ...

[Google](#) “sick except” Search Results 1 - 70 of ...

[Google](#) “typical except” Search Results...

[Google](#) “atypical except” Search R

[Google](#) “identical except” Search

[Google](#) “different except” Search ...

A corpus-based study (2/10)

2. Exclude uses with explicit universal quantification:

- 1) Everything normal except for high bp
- ~~2) Nothing abnormal except for high bp~~
- ~~3) Little abnormal except for high bp~~
- ~~4) The tests appeared normal except for high bp~~
- 5) Totally healthy except for failing eyesight
- ~~6) Completely healthy except for failing eyesight~~
- ~~7) Absolutely healthy except for failing eyesight~~
- 8) Otherwise healthy except for failing eyesight
- 9) All in all healthy, except for failing eyesight

A corpus-based study (3/10)

3. Ignore non dimension-set uses of ‘except’:

- ❑ **Quantification over entities, events, time points, etc.:**

Everyone's been sick (except me--ha!) ...

Never been sick (except a cold last year)

- ❑ **Mitigation:**

I was off sick, except I was only half sick; the rest was tiredness

- ❑ **A different clause:**

One would never know I was sick. Except for being bald, I look ...

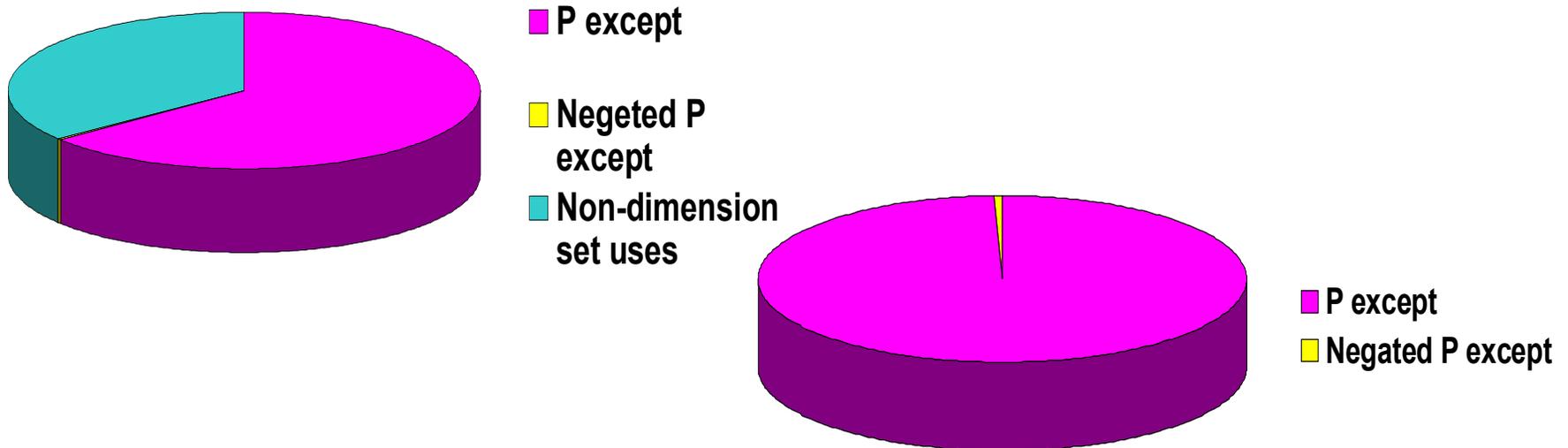
A corpus-based study (4/10)

Predictions about the number of dimension-set uses:

- 1. Conj. Adj.** >> **Negated Conj. Adj.**
(*Dan is healthy except for bp*) (Dan is *not* healthy except for bp)
Many **Few**
- 2. Negated Disj. Adj.** >> **Disj. Adj.**
(*Dan is not sick except for bp*) (*Dan is sick except for bp*)
Many **Few**

A corpus-based study (5/10)

Results I. Except for one, **none** of the 184 dimension-set uses of *except* with the four conjunctive adjectives examined is negated:



Conclusion: The dimensions of Conj. Adjectives combine via universal quantification

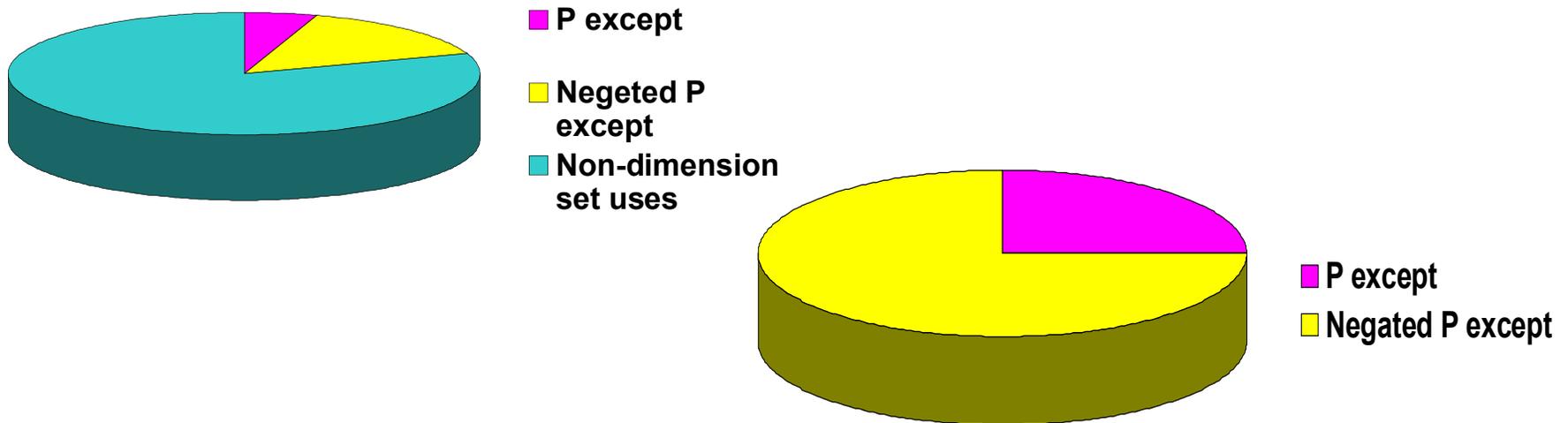
A corpus-based study (6/10)

Results I. Except one, none of the 184 dimension-set uses of *except* is negated:

Conjunctive adjectives	Dimension set uses		Other uses	Total
	-With a non negated P	With a negated P		
<i>Healthy</i>	46	0	24	70
<i>Typical</i>	31	1	31	63
<i>Normal</i>	46	0	32	78
<i>Identical</i>	60	0	14	74
Total	183	1	101	285

A corpus-based study (7/10)

Results II. Most (75%) of the 56 dimension-set uses with the four disjunctive antonyms *are* negated.



Conclusion: The dimensions of Disj. Adjectives combine via existential quantification

A corpus-based study (8/10)

Results II. Most (three quarters) of the 56 dimension-set uses with the disjunctive antonyms *are negated*.

Disjunctive adjectives	Dimension set uses		Other uses	Total
	-With a non negated P	With a negated P		
<i>Sick</i>	1	7	62	70
<i>Atypical</i>	8	16	39	63
<i>Abnormal</i>	2	2	74	78
<i>Different</i>	3	17	54	74
Total	14	42	229	285

A corpus-based study (9/10)

Predictions about the number of dimension set uses:

1. **Conj. Adj.**
(*healthy except for bp*)

Many

183

(+99%)



>>

Negated Conj.
(*not healthy except for bp*)

Few

1

(~1%)



Borne out

2. **Negated Disj. Adj.**
(*not sick except for bp*)

Many

42

(75%)



>>

Disj. Adj.
(*sick except for bp*)

Few

14

(25%)



Extended results with 11 conj. and 7 disj. adjectives:

Predictions about the number of dimensions that uses:

Borne out

1. **Conj. Adj.**

(healthy except for bp)

Many

312

(98.7%)



>>

Negated Conj. Adj.

(not healthy except for bp)

Few

4

(1.3%)



2. **Negated Disj. Adj.**

(not sick except for bp)

Many

102

(75%)



>>

Disj. Adj.

(sick except for bp)

Few

34

(25%)



A corpus-based study (10/10)

Speakers *don't weaken* conjunctive adjectives (they treat them as disjunctive in but $\sim 1\%$ of the time).

Speakers *do strengthen* disjunctive adjectives (they treat them as conjunctive in $\sim 20\%$ of the time).

Patient 4 was atypical except for the high-pitched voice

(*atypical* \approx typical of an atypical group)

Pragmatic explanation:

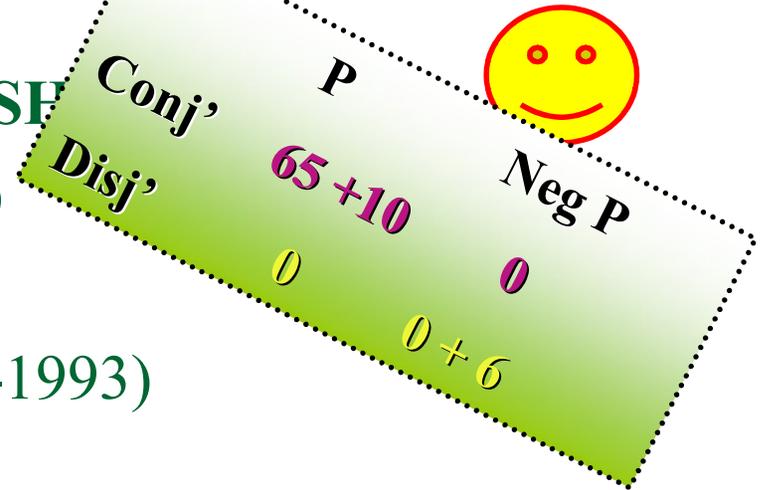
Freely allow restricted interpretations; Mark loose ones.

Frequency

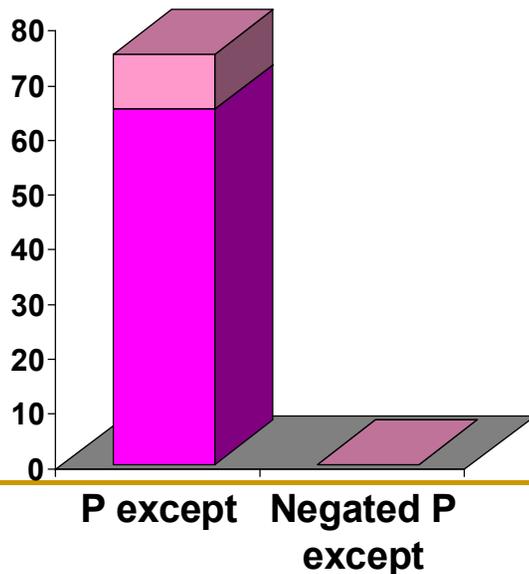
	Frequency ADJ		Frequency NEG-ADJ		Dimension set uses ADJ		Dimension set uses NEG-ADJ
Conjunctives							
<i>healthy</i>	230,000,000		2,360,000		48		0
<i>typical</i>	167,000,000		2,820,000		31		1
<i>normal</i>	895,000,000		4,820,000		46		0
<i>identical</i>	76,500,000		3,820,000		60		0
<i>familiar</i>	188,000,000	>>	11,400,000		28	>>	1
<i>unfamiliar</i>	17,100,000		161,000		20		0
<i>healthier</i>	24,900,000		19,000		14		1
<i>sicker</i>	1,880,000		3,010		1		0
<i>better</i>	1,270,000,000		7,640,000		11		0
<i>worse</i>	160,000,000		1,100,000		7		1
<i>similar</i>	803,000,000		917,000		48		0
Disjunctives							
<i>sick</i>	170,000,000		1,420,000		1		7
<i>atypical</i>	7,900,000		108,000		8		16
<i>abnormal</i>	32,000,000		140,000		2		2
<i>different</i>	1,080,000,000	>>	4,220,000		3	<	17
<i>innovative</i>	162,000,000		170,000		0		13
<i>bad</i>	1,010,000,000		58,000,000		1		16
<i>dissimilar</i>	5,090,000		531,000		19		31

The Google results represent natural use

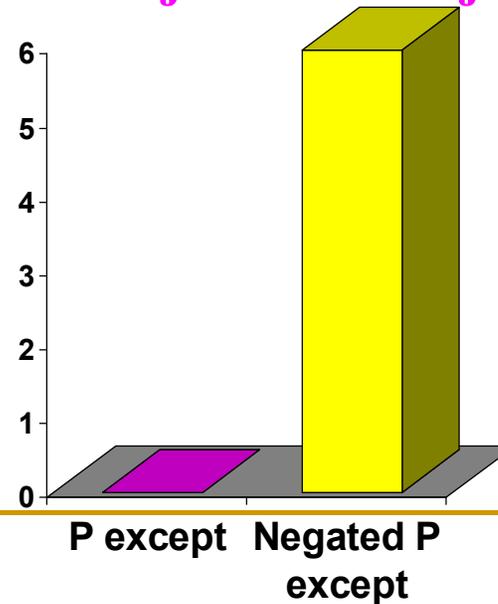
- **CORPUS OF AMERICAN ENGLISH**
(360 MILLION WORDS, 1990-2007)
- **BRITISH NATIONAL CORPUS**
(100 MILLION WORDS, UK, 1980s-1993)



Conjunctive adjectives



Disjunctive adjectives



CORPUS OF AMERICAN ENGLISH

No exceptions

Conjunctives	ADJ. except	Negated ADJ. except
<i>Healthy</i>	2 (+2 cases of explicit quantification) 1) he is healthy except for failing eyesight ... 2) The brilliant young judge, healthy except for his heart 3) Susie is a ten-month-old baby, perfectly healthy except that she has a congenital abnormality of her foot	0
<i>Typical</i>	0	0
<i>Similar</i>	4 The groups were similar except for sex, the placebo group having more boys	0
<i>Normal</i>	8 (+5 cases of explicit qua.) 1) After a heavy meal I felt more or less normal except for a wonderful immersion in peacefulness. 2) the middle ear cavity was normal except for a small amount of blood in	0
<i>Identical</i>	48 (+3 cases of explicit qua.) all the world's children prove identical except for their color and clothes.	0
	62 + 10	0

CORPUS OF AMERICAN ENGLISH

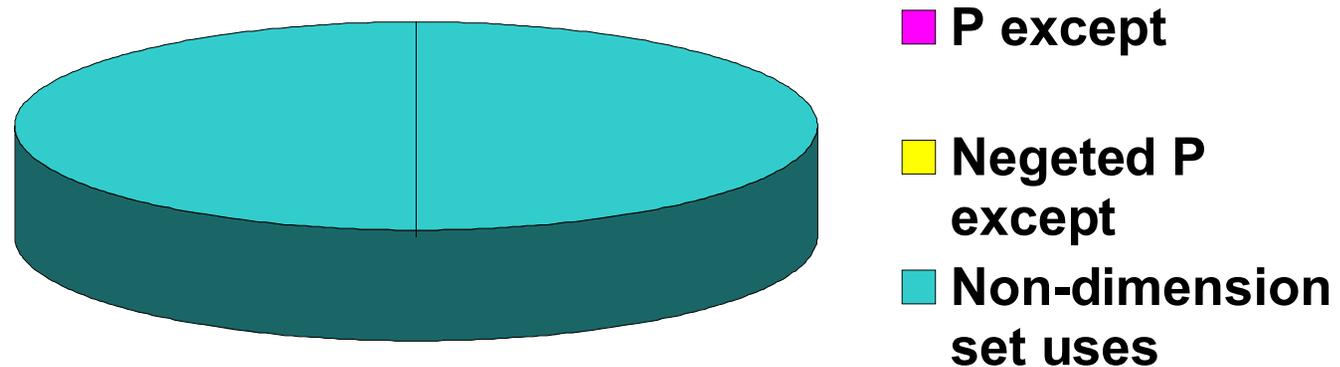
No entries

Disjunctives	ADJ. except	Negated ADJ. except
<i>Sick</i>	0	0
<i>Atypical</i>	0	0
<i>Dissimilar</i>	0	0
<i>Abnormal</i>	0	0
<i>Different</i>	0	0 (+4 cases of explicit qua.) 1) Nothing is <u>different except</u> that he is growing older... 2) The Friday night before Flynn had an abortion was no different except Margaret, who..., couldn't concentrate
	0	0 + 4

A corpus based study



Results III. Nouns like *bird*, *table*, and *mother* don't combine with *except* at all (0 dimension-set uses in the first 60 Google results with each).



Conclusion: The dimensions of nouns do not combine via quantifiers, but via mean operations

General conclusions

Nominal dimensions combine via
averaging, not via **quantifiers**.

Adjectival dimensions combine via
quantifiers, not via **averaging**.

Adjectives: A respect argument

It can be saturated:

1) Tweety is healthy with respect to blood pressure

It can be bound:

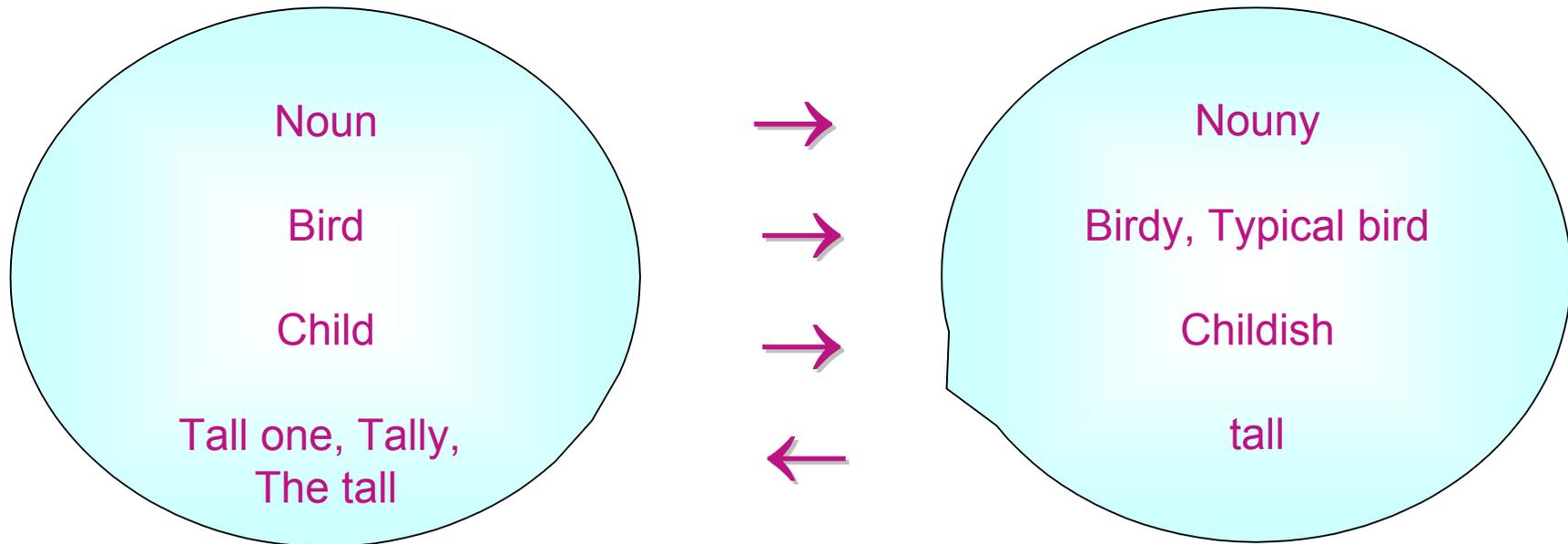
2) Tweety is healthy in every / some / most respect(s)

It can be implicitly bound:

3) Tweety is healthy

⇒ Adjectival dimensions function as categorization criteria.

Transformation operations



Context: We discover that birdhood depends on ten genes (categorization criteria):

Tan is a bird wrt to gene 1-6 but not a bird wrt genes 7-10 ✓

Conclusions

- The Adjectival / Nominal distinction is a cue for selecting processing type (dimension-set type)
- The cue can be ‘overridden’:
Nouns can ‘turn’ into adjectives, and v.v.

Psycholinguistic correlates of categorization tasks that:

- **involve averaging** (“nominal dimensions”)
- **don't involve averaging** (“adjectival dimensions”)

Neural correlates (1/2)

Ashby and Maddox 2005:

Selective brain deficits

Conjunctive and disjunctive
(rule-based) tasks:

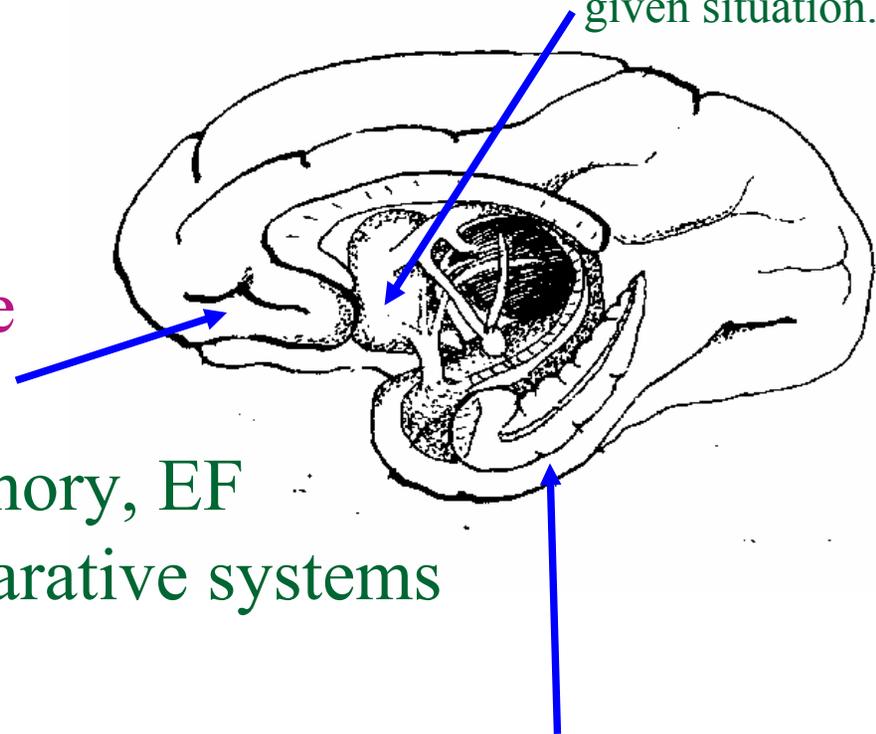
Require more working memory, EF

Recruit mostly verbal, declarative systems

(the **prefrontal cortex**).

Mean-based (prototype-resemblance) tasks
recruit implicit or procedural learning systems
(the **inferotemporal cortex**).

The basal
ganglia selects
the strategy in a
given situation.



Neural correlates (2/2)

Consistent with considerable lesion and imaging data:

Noun processing tasks:

Processing semantic knowledge about nominal categories (animals, artifacts) recruits **inferior (and middle) temporal lobe** (Randi 2003: 66-67)



Adjective processing tasks:

Any studies?



Developmental correlates (1/2)

The late maturation of the prefrontal cortex affects children performance.

Frye et al 1995; Zelazo et al 1996, 2004; Thomason 1994:

Children (at age 3-5 years) have difficulty in consistently using rules.

Keil 1979:

Children (up to age 10) often base categorization on similarity.

Developmental correlates (2/2)

Consistent with findings from noun /adjective acquisition.

Waxman and Lidz 2006, Berman 1988, Gozderv 1961:

Children (up to age 5 years) have selective control of word classes:

Nouns (and verbs) >> Adjectives

Polinsky 2005:

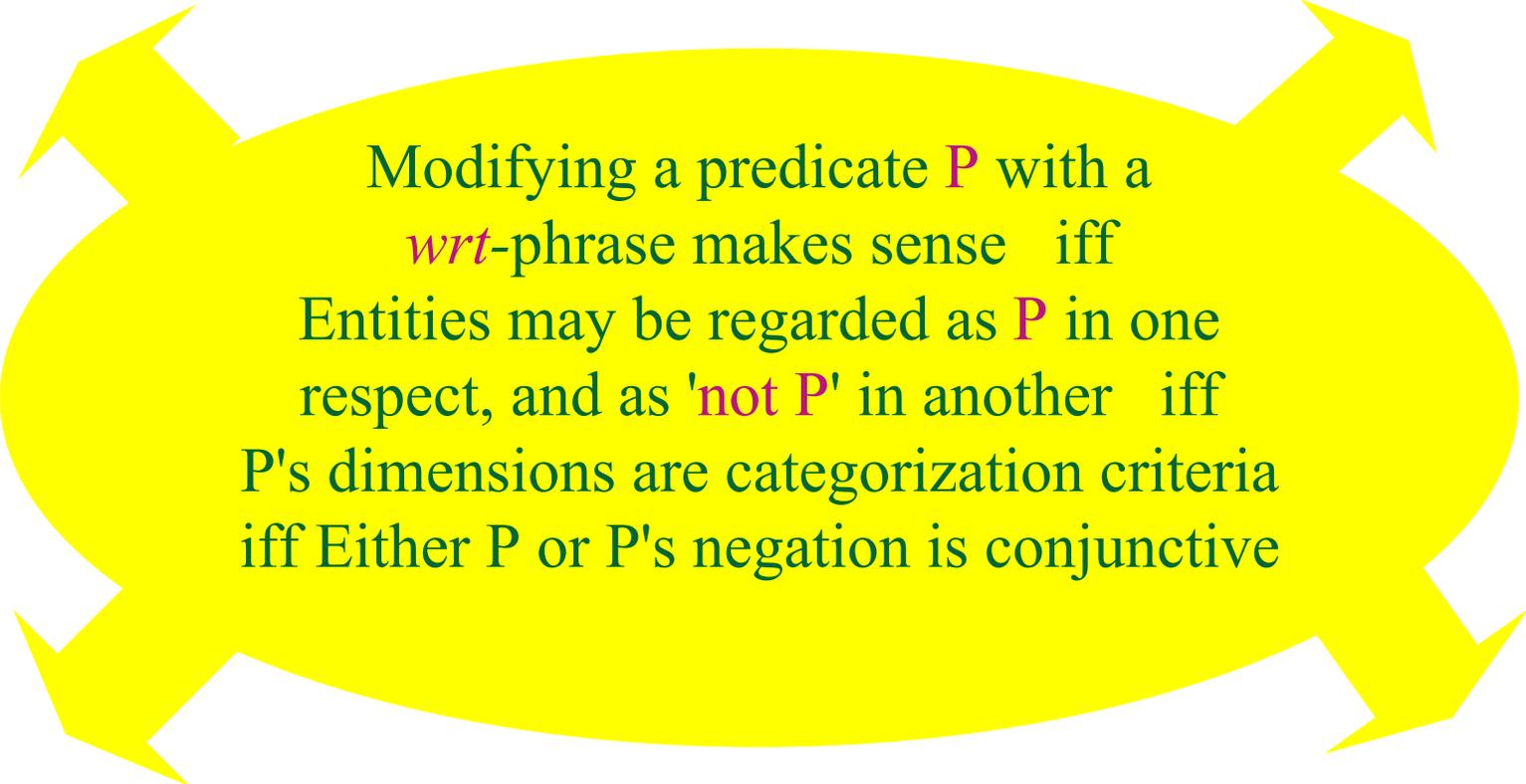
Incomplete learners (whose acquisition was interrupted at age 5):

Nouns (and verbs) >> Adjectives

Morpho-syntactic cues for predicting whether the interpretation:

- **involves averaging** (“nominal dimensions”)
- **doesn't involve averaging** (“adjectival dimensions”)
 - **Wrt phrases**
 - **Dimensions' descriptions**
 - **More**

WRT phrases (1/6)



Modifying a predicate **P** with a
wrt-phrase makes sense iff
Entities may be regarded as **P** in one
respect, and as '**not P**' in another iff
P's dimensions are categorization criteria
iff Either P or P's negation is conjunctive

WRT phrases (2/6)

Multidimensional adjectives:

healthy wrt bp



Modifying a predicate **P** with a *wrt*-phrase makes sense iff
Entities may be regarded as **P** in
one respect, and as '**not P**' in
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categorization criteria iff
Either **P** or **P**'s negation is
conjunctive

WRT phrases (3/6)

Multidimensional adjectives:

healthy wrt bp



One-dimensional adjectives:

#is tall wrt height

(we cannot find
two respects)



Modifying a predicate **P** with a
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conjunctive

WRT phrases (4/6)

Multidimensional adjectives:

healthy wrt bp



Nouns

#is a bird wrt flying

(nouns mean-based,
not conjunctive)

One-dimensional adjectives:

#is tall wrt height

(we cannot find
two respects)



Modifying a predicate **P** with a
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conjunctive

WRT phrases (5/6)

Multidimensional adjectives:

healthy wrt bp



One-dimensional adjectives:

#is tall wrt height

(we cannot find two respects)



Modifying a predicate **P** with a *wrt*-phrase makes sense iff Entities may be regarded as **P** in one respect, and as '**not P**' in another iff P's dimensions are categorization criteria iff Either **P** or **P**'s negation is conjunctive



Nouns

#is a bird wrt flying

(nouns mean-based, not conjunctive)



'Exceptions':

health wrt bp;

*typicality wrt flying
an Italian wrt food*

WRT phrases (6/6)

Multidimensional adjectives:

healthy wrt bp



One-dimensional adjectives:

#is tall wrt height

(we cannot find two respects)



Modifying a predicate **P** with a *wrt*-phrase makes sense iff Entities may be regarded as **P** in one respect, and as '**not P**' in another iff P's dimensions are categorization criteria iff Either **P** or **P**'s negation is conjunctive



Nouns

#is a bird wrt flying

(nouns mean-based, not conjunctive)



'Exceptions':

health wrt bp;

*typicality wrt flying
an Italian wrt food*

(Exceptions: Nouns that are morpho-semantically related to adjectives, i.e. Nominalizations and +Human nouns, which have adjectival entries)

‘Exceptions’

+Human nouns resemble adjectives wrt: agreement and copula:

Adjectives	Nouns	+Human nouns
<i>Dan (hu) yarok</i> ‘Dan is green _{MASC} ’	<i>#Dan (hu) cipor</i> ‘Dan is a bird’	<i>Dan (hu) idiot</i> ‘Dan is an idiot _{MASC} ’
<i>Beth (hi) yeruka</i> ‘Beth is green _{FEM} ’	<i>#Beth (hi) cipor</i> ‘Beth is a bird’	<i>Beth (hi) idiotit</i> ‘Beth is an idiot _{FEM} ’

Nominalizations resemble adjectives wrt argument structure:

Adjectives	Nouns	Nominalizations
<i>The conference was successful for a student conference</i>	<i># Tweety is a bird for a water-bird</i>	<i>The conference was a success for a student conference</i>

Dimensions' descriptions

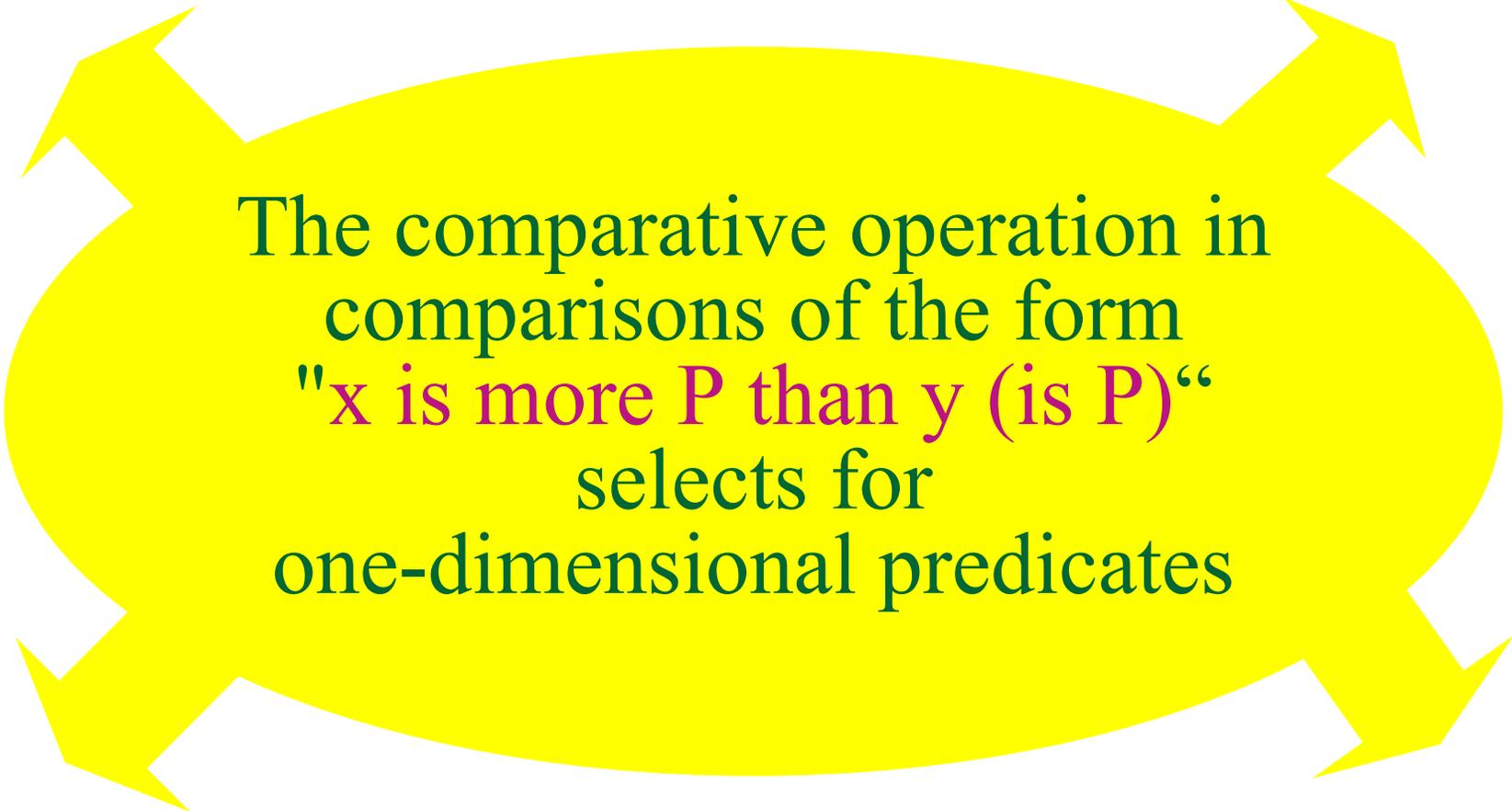
The adjectival dimensions: **'Respects'**

Example: Dan is not healthy in three respects: bp, pulse ...

The nominal dimensions: **'typical'**

Example: Flying, singing and perching is typical of birds

More (1/5)

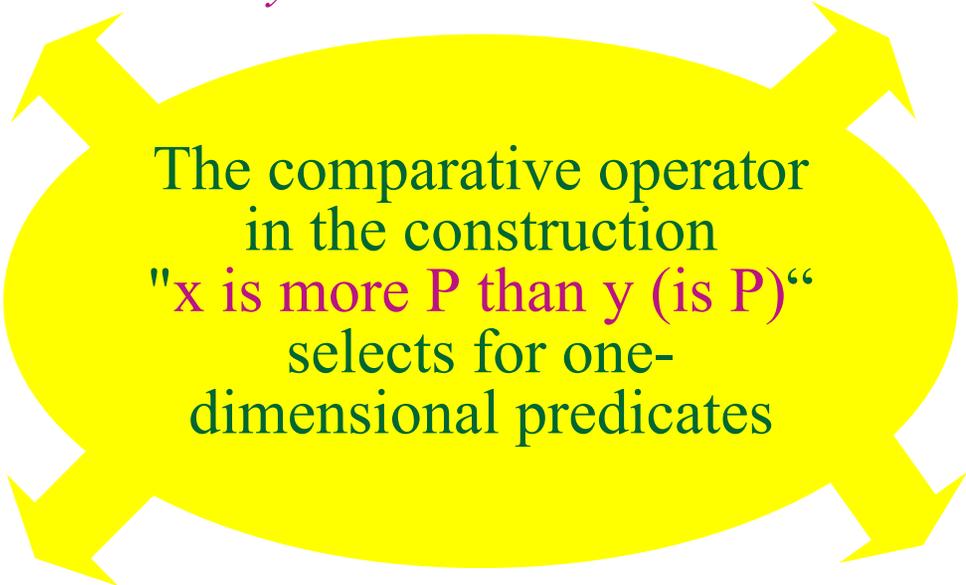


The comparative operation in comparisons of the form
"x is more P than y (is P)"
selects for
one-dimensional predicates

More (2/5)

One-dimensional adjectives:

Dan is taller than Mary



The comparative operator
in the construction
"x is more P than y (is P)"
selects for one-
dimensional predicates

More (3/5)

One-dimensional adjectives:

Dan is taller than Mary



Multidimensional adjectives:

Dan is healthier than Mary

wrt bp

wrt bp and pulse

in every respect



The comparative operator
in the construction
"x is more P than y (is P)"
selects for one-
dimensional predicates

(easily turn one-dimensional
in virtue of the wrt argument)

More (4/5)

One-dimensional adjectives:

Dan is taller than Mary



Multidimensional adjectives:

Dan is healthier than Mary

wrt bp

wrt bp and pulse

in every respect



(easily turn one-dimensional
in virtue of the wrt argument)

The comparative operator
in the construction
"x is more P than y (is P)"
selects for one-
dimensional predicates

Nouns

#Tweety is more a bird than Tan

(Nouns do not license a 'wrt' argument,
so they are *inherently* multi-dimensional)

More (5/5)

One-dimensional adjectives:

Dan is taller than Mary



Multidimensional adjectives:

Dan is healthier than Mary

wrt bp

wrt bp and pulse

in every respect



(easily turn one-dimensional
in virtue of the wrt argument)



The comparative operator
in the construction
"x is more P than y (is P)"
selects for one-
dimensional predicates

Nouns

#Tweety is more a bird than Tan

(Nouns do not license a 'wrt' argument,
so they are *inherently* multi-dimensional)

'Exceptions': Not really

*#Dan is more an Italian
than Mary is*

*#The first talk was more
a success than the second*

Why one-dimensional predicates?

More (in "x is more P than y (is P)") denotes the **difference operation** (von Stechow 1984):

$[[\textit{Dan is 2 cms taller than Sam}]]_c = 1$ iff

$f_{\text{tall},c}([[\textit{Dan}]]_c) - f_{\text{tall},c}([[\textit{Sam}]]_c) = 2 \text{ cms}$

- ⇒ It cannot apply to two dimensions simultaneously
- ⇒ It cannot operate on ordinal (non-difference) scales

Why are nominal scales ordinal?

The nominal-dimensions' weights are context dependent. The variance in weights preserves the ordering between entities' degrees, but not the differences between them.

Table 1: Predicate types		
Ratio	Interval (difference)	Ordinal
Knowledge about ratios: <i>Dan is twice as tall as Sam</i> <i>Dan is twice as happy as Sam</i>	No knowledge about ratios: <i>#Dan is twice as short as Sam</i> <i># Dan is twice as unhappy ...</i>	No knowledge about ratios: <i>#Tweety is twice as a bird as Tan</i> <i>#...twice as "bald and tall" as Tan</i> (where <i>twice</i> takes scope over <i>and</i>)
Knowledge about intervals: <i>Dan is 2 inches taller than Sam</i>	Knowledge about intervals: <i>Dan is 2 inches shorter than ...</i>	No knowledge about intervals: <i>#Tweety is more a bird than Tan</i>
Knowledge about ordering: <i>Dan's degree (the extent it satisfies the property) 'tall' is bigger than Sam's</i>	Knowledge about ordering: <i>Dan's degree in (the extent it satisfies the property) 'short' is bigger than Sam's</i>	Knowledge about ordering: <i>Tweety's degree in (the extent it satisfies the property) 'bird' is bigger than Tan's</i>

More selects one dimension (1/6)

According to my proposal:

1. The natural interpretation of *more P and Q* is *more P & more Q*;
2. The natural interpretation of *more P or Q* is *more P or more Q*

More modifies each conjunct/disjunct separately, operating on one dimension at a time.

More selects one dimension (2/6)

Method

35 Hebrew speaking subjects read descriptions like the following:

Sam weighs 100kg	Dan weighs 70 kg	(i.e., Sam is <i>fatter</i>)
Sam is not bald	Dan is bald	(i.e., Dan is <i>balder</i>)

Followed by the questions:

1. Sam is *more “fat and bald”* than Dan Yes/No
2. Dan is *more “fat and bald”* than Sam Yes/No
3. Dan and Sam are *equally “fat and bald”* Yes/No

More selects one dimension (3/6)

Sam weighs 100kg Dan weighs 70 kg (i.e., Sam is *fatter*)
Sam is not bald Dan is bald (i.e., Dan is *balder*)

Prediction:

If *more bald and tall* = *balder and taller*
equally bald and fat = *equally fat and equally bald*.

As Sam is fatter but Dan balder, subjects will say that:

1. Sam is **not** *more “fat and bald”*
2. Dan is **not** *more “fat and bald”*
3. They are **not** *equally “fat and bald”*

More selects one dimension (4/5)

Results: **90%** of the subjects answered as predicted.

Conclusion:



more bald and tall = balder and taller

equally bald and fat = equally fat and equally bald.

Similar patterns with: *Equally fat* characters, one balder.

The conj. adj. Typical wrt flying and singing.

More selects one dimension (5/6):

Prediction:

Derived comparatives of multidimensional adjectives (like *healthier* and *sicker*) are conjunctive/ disjunctive:

Tweety is more typical wrt flying

Tan is more typical wrt perching and squeaking

Who is more typical (wrt flying, perching, squeaking)?

None \Rightarrow *more typical* = more in every respect

More selects one dimension (6/6):

Results:

Derived comparatives are conjunctive



Conjunctive	-With a non negated P	With a negated P	Total, Google
<i>healthier</i>	14	1	75
<i>better</i>	11	0	60
<i>sicker</i>	1	0	10
<i>worse</i>	7	1	60
Total	33	2	205

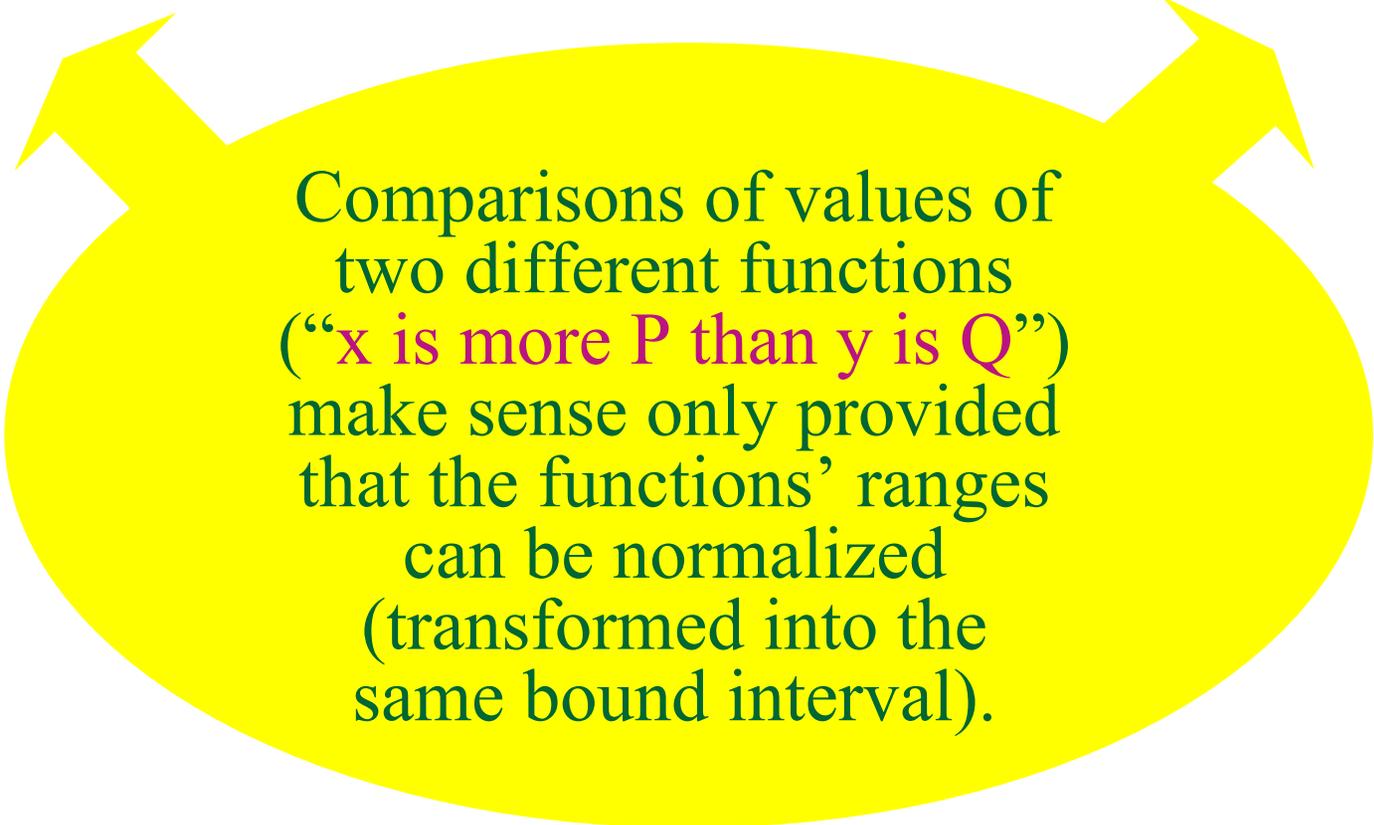
(*bad* is disjunctive: Non negated 1, negated 6, total 30)

Are negated comparatives also conj.?

- 1) 'If we are talking about personality traits we can see that children growing up in the same home are **not more similar** to each other than other children.
- 2) The student texts are, thus, to **not more similar** either variety with respect to the measured parameters
- 3) A key assumption of the twin method is that MZ twins are **not more similar** on trait-relevant environmental factors than DZ twins

Perhaps as disjunctive they will not be sufficiently informative??

More in comparisons between predicates (1/3)



Comparisons of values of two different functions (“x is more P than y is Q”) make sense only provided that the functions’ ranges can be normalized (transformed into the same bound interval).

Example:

Dan is better in mathematics than in literature if Dan's marks in these two fields are, say, 5 and 4, respectively, on *a shared six-point scale*.

More in comparisons between predicates (2/3)

Nouns

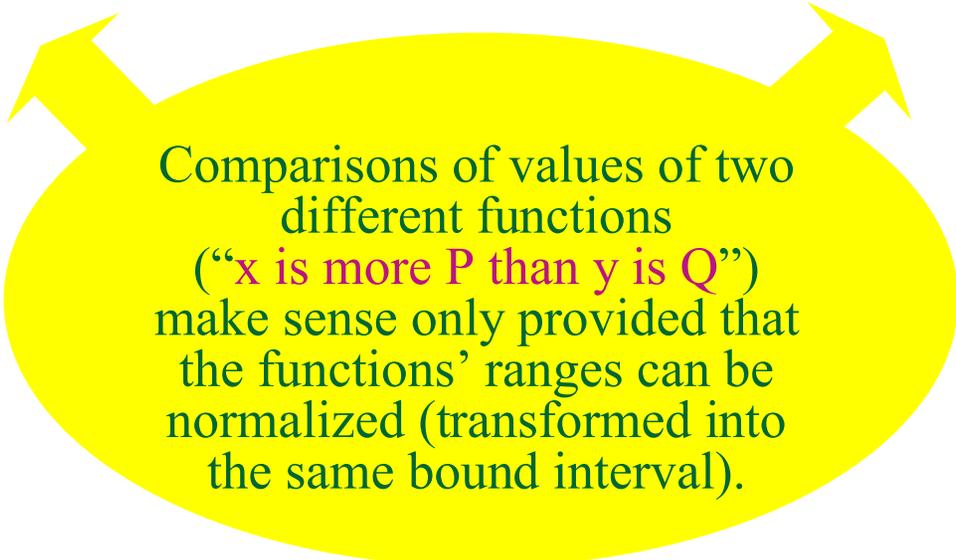
Tweety is more a horse than a bird

This is more a table than a wall

The range of nominal degree functions is readily normalized
(They are based on averaging on values of different functions).



:



Comparisons of values of two different functions
("x is more P than y is Q")
make sense only provided that the functions' ranges can be normalized (transformed into the same bound interval).

More in comparisons between predicates (3/3)

Nouns

Tweety is more a horse than a bird

This is more a table than a wall

The range of nominal degree functions is readily normalized (They are based on averaging on values of different functions).

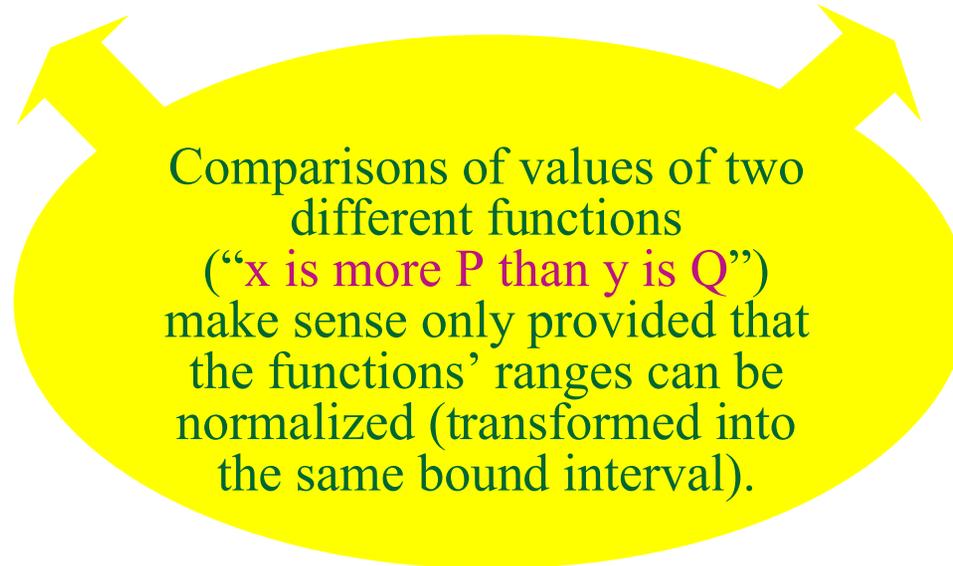
Adjectives

??Tweety is more happy than tall

Adjectives are not mean-based (not readily normalized), so they occur less freely in such comparisons



:



Conjunctive/Disjunctive \neq Total/Partial

Kennedy and McNally (2005):

Wet is ‘**partial**’: Even minimally wet entities are *wet*.

Dry is ‘**total**’: Only maximally dry entities are *dry*.

Tall is ‘**relative**’: Its standard is context dependent

The Total/Partial distinction is **per a dimensions**

The conj./disj. distinction is **not**

(it’s about the way judgments of membership in all the dimensions together determine membership in the adjective).

Tests for standard type

(Rotstein and Winter 2004; Kennedy and McNally 2004)

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).

- 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.
- b, Rod A is longer than Rod B $\neg\Rightarrow$ Rod A is long.
 $\neg\Rightarrow$ Rod B is not long.

Predictive factors

Are there cues for distinguishing between
disjunctive and conjunctive adjectives

??

Standard-type and Polarity? (1/2)

Conjunctive	Polarity + Standard type	Disjunctive	Polarity + Standard type
<i>Healthy</i>	Positive + Relative or total	<i>Sick</i>	Negative + Relative or partial
<i>Typical</i>		<i>Atypical</i>	
<i>Normal</i>		<i>Abnormal</i>	
<i>Identical</i>		<i>Different</i>	
<i>good</i>		<i>bad</i>	

Standard-type and Polarity? (2/2)

Conjunctive	-With a non negated P	With a negated P	Total, Google	Standard type / Polarity
<i>familiar</i>	28	1	70	Relative or partial
<i>unfamiliar</i>	20	0	70	negative

Standard-type and polarity are not reliable predictors of conj/disj.

To do

- Establish the magnitude of the conj/disj phenomena (study with corpus methods many more adjectives).
- Look for predictive factors
- Test (and establish or refute) the neural hypothesis
- Test (and establish or refute) the syntactic hypotheses

THANK YOU!

Any comments are most welcomed:

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