Equatives in Turkish –

scalar and non-scalar comparison across categories

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Institut für Linguistik, Frankfurt/Main, 16. Juli 2020

Preface

(1)a. *Anna is as tall Berta.* scalar

b. *Anna's dress is like Berta's.* non-scalar

c. *Anna runs like Berta does.* non-scalar

Terminology (Haspelmath & Buchholz 1998)

Anna	is	as	tall	as	Berta
Anna	ist	so	groß	wie	Berta
comparee		**parameter marker**	**parameter**	**standard marker**	**standard**

Preface

DFG project *Similarity* , part I

- German demonstrative *so*
- *so* is a similarity demonstrative – "*like this*"

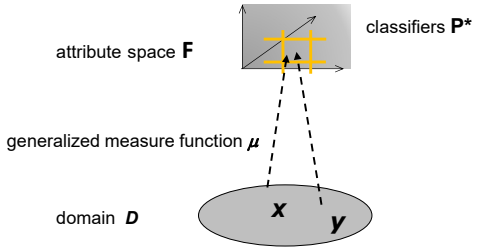
(a) speaker points to a person: scalar
So groß ist Anna auch.
'Anna is this tall, too.'

(b) speaker points to a car: non-scalar
So ein Auto hat Anna gekauft.
'Anna bought a car like this.'

(c) speaker points to someone running: non-scalar
So läuft Anna auch.
'Anna runs like this, too.'

The similarity framework

- multidimensional attribute spaces F
- generalized measure functions [D → F]
- define a notion of granularity – indistinguishability of points in F



Two individuals are **similar** if their images under **μ** are indistinguishable in F

- "Generalized degree semantics"
- Multidimensional spaces are auxiliary devices to measure similarity

Equatives

DFG project Similarity, part II

- German expression *wie*
- *wie* denotes similarity "*like this*"
- core usage in equative comparison

but see Zimmermann (to appear)

(2) a. *Anna ist so groß wie Berta.* scalar
'Anna is as tall as Berta.'

b. *Annas Kleid ist so wie Bertas.* non-scalar
'Anna's dress is like Berta's.'

c. *Anna rennt so wie Berta.* non-scalar
'Anna runs like Berta does.'

Hypothesis (in German):
Scalar as well as non-scalar equatives are constructed by similarity

Plan

1. Equatives in English and in German
2. Equatives in Turkish

3. Types of semantics analyses of equatives in the literature
4. Similarity framework

5. Dimensions of comparison
6. Semantics for Turkish equatives

7. Cross-linguistic data (preliminary)

Equatives in English

(1) a. *Anna is as tall / intelligent as Berta.*
b. *Anna has a dress like Berta's.*
c. *Anna runs like Berta does.*

English	adjectival	nominal	verbal
scalar	***as – as***	*as much as*	*as much as*
non-scalar	*in the way*	***like***	***like***
coordination	*like*		

d. *Anna cooks as much soup as Berta did.*
e. *Anna runs as much as Berta does.*
f. *Anna is intelligent in the way Berta is.*

g. *Anna is tall, like Berta.*
h. *Anna has a dress, like Berta.*
h. *Anna runs, like Berta.*

Equatives in German

(2) a. *Anna ist so groß / intelligent wie Berta.*
'Anna is as tall / intelligent as Berta.'
b. *Annas Kleid ist so wie Bertas.*
'Anna's dress is like Berta's.'
c. *Anna rennt so wie Berta.*
'Anna runs like Berta does.'

German	adjectival	nominal	verbal
scalar	***so – wie***	*so – wie*	*so – wie*
non-scalar	*(so) – wie*	**[*so*]– *wie***	**[*so*]– *wie***
coordination	*wie*		

d. *Anna ist so ein Fußballfan wie Berta.*
'Anna is as much of a football fan as Berta is.'
e. *Anna rennt so wie Berta.*
'Anna ran as fast as Berta did.'
f. *Anna ist [so / auf die gleiche Art] intelligent wie Berta.*
'Anna is intelligent in the way Berta is.'

Equatives in Turkish: Adjectives

(3) a. *Anna Berta kadar uzun / zeki.* scalar
A. B. kadar tall / intelligent.Cop3sg
`Anna is as tall / intelligent as Berta.'

b. *Anna Berta gibi zeki.* non-scalar
A. B. gibi intelligent.Cop3sg
`Anna is intelligent in the way Berta is.'

Equatives in Turkish: Nominals

(4) a. *Anna'nın elbisesi Berta'nın-ki kadar.* scalar
A.-Gen dress.Poss3sg B.-Gen-Rel kadar.Cop.3sg
`Anna's dress is as ____ as Berta's.'
(e.g., same length / price)

b. *Anna'nın elbisesi Berta'nın-ki gibi.* non-scalar
A.-Gen dress Poss3sg B.-Gen-Rel gibi.Cop.3sg
`Anna's dress is like Berta's.'
(e.g., with respect to design & color & fabric)

Equatives in Turkish: Verbs

(5) a. *Anna Berta kadar koşuyor.* scalar
A. B. kadar run.3sg.Prog
`Anna runs as ___ as Berta.' (e.g. duration or frequency)

b. *Anna Berta gibi koşuyor.* non-scalar
A. B. gibi run.3sg.Prog
`Anna runs like Berta.' (e.g. w.r.t. style and equipment)

Turkish	adjectival	nominal	verbal
scalar	***kadar***	***kadar***	***kadar***
non-scalar	***gibi***	***gibi***	***gibi***
coordination	*gibi*		

Gibi in adjectival equatives (1)

- *gibi* is compatible with gradable and non-gradable adjectives; *kadar:* only gradables.

  (6) *Anna Berta gibi mezun.*
  'Anna is graduated like Berta' (e.g. through a fake diploma certificate)

- *gibi* allows for different comparison classes, e.g. in (3b), Anna might be a kid and Berta her mother (strongly dispreferred with *kadar*);

- *gibi* blocks degree modifiers like *en az* ('at least'), which are o.k. with *kadar;*

  (7) *Anna en az Berta kadar zeki / *gibi zeki*
  'Anna is at least as intelligent as Berta.'

Gibi in adjectival equatives (2)

- *kadar*, but not *gibi*, may be combined with **measure phrases**. However, with *kadar* the sentence has only a comparative reading:

  (8) (Who is taller, Anna or Berta?)
  Anna 2cm kadar uzun.
  `Anna is approximately 2 cm taller (than Berta)'.

- *kadar*, but not *gibi*, may be combined with **factor phrases**

  (9) *Anna Berta'dan 3 kat kadar (daha) zeki.*
  Anna is around 3 times more intelligent than Berta.

- *kadar* as well as *gibi* equatives entail **Normbezug**

  (10) *Anna Berta kadar / gibi zeki.* ==> both intelligent

Kadar in nominal equatives

Dimensions of comparison are severely restricted by the particular noun/verb;

Anna'nın NN *Berta'nın-ki kadar.*

'Anna's NN is as _____ as Berta's.'

child: age, height, weight (for babies)
NOT smartness, intelligence, speed

house: size, price
NOT age, state of repair, location

clothing: size, price
NOT style, evaluation, same degree of beauty

but *Anna'nın elbisesi Berta'nın-ki kadar güzel.*
Anna's dress is as beautiful as Berta's.

Kadar in verbal equatives

Dimensions of comparison are severely restricted

Anna Berta kadar VV *ediyor.*
`Anna VV as ____ as Berta.'

dance: duration or frequency or talent
NOT ambition, agility, concentration

run: ability, distance, running time, speed
NOT style, manner

sleep: duration,
NOT manner

Dimensions in nominal/verbal equatives

- *kadar* equatives: one dimension only

  (4a) can mean `Anna's dress is as long as Berta's.' or 'Anna's dress is as expensive as Berta's,
  but NOT: 'Anna's dress is as long **and** expensive as Berta's .'

- *gibi* equatives: multi-dimensional

  (4b) can mean `Anna's dress is similar to Berta's w.r.t. design **and** color **and** fabric etc.

- Modification by "from many angles" o.k.:

  (13) *Anna'nın elbisesi birçok yönden Berta'nınki gibi.*
  A.Gen dress.Poss.3sg many way.Abl B.Gen.Rel gibi
  'Anna's dress is like Berta's in many ways.'

Different types of analyses of equatives

Degree-semantic analyses (e.g., Bierwisch 1987, Kennedy 1999)

- tailored for scalar adjectival equatives
- fail to handle non-scalar equatives

scalar perspective

Recently (Hohaus handout 2015):
Quantificational analysis covering degrees and properties
– no access to the standard marker

The kind-based account (Anderson & Morzycki 2015)

- starts from non-scalar equatives
- scalar equatives included via "degree kinds"

non-scalar perspective

Different types of analyses of equatives

Turkish data:
Two different perspectives on equative comparison within the same language.
--> A semantic framework is required that accounts for both strategies (without reducing one to the other).

The similarity-based account

scalar & non-scalar in parallel

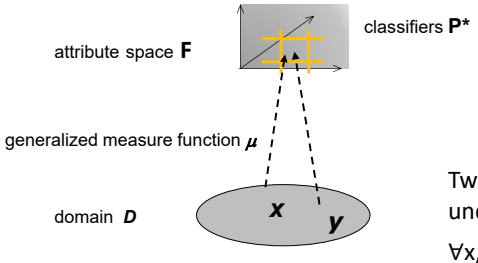
- generalization of degree semantics
- nonscalar equatives: similarity in n-dimensions
  scalar equatives:
  – similarity in one (ordinal) dimension
  – weak linear order one (ordinal) 1-dimension

(Umbach & Gust 2014), (Gust & Umbach submitted)

The similarity-based account in a nutshell

Similarity w.r.t. a representation R given by

- multidimensional attribute space F
- generalized measure functions μ, in [D --> F]
- set of classifiers P*: predicates on points in F (providing granularity)



Two individuals are **similar** if their images under **μ** are indistinguishable in R:

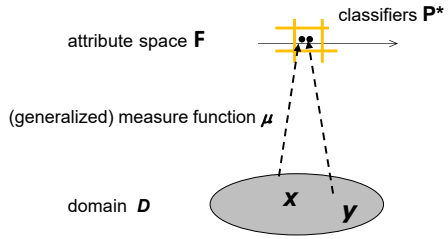
∀x,y∈D :

sim(x, y, R) ≡ ∀p ∈ P*: p(μ(x)) ↔ p(μ(y))

Two ways to do scalar comparison

1. Scalar comparison via similarity:
   use an attribute space F with one ordinal dimension, and a system of predicates on this dimension

   "Are μ(x) and μ(y) indistinguishable w.r.t. F and P?"



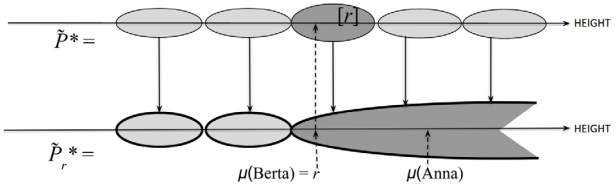
2. Scalar comparison on points:
   use a single ordinal dimension of a given space

   "Is μ(x) ≽ μ(y) ?"

(A)symmetry of similarity

skip?

- Similarity is an equivalence relation (for a discussion of the position in Tversky 1977 see Gust & Umbach submitted)
- In particular contexts, *Anna is as tall as Berta* is interpreted such that Anna's height exceeds Berta's height – "*at least* reading"
- The at least reading is accounted for in the similarity framework by means of a ***quasi-exactly* interpretation,**
  (Gust & Umbach submitted)



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Dimensions of comparison

English/German

Adjectival comparison
Anna is as tall as Berta --> dim: height

Nominal comparison
Anna's dress is like Berta's.' --> dims: ?????

Umbach & Stolterfoht (in prep): Series of experimental studies

"What are licit features of comparison?"

Findings:

properties of concepts / internal manner modifier
Japanese car, prepare the chicken in the wok

Dimensions of comparison – Turkish

Adjectival comparison

(3a) *Anna Berta kadar uzun* --> dim: height
`Anna is as tall as Berta.'

(3b) *Anna Berta gibi zeki.* --> dims: ?????
`Anna is intelligent in the way Berta is.'

Nominal comparison

(4a) *Anna'nın elbisesi Berta'nın-ki kadar.* --> dim: ??????
`Anna's dress is as __ as Berta's.'

(4b) *Anna'nın elbisesi Berta'nın-ki gibi.* --> dims: ?????
`Anna's dress is like Berta's.'

Dimensions of comparison

Standard idea :
"Adjectives denote measure functions <e, d> / dimension of comparison"

			dimension(s)	
English	scalar	adj	1	explicit
	nonscalar	nouns, verbs	n	implicit
Turkish	scalar	adj	1	explicit
		nouns, verbs	1	implicit
	nonscalar	adj	n	implicit
		nouns, verbs	n	implicit

→ adjectives cannot directly be interpreted as measure functions

→ adjectives, nouns and verbs are associated with dimensions

scalar comparison: 1 ordinal dimension
nonscalar comparison: n dimensions of arbitrary scale level

Semantics

Adjectives, nouns and verbs are of type <e,t> or <ev, t>

Let *DIM* denote the set of dimensions

$DIM_{Metric} \subset DIM$ (set of dimensions)

Let ***o*** be a variable over predicates of type <e,t> or <ev,t> (PRED)

There are context-dependent partial functions

ds: $o_{PRED} \rightarrow f \in DIM_{Metric}$ 1 ordinal dimension

dns: $o_{PRED} \rightarrow F \subset DIM$ n dimensions of arbitrary scale level

Semantics

Measure functions μ_f , μ_F

μ_f : $x_{<e,t>/<ev,t>} \rightarrow d \in f$ (degrees)

μ_F : $x_{<e,t>/<ev,t>} \rightarrow d \in F$ (points in n-dim spaces)

kadar: weak linear order in a single ordinal dimension

[[*kadar*]] = λo λy λx. ***AS***(x, y, *ds(o)*)

where ***AS***(x, y, *ds(o)*) iff $\mu_{ds(o)}(x) \geq_{ds(o)} \mu_{ds(o)}(y)$

gibi: similarity relation in a multidimensional space

[[*gibi*]] = λo λy λx. ***SIM***(x, y, *dns(o)*)

where ***SIM***(x, y, *dns(o)*) iff $\mu_{dns(o)}(x) \approx_{dns(o)} \mu_{dns(o)}(y)$

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   allows for scalar as well as non-scalar equatives across categories, depending on the standard marker

7. Cross-linguistic data (preliminary)

Equatives across languages

What about English and German?

English	adjectival	nominal	verbal
scalar	***as – as***		
non-scalar		***like***	***like***

as linear order

like similarity

German	adjectival	nominal	verbal
scalar	***so – wie***		
non-scalar		[***so***]***– wie***	[***so***]***– wie***

wie similarity

Equatives across languages

Krasikova & Penka, handout, 2012

Two strategies for scalar equatives

- quantificational (PM → quantifier on degree set)
  e.g. English *as … as*
- correlative analysis: Standard is a free relative clause picked up by PM (demonstrative), e.g. German *so … wie*
- finding

Language	NPIs	negative indefinites	measure phrases
English	OK	?*	OK
Dutch[1]	?	?*	?
German	*	OK	*
Italian	*	OK	*
Slovenian	*	OK	*
Bulgarian	*	OK	*
Polish	*	OK	*
Czech	(–)	OK	*

Equatives across languages

- standard marker for scalar vs. non-scalar comparison – distinct?
- adj / nouns / verbs -- scalar vs. non-scalar ?

	adjectival	nominal	verbal
scalar			
non-scalar			

German pattern (roughly) : Polish, Russian, Czech, Spanish, …

English pattern: French, Dutch, …

Half of the Turkish pattern: Mandarin Chinese

adjectival equatives gēn-constructions "along with" 1 dim

xiàng-constructions "similar / like" 1/n dim

(Linmin Zhang, poster at SuB 24, 2019)

Conclusion

A semantic analysis of equatives

- has to include scalar and non-scalar comparison
- has to possibly distinguish scalar and non-scalar comparison
- has to be sensitive to the standard marker(s)

What other cross-linguistic surprises are out there?

References

Anderson, C. and Morzycki, M. (2015) Degrees as kinds. NLLT 33:79 -821.

Beck, S. & Krasikova, S. & Fleischer, D. et al. 2010. Crosslinguistic variation in comparison constructions. In J. van Craenenbroeck & J. Rooryck (eds.) *Linguistic VariationYearbook* 2009.

Bierwisch, M. (1987) Semantik der Graduierung. In M.Bierwisch & E. Lang (eds.) *Grammatische und konzeptuelle Aspekte von Dimensionsadjektiven*. Akademie Verlag Berlin, 91-286.

Gust, Helmar & Carla Umbach (submitted) A qualitative similarity framework for the interpretation of natural language similarity expressions.

Haspelmath, M. & O. Buchholz (1998) Equative and similative constructions in the languages of Europe. In J. van der Auwera & D. Ó Baoill (eds.) *Adverbial constructions in the languages of Europe*. Mouton de Gruyter, 277–334.

Haspelmath, M. (to appear) Equative constructions in world-wide perspective. In Y. Treis & M. Vanhoeve, (eds.) *Similative and Equative Constructions: A Cross-linguistic Perspective.* Amsterdam: Benjamins.Hofstetter, S. (2009) Comparison in Turkish: A Rediscovery of the Phrasal Comparative. Proceedings of SuB 13, University of Stuttgart.

Hohaus (2015) A semantics for degree and property equatives. Handout.

Kennedy, C. (1999) *Projecting the Adjective*. Garland Press, New York.

Krasikova, S. & D. Penka (2012) A cross-linguistic perspective on the semantics of equatives. SemPrag Forschungskol-loquium, Universität Konstanz, handout.

References

Prasada, S. & E. Dillingham (2006) Principled and statistical connections in common sense conception. Cognition 99, 73-112.

Pustejovsky et al. (eds) (2013) Advances in Generative Lexicon Theory. Springer.

Sassoon, G. (2017) Comparisons of nominal degrees. *Language* 93(1), 153-188.

Solt S. (2015) Q-Adjectives and the Semantics of Quantity. Journal of Semantics 32 221 -273.

Tversky, A. (1977) Features of similarity. Psychological Review 84: 327-352.

Umbach, C. & H. Gust (2014) Similarity demonstratives. *Lingua* 149:74-93.

Umbach, C. & H. Gust (in print) Grading similarity. In Gamerschlag et al. (eds) Cognitive Structures.

Umbach, C., S. Hinterwimmer, H. Gust (to appear) German 'wie'-complements: Manners, methods and events in progress.

Umbach, C. & B. Stolterfoht (in prep.) Ad-hoc kind formation by similarity.

Zimmermann, Ilse (to appear) Mit *wie* und *kak* eingeleitete Nebensätze. (see also https://www.leibniz-zas.de/de/personen/details/zimmermann-ilse/publikationen/)