*Language and Ontology*

Friederike Moltmann

University of Padua

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Handout 8

**Tropes and their Roles in the Semantics of Natural Language**

**1. The philosophical traditions regarding tropes**

Some ‘standard’ examples of tropes

the redness of the apple, the wisdom of Socrates, the beauty of the landscape, John’s gentleness

Two kinds of intuitive descriptions of tropes

[1] Tropes are concrete manifestations of properties in individuals, ‘concretized properties’, ‘particularized properties’

[2] Tropes are ‘abstract particulars’: the things you get when you abstract away from all the properties an individual has except for one, if you attend to only one of the properties an object has

Tropes in contemporary (as well as ancient and medieval) metaphysics primitives, not defined in terms of properties and individuals

The term ‘trope’: Williams (1953)

contemporary alternatives: ‘abstract particulars’ (Campbell), ‘attribute instances’ (Mertz), ‘modes’ (Lowe), moments (Mulligan, Simons, Smith 1984), ‘cases’ (Woltersdorff) historical alternatives: ‘accidents’ (Aristotle),’ modes’ (medieval and upwards)

Aristotle (and Plato)

Aristotle: *four-category ontology*

individuals (*substances*) – universals with individuals as instances (secondary substances) tropes (*accidents* -- instances of accidental properties in individuals) – universals: *qualities* modern four-category ontologist: Lowe

Medieval philosophy

*nominalism*: individuals and tropes as the only real entities

universals as predicates (nominalism) or mental concepts (conceptualism) (Ockham) four-category or two-category ontology

Early modern philosophy: Spinoza, Locke, Husserl

Contemporary metaphysics

interest in tropes for the purpose of a *one-category ontology* (Williams, Campbell, Bacon, Simons): individuals and universals reduced to tropes

individuals: bundles of *compresent* or *concurrent* or *co-located* tropes

universals: collections of *exactly similar* or *resembling* tropes

the foundations of the world: tropes, compresence, resemblance

Further roles of tropes in metaphysics causal relata (Williams,..)

truth makers (Mulligan/Simons/Smith)

Further roles of tropes in the philosophy of mind

objects of direct perception

qualia as tropes (Williams)

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**2. Properties of tropes**

**2.1. Concreteness**

Temporal location / duration

Spatial location?

Object of perception: tropes as the immediate objects of perception

Object of causal relation

Other properties of concreteness

Description-independence

(1) a. Mary described John’s happiness.

Part-whole structure

(1) b. part of John’s happiness

Measurable extent

(1) c. the amount of anger Mary displayed

Tropes referred to with predicates, however determinable, unspecific, quantificational, are always maximally specific.

Tropes must be grounded in instances of natural (sparse) properties, but not facts, states or states of affairs; there are no determinable tropes.

**2.2. Similarity and numerical identity**

*Is*: numerical identity

*Is the same as / is identical to*: close or exact similarity

(2)a. ?? Socrates wisdom is Plato’s wisdom.

b. Socrates’ wisdom is the same as Plato’s wisdom.

c. Socrates wisdom is Xanthippe’s husband’s wisdom

(3) a. ?? The softness of this pillow is the softness of that pillow.

b. The softness of this pillow is the same as the softness of that pillow.

(4) a. ?? The length of this book is the length of that book.

b. The length of this book is the same as the length of that book.

c. The length of this book is identical to the length of that book.

(5) a. ?? The color of this car is the color of that car.

b. The color of this car is the same as the color of that car.

c. The color of this car is identical to the color of that car.

d. This color is the color Sue had mentioned.

Similarity

Tropes instantiating the same property are similar.

Tropes instantiating the same natural property are exactly similar.

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**3. Tropes and predication**

Difference between predication and instantiation: Properties

* have tropes as instances
* are predicated of objects

(6) a. Socrates is wise.

b. ??? Socrates’ wisdom is wise.

(6’) a. the shirt is white.

b. The whiteness of the shirt is white.

Two views:

* Holds for adjectival universals / qualities, but not substantive universals / secondary substances
* Holds for all universals

First view reflected in kind terms in natural language

(7) a. Socates’ wisdom is admirable.

b. Wisdom is admirable.

(7’) a. The water in the glass is transparent.

b. Water is transparent.

(8) a. That giraffe is tall.

b. Giraffes are tall.

Kind terms

‘water’: a kind of liquid

‘giraffes’: a kind of animal

‘wisdom’: a kind of trope

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**4. Types of Tropes**

**4.1. Types of trope-referring terms**

Trope terms with adjective nominalizations

medieval philosophers, Strawson (1959), Woltersdorff (1970):

*the redness of the apple, the roundness of the object*

Trope terms based on sortal predicates

*‘Socrates humanity’, John’s fatherhood*

Trope-referring terms with trope sortals

*the quality of the paper, the color of the car,*

More generally: abstract N + referential complement: *trope-referring term*

but *this* + abstract sortal: *type demonstrative*

(9) a. I have never seen this color.

b. ?? I have never seen the color of this car.

**4.2. Quantitative tropes**

Examples: the degree of Mary’s happiness, the extent of John’s anger, John’s weight, the length of the stick, the number of planets

Criteria for tropes reference Similarity:

(10) a. The number of men is the same as the number of women.

b. ??? The number of men is the number of women. Properties of concreteness:

(11) a. John noticed the high number of women.

b. The number of accidents was the cause of the delay.

Number tropes

(12) a. The number of planets is eight.

Against reference to abstract numbers (Moltmann 2013a, b)

(12) b. ??? The number of planets is the number eight.

c. ??? Which number is the number of planets?

Typical trope predicates: *exceed, high, negligible*:

(13) a. The number of women is high / negligible.

b. The number of women exceeds the number of men.

(14) a. ?? Eight is high / negligible.

b. ?? Eight exceeds six.

Arithmetical operations on abstract numbers and on tropes

(15) a. ??? the successor of the number of planets

b. The number of planets plus the number of moons of evening stars is nine.

c. The number of planets minus the number of moons of evening stars is nine.

**4.3. Complex tropes**

Relational tropes

(16) a. the love between John and Mary

b. the personal relation between John and Mary

c. the difference between John and Mary

d. the diplomatic relations among the countries Collections of tropes

(17) a. John’s anger and Bill’s anger are very different.

b. John compared two things, the beauty of the picture and the beauty of the landscape.

Tropes instantiating complex properties

(18) John’s mean and injust behavior toward Mary Higher-order tropes

(19) a. the unexpectedness of the beauty of the landscape

b. the unusualness of the lightness of the stone Higher-order relational tropes

(20) the difference / similarity between the beauty of the picture and the beauty of the

landscape

Quasi-relational tropes

(21) a. the relation between John and Mary

b. the relatedness of John to Mary

A different kind of thing: qua objects (Kit Fine)

(22) a. John’s fatherhood

b. John as a father

**4.4. Variable tropes**

Reference to entities with variable trope manifestations

(23) a. Mary’s competence has increased / diminished over time.

b. The beauty of the landscape has changed.

c. John’s weight has diminished.

d. The number of students has increased.

Reference to variable entities is more general

Variable events:

(24) a. The annual ball has changed over the years.

b. The New Year celebrations are becoming more spectacular every year. Variable objects:

(25) a. John changed his trainer.

b. The president of the US is elected every four years. Another example of a variable trope:

(26) The temperature is rising.

Tropes with variable bearers

(27) The number of people that fit into the bus exceeds the number of people that fit into the

car.

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**5. Difficulties for the Standard View of Trope Reference**

**5.1. Variable tropes and tropes with variable bearers**

Trope-referring terms with standard functional NPs

(28) a. The decrease of the number of students caused concern.

b. The rise of the temperature caused the drought.

Variable objects as referents of NPs with intensional relative clauses

Applicability of object-related predicates

(29) a. John counted the screws that were missing.

b. John described the assistants that the company needed to hire.

c. John enumerated the things that he needed to buy.

Apparent trope-referring terms

*The competence of the assistant John needs to hire, the impact of the book John needs to write, the number of people that fit into the bus*

Evidence for a trope-reference

Predicates of perception and causation:

(30) a. John noticed the number of screws that are missing.

b. The number of screws that are missing caused the table to fall apart.

c. Mary was astonished by the length of the paper John needs to write

d. Mary noticed the amount of repair that is required to make the machine work again. Predicates of similarity and identity:

(31) a. The number of women in the room is the same as the number of men in the room.

a’. ?? The number of women in the room is the number of men in the room.

b. The number of books Mary wants to write is the same as the number of books

Sue wants to write.

b’. ?? The number of books Mary wants to write is the number of books Sue

wants to write.

Predicates of quantitative comparison and evaluation:

(32) a. The originality of the book John wants to write exceeds by far the originality of

any book John has so far written.

b. The elegance of the dress that the bridesmaid needs should not exceed the

elegance of the dress that the bride will wear.

c. The height of the desk John needs exceeds the height of the desk John is

using right now.

d. John compared the number of books Mary wants to write to the number of

books Sue wants to write.

(33) a. The number of people that fit into the bus is high.

b. The amount of work John has to do is enormous.

Reference to tropes with variable bearers

(34) a. The number of people that fit into the bus exceeds the number of people that fit into

the car.

Reference to tropes whose variability is driven by the variability of the bearer

b. The impact of the book John needs to write must be greater than the impact

of the book he has already written.

(35) a. For a variable object e,

impactw, t(e) = the variable trope o such that for any circumstance s in which e has a manifestation F(e, s), impactw, t(F(e, s)) = the manifestation of o in

b. A variable object f has a (time and world-relative) property P at a time t in a world w

if f’s manifestation at t in w has P.

**5.2. Polar adjectives and the semantics of comparatives**

*John’s weakness - John’s strength*

*the darkness of the room - the lightness of the room*

What makes the exceed-relation apply in a certain way?

The application of the exceed-relation should permit an analysis of the comparative using tropes (rather than degrees):

(36) a. John’s happiness exceeds Mary’s happiness.

b. John is happier than Mary.

(37) a. The darkness of the cellar exceeds the darkness of the kitchen.

b. The cellar is darker than the kitchen.

Single reading of the *exceed*-predicate with adjective nominalizations: Only ‘degree-related’ reading available for (37a)

(37a) cannot be read as:

because the cellar is larger than the kitchen

because the cellar has been darker for longer than the kitchen

because the cellar’s darkness is more typical / expected / desired than the darkness of the kitchen.

The problem of direction

(38) a. John is stronger than Mary.

b. John’s strength exceeds Mary’s strength.

(39) a. Mary is weaker than John.

b. Mary’s weakness exceeds the weakness of John.

John’s strength = John’s weakness Mary’s strength = Mary’s weakness

(40) a. John’s strength exceeds Mary’s strength.

b. Mary’s weakness exceeds John’s weakness.

(41) John’s weakness is John’s strength.

Mary’s weakness = Mary’s strength.

John’s weakness exceeds Mary’s weakness.

Same problem of adjectives of intensity:

(42) John’s strength is great.

Mary’s strength is negligible.

John’s strength exceeds Mary’s strength.

(43) Mary’s weakness is great.

John’s weakness is negligible.

Mary’s weakness exceeds John’s weakness.

Conclusions

Adjective nominalizations give the direction of comparison; they convey an ordering among tropes.

Adjective nominalizations involve a comparative trope concept as part of their meaning. The comparative concept is more fundamental than the one-place trope concept.

Adjective nominalizations do not refer to standard tropes, but to ‘nonstandard tropes’: tropes as ordered with respect to other tropes of the same sort in a certain way.

What are the non-standard tropes?

[1] Relational tropes

Mary’s weakness: the physical condition of Mary being more than physical conditions c1, c2,

.. and being less than physical conditions c’1, c’2, …

Mary’s strength: the physical condition of Mary being less than the physical conditions c1, c2,

.. and being more than the physical conditions c’1, c’2, …

Problem: why should *exceed, high*, etc apply to such a relation?

[2] Quasi-relational tropes

Good candidate for a quasi-relational trope:

John’s tallness: the exceeding of the standard by John’s height

But ?? *John’s tallness exceeds Bill’s tallness.*

[2] Qua tropes

Mary’s weakness: Mary’s physical condition qua being a weakness

Mary’s strength: Mary’s physical condition qua being a strength Allows explanation of the application of exceed-relation

Qua objects inherit properties from their base:

(44) a. Mary is weaker than John.

b. Mary’s physical condition qua weakness exceeds John’s physical condition

qua weakness.

c. Mary’s physical condition exceeds John’s physical condition in weakness.

John’s strength vs John’s weakness

t: the physical condition that grounds the truth of *John is strong* and of *John is weak*. John’s strength = t qua ‘strong’,

t qua x[x < t’, x < t’’, x < t’’’, ….] John’s weakness = t qua ‘weak’

t qua x[x > t’, x > t’’, x > t’’’,….]

Degrees associated with an adjective A

equivalence classes of tropes wrt the ordering given by A

Another application: de-adjectival nominalizations vs trope sortals

(45) a. the redness of the apple - the color of the apple / the coloredness of the apple

b. the form of the figure - the rectangularity of the figure

Refer to the same tropes?

standard view: yes

But different properties:

Similarity:

(46) a. The redness of apple 1 is the same as the redness of apple 2.

b. The color of apple 1 is the same as the color of apple 2.

c. The coloredness of apple 1 is the same as the coloredness of apple 2.

Evaluation

(47) a. The whiteness of the wall exceeds the whiteness of the ceiling.

b. ?? The color of the wall exceeds the color of the ceiling.

(48) a. The form of figure 1 is better than the form of figure 2.

b. ?? The rectangularity of figure 1 is better than the rectangularity of figure 2.

**5.3. Partial vs. total adjectives**

dangerous – safe, open – closed, angular – round, bent – straight, unclear - clear

*dirty* vs *clean*:

(49) a. The glasses are dirty.

b. The glasses are clean.

(50) a. the dirtiness of the glasses / the glass

b. the cleanliness of the glasses / the glass

*dirty*: having some dirt somewhere

*clean*: having no dirt anywhere.

Partial and total adjectives describe quantificational tropes D: having dirt

instances of D: *base tropes*

(51) a. [*dirty*] = {<t, d> | t = f( x[ x’< x t’ (D(t’) & bearer(t’) = x’] & bearer(d, t)]}

b. [*clean*] = {<t , d> | t = f(x[ x’ < x  t’ (D(t’) & bearer(t’) = x’] & bearer(d, t))]}

A dirtiness trope: trope that is the instance of the property of having some dirt in some part

A cleanliness trope: trope that is the instance of the property of having no dirt anywhere.

x is dirtier than y:

x has more dirty parts than y.

x has a part with a greater degree of dirtiness than that of an equal part of y.

Dirtiness and cleanliness scales

Groundedness of tropes: at least one of the dirt-trope quantified over is part of the dirtiness trope

t < t’: maximal d, D(d), that is part of t is smaller (given its bearer) than maximal d D(d) that is part of t’ or, given same-size bearers, maximal d D(d) < max(D , where < is less intense than.

x is more clean than y --/🡪 x is clean

*clean*(pos): relation between maximal cleanliness tropes and objects

By contrast: *dirty*(pos): relation between any dirtiness tropes and objects

Nominalizations that refer to base tropes

(52) a. the danger of x,the dangerousness of x

b. the spot of x, the ‘spottedness’of x

c. the unclarity of the paper, the unclarities of the paper

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