Tropes, Events, and States in the Semantics of Natural Language

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Handout 3

Difficulties for the Standard View of Trope Reference

1. Variable Tropes and tropes with variable bearers

<u>Trope-referring terms with standard functional NPs</u>

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

   b. The rise of the temperature caused the drought.

<u>Variable objects as referents of NPs with intensional relative clauses:</u>

Applicability of object-related predicates

(2) 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.

<u>Apparent trope-referring terms</u>

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

<u>Evidence for a trope-reference</u>

Predicates of perception and causation:

(3) 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:

(4) 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:

(5) 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.

(6) 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

(7) 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

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

     he has already written.

(8) a. For a variable object e,

    $\text{impact}^{w,\,t}(e)$ = the variable trope o such that for any circumstance s in which e has a

    manifestation $F(e, s)$, $\text{impact}^{w,\,t}(F(e, s))$ = 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.

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):

 (9) a. John's happiness exceeds Mary's happiness.

    b. John is happier than Mary.

 (10) 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 (10a)

(10a) 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

(11) a. John is stronger than Mary.

    b. John's strength exceeds Mary's strength.

(12) 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

(13) a. John's strength exceeds Mary's strength.

    b. Mary's weakness exceeds John's weakness.

    c. John's weakness is John's strength.

    d. Mary's weakness = Mary's strength.

    e. John's weakness exceeds Mary's weakness.

Same problem of adjectives of intensity:

(14) John's strength is great.

    Mary's strength is negligible.

    John's strength exceeds Mary's strength.

(15) Mary's weakness is great.

    <u>John's weakness is negligible.</u>

    Mary's weakness exceeds John's weakness.

<u>Conclusions:</u>

- 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.

<u>What are the non-standard tropes?</u>

[1] Relational tropes

Mary's weakness: the physical condition of Mary being more than physical conditons c_1, c_2, .. and being less than physical conditions c'_1, c'_2, …

Mary's strength: the physical condition of Mary being less than the physical conditons c_1, c_2, .. 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

(16) ?? 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:

(17) 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 $\lambda x[x < t', x < t'', x < t''', ...]$

John's weakness = t qua 'weak'

t qua $\lambda x[x > t', x > t'', x > t''',....]$

Degrees associated with an adjective A

equivalence classes of tropes wrt the ordering given by A

Another application: de-adjectival nominalizations vs trope sortals

(18) 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:

(19) 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

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

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

(21) 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.

3. Partial vs. Total adjectives

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

dirty vs *clean*:

(23) a. The glasses are dirty.

    b. The glasses are clean.

(24) 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*

(25) a. [*dirty*] = {<t, d> | t = f(λx[∃x'< x ∃t' (D(t') & bearer(t') = x'] & Bearer(d, t)]}

b. [*clean*] = {<t , d> | t = f(λx[∀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:

1. x has more dirty parts than y.

2. 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

 (26) 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