

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

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Handout 4

## **Tropes, Events, States and their Relation to Space and Time**

### **1. Events**

1. Particulars (as opposed to universals)
2. Are generally concrete: in space and time, causal related, perceivable
3. Have an internal structure, are fully specific

#### Events vs. facts

- (1) a. John described Mary's walk home.  
b. ?? John described the fact that Mary walked home.
- (2) a. John compared Mary's walk to Bill's walk.  
b. ? John compared the fact that Mary walked home to the fact that Bill walked home.
- (3) a. John watched Mary's walk home.  
b. ?? John watched the fact that Mary walked home.

#### Mereology of events

- (4) All of the war took place in two cities.

#### Semantic parallels between tropes and events

1. introduced by predicates
2. arguments of modifiers (adjectival: tropes, adverbial: events)
3. referents of nominalizations
4. Extended Davidsonian semantics seems applicable to tropes as to events:  
events as implicit arguments of verbs, tropes as implicit arguments of adjectives  
adverbials as predicates of events, adjective modifiers as predicates of tropes

- (5) a. John walked quickly.  
 b.  $\exists e(\text{walk}(e, \text{John}) \ \& \ \text{quickly}(e))$  (Davidson)  
 c.  $\exists t(\text{red}(t, \text{the rose}) \ \& \ \text{deeply}(t))$
- (6) a. [*the rose's deep redness*] =  $\iota t[\text{red}(t, \text{the rose}) \ \& \ \text{deep}(t)]$   
 b. [*John's quick walk*] =  $\iota e[\text{walk}(e, \text{John}) \ \& \ \text{quick}(e)]$

### Events as tropes?

#### Properties of (first-level) tropes not had by events

- properties of 'degree': degree specifications  
 but degree modifiers with verbs like *love, believe, hate: intensively, deeply, slightly*
- total resistance of location modifiers

#### Properties of events not had by (first-level) tropes

- properties of 'property-change': being quick, being sudden

## **2. Tropes as an ontological category comprising events**

### Three possibilities

[1] Events as tropes involving a complex property

events as tropes based on a 'dynamic property':

the property being P at t and Q at t', for subsequent times t and t' and contrary properties P and Q

How does this fare with 'linguistic' intuitions?

- (7) a. John's happiness and subsequent unhappiness  
 b. John's loss of happiness  
 c. John's becoming unhappy

### The problem:

Predicates applicable to events, but not to tropes based on dynamic properties:

- (8) a. John's loss of happiness / John's becoming unhappy was sudden / was unexpected.  
 b. \* John's happiness and subsequent unhappiness was sudden / was unexpected.

[2] Events as collections of 'tensed' tropes

the collection of two tropes with the same bearer one involving ‘being P at t’ and one involving ‘being Q at t’ for contrary properties P and Q

### The problem

Collective predicates may be true of collections of tropes, but not of events:

- (9) a. John’s happiness and subsequent unhappiness were equally surprising / resembled each other / lasted the same number of years.  
 b. \* John’s loss of happiness equally surprising / resembled each other / lasted the same number of years.

[3] Events as transitions among tropes

Mertz (1996): Events are relational tropes. They are instantiations of temporal or causal relations in two or more tropes.

John’s becoming unhappy: the transition of John’s being happy to John’s being unhappy

John’s killing of Bill: The causation of Bill’s being dead by John’s act

Events as instantiations of temporal transition relations involving tropes:

- (10) The transition of John’s healthiness to John’s illness was sudden / unexpected / happened very quickly.

Events as *second-level relational tropes*

### First option:

The event that is the change from a being P to a being Q:

the instantiation of the transition relation by two tropes, the trope that is the instantiation of P in a and the trope that is the instantiation of Q in a.

### Explaining event properties:

- Why no truth conditions? Transitions are not true or false ...
- relation to time: temporal relations are constitutive of events

### Problem:

Similarity relations:

Similarity among events would require only that that same relation (transition) is instantiated, not that the bearers (the tropes involved) are the same.

Thus, all events would come out exactly similar!

### Second option:

Events as instances of transition relations involving particular property attributions, in times:

A simple example:

the event that is the change from a being P to a being Q:

the instantiation of  $\lambda t t'[P^t(a) \ \& \ t < t' \ \& \ Q^{t'}(a)]$  in subsequent times  $t_1$  and  $t_2$ .

### 3. Events and spatio-temporal location

#### Spatial location

Adverbial and adnominal modifiers:

(11) a. John's walk in the garden

b. John walked in the garden.

Copula construction:

(12) a. ?? John's walk was in the garden.

b. ?? John's walk was yesterday.

'Movable' events:

(13) a. The meeting is in the other room.

b. The meeting moved from one room to another.

c. The meeting was yesterday.

d. The meeting was moved from Tuesday to Friday.

#### Spatial extension: unavailable

Examples from R. Huyghe

(14) a. the two meter long bed

b. ?? the two meter long sleep

(15) a. The bed measures two meters in length.

b. ?? The sleep measures two meters in length.

(16) a. The dancing hall is thirty meters long.

b. ?? The dance is thirty meter long.

(17) a. the surface / dimensions of the table

b. ?? the surface / dimensions of the meal

#### But spatial-size adjectives may be available:

(18) a. the huge hall

b. the huge reunion

- c. the huge ball
  - d. the huge meal
  - e. ?? the huge dancing
  - f. ?? the huge eating
- (19) a. the small room
- b. the small gathering
  - c. ?? the small dance
  - d. ?? the long dance

Many events pose particular problems for their spatial location:

the selling of the bed (over the internet)

John's becoming a father

Xanthippe's becoming a widow

the increase of interests

the merger of the two companies

Different views about events in relation to space:

- Events as space-time regions (Quine)
  - Location of event = location of entire participant
  - Location of event = location of affected participant
  - Events do not have a spatial location (Hacker), but they can be attributed a location indirectly, via the location of their participants.
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**4. Tropes and spatio-temporal location, extension**

The puzzle:

- (20) a. ?? The stone's heaviness is on the table.
- b. ?? the stone's heaviness on the table
  - c. ?? The stone is heavy on the table.

Spatial extension:

- (21) a. The pollution measures several square kilometres.
- b. the huge heaviness of the stone

But

- (22) a. the enormous blackness surrounding John  
 b. the vast pollution that is found in this region

The puzzle:

Tropes, intuitively, do not have a location in space. If events as transitions among tropes, instantiations of qualitative transition relations in times, how can events then have a spatial location?

## 5. The Distinction between Abstract and Concrete States

The Stative Adverb Gap (Katz 2003)

Most stative verbs do not allow for a range of adverbial modifiers: location modifiers, manner adverbials, instrumentals, or comitatives.

Abstract state verbs: *own, know, resemble, be+adjective*

Concrete state verbs: *sit, stand, sleep, lie*

location modifiers:

- (23) a. \* John weighs 100 kilos in Germany.  
 b. \* John owns the horse in Germany.  
 c. \* John knows French in Munich

- (24) a. John was walking in Munich.  
 b. John slept in the house.

Manner modifiers:

- (25) a. \* John weighs 100 kilos with difficulty.  
 b. \* John owns the horse with effort.  
 c. ?? John knows French in an unusual way.

- (26) a. John was walking in an unusual way.  
 b. John stood at the table with difficulty.

Instrumentals, comitatives:

- (27) a. ?? John knows French with Mary.  
 b. ?? John owns the house with a pencil.  
 (28) a. John was walking with Sue.

b. John was standing at the table with Sue.

Coercion may licence the relevant modifiers

(29) John was a catholic with great passion in his youth.

Frame adverbials (Maienborn 2001):

(30) In Paris, John knew French well.

### Interpretation of *a little*

Abstract state verbs: no time-related interpretation, but only degree-related interpretation:

(31) a. John resembles his father a little.

b. John believes it a little.

c. John loves Mary more than Sue.

Eventive and concrete state verbs allow time-related interpretation:

(32) a. John slept more than May.

b. John walked a little.

c. John spoke French more than Mary.

### Perception verbs

(33) a. ??? John saw Bill weigh 100 kilo.

b. ??? John saw Bill own the house.

c. ??? Mary saw John resemble his father.

d. ??? Mary heard John know French.

Argument against not positing state argument of abstract state verbs:

State anaphora:

(34) John once owned a car. That did not last very long, though.

### *be*+Adjective

Satisfies all the relevant criteria for abstract state predicates:

resists the relevant classes of modifiers and cannot form infinitival complements of perception verbs:

(35) a. ??? John was hungry in front of the refrigerator.

b. ?? John was nervous in Munich.

(36) a. ??? John was nervous with trembling hands.

b. ?? John was strong with Mary.

(37) a. ??? Mary saw John be hungry.

b. ??? Mary saw Sue be beautiful.

Summary:

(38) a. Abstract states cannot vary in the way they are realized (which means they cannot be more specific than the descriptive content of the description used to describe them).

b. Abstract states are not accessible to direct perception and have no location in space.

c. Abstract states are accessible to higher cognitive operations.

d. Abstract states can be located in time.

In addition:

(39) Abstract states do not have a part-whole structure, and they do not have a measurable extent.

Maienborn: abstract states as 'Kimean' states

#### Kim's account of events

(40) a. For a property P, an object o, and a time t,

the event  $f(P, o, t)$  exists iff P holds of o at t.

b. For properties P and P', objects o and o', and times t and t',  $f(P, o, t)$  and  $f(P', o', t')$ ,

$f(P, o, t) = f(P', o', t')$  iff  $P = P', o = o', t = t'$ .

Kim's account introduces events by a form of Fregean abstraction

#### Frege's abstraction principle

(41) a. For an equivalence relation R,  $g(o) = g(o') \leftrightarrow R(o, o')$

Generalization:

(41) b. For equivalence relations  $R_1, R_2, \dots, R_n$ ,

$g_n(a_1, a_2, \dots, a_n) = g_n(b_1, b_2, \dots, b_n) \leftrightarrow R(a_1, b_1), \dots, R(a_n, b_n)$

taking the equivalence relations to in fact be the identity relation

#### (42) A Kimean account of states

a. For a property P, an object o,

the state  $s(P, o)$  obtains at a time  $t$  iff  $P$  holds of  $o$  at  $t$ .

b. For properties  $P$  and  $P'$ , objects  $o$  and  $o'$ , and times  $t$  and  $t'$ ,

$s(P, o, t) = s(P', o', t')$  iff  $P = P'$ ,  $o = o'$ , and  $t = t'$ .

'Kimean' states have only those properties as intrinsic properties specified by the account itself

### Be + adjective

Abstract states as distinct from tropes.

Tropes can act as objects of perception:

(43) a. John looked at Mary's distraction.

b. ?? John looked at Mary's being distracted.

(44) a. I saw John's nervousness.

b. ??? I saw John's being nervous.

(45) a. ??? I saw John be nervous.

b. ??? I saw John be distracted.

*Be+A*: the abstract state of being the bearer of a trope described by *A*:

(46)  $\langle d, s \rangle \in [be A]$  iff  $\exists t(\langle t, d \rangle \in [A] \ \& \ s = f(d, \lambda x[B(x, t)]))$

(47)  $[John's \text{ being } A] = \iota s[\langle s, [John] \rangle \in [be A]]$

## 6. The concreteness of events

### Become+adjective

(48) a. Mary became hungry in front of the refrigerator.

b. Mary became nervous in the cellar.

c. Mary became ill in the car.

(49) Mary became ill in a strange way.

Infinitival complement of a perception verb:

(50) a. John saw Mary become ill.

b. Bill saw John become very nervous.

### Existence predicates

(51) a. ??? The French president exists in France.

- b.?? The president of Italy exists in a flamboyant way.  
 c. ??? John saw the building exist last year.
- (52) a. The murder occurred in the kitchen.  
 b. The car accident occurred in a very unusual way.
- (53) John saw the murder occur with his own eyes.

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## 7. Considerations concerning abstract states vs tropes

*Resemble* allows for two sorts of nominalizations:

*John and Mary's resemblance*

*John's resembling Mary*

'John and Mary's resemblance' as a trope

involves a particular realization: it can be stronger than another resemblance and it can be unusual or striking, it can be observed and noticed.

'John's resembling Mary' as an abstract state

cannot be stronger than another resembling or be unusual or striking, and it can hardly be noticed or observed.

*Resemble* allows for degree modifiers or in fact modifiers relating to a particular realization:

- (54) a. John resembles Bill more than Joe.  
 b. John resembles Bill in an unusual / striking way.

Other cases:

*John's belief that S* vs. *John's believing that S*.

*John's admiration for Mary* vs *John's admiring Mary*

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### Two relevant references:

G. Katz (2003): 'Events arguments, adverb selection, and the Stative Adverb Gap'. In E. Lang eds. (eds.): *Modifying Adjuncts*, de Gruyter.

Maienborn, C. (2007): 'On Davidsonian and Kimian States'. In Comorovski et al. (eds.): *Existence: Semantics and Syntax*, Springer.

