Conceptual Categories and Linguistic Categories II:  
Manner and Result as Grammatically Relevant Ontological Categories

1 Introduction

Among the myriad attributes that constitute the meaning of a verb, some are privileged: they are the grammatically relevant meaning components.

Many accounts of the interface between conceptual categories and the grammar assume a structured lexical semantic representation which includes those grammatically relevant meaning components.

(1) **Ingredients of the lexical semantic representation:**
   a. the form of representation: e.g., semantic roles, predicate decompositions, l-syntax
   b. the grammatically relevant meaning components [the focus of this lecture]

Most current accounts do not take the grammatically relevant meaning components to form a mere random list, but rather subsume them under a model of event conceptualization.

Such a model embeds hypotheses about the ways in which languages impose structure on the happenings in the world, organizing them into structured events.

Thus, such accounts posit a limited inventory of event types used for the linguistic encoding of the happenings in the world; in so doing, they help to choose among alternative characterizations of the grammatically relevant meaning components.

(2) **Competing proposals for the model of event conceptualization:**
   a. In terms of location of the participants in the event: A localist approach
   b. In terms of the time course of an event: An aspectual approach
   c. In terms of the causal structure of the event: A causal approach

Localist and aspectual approaches focus on the kinds of changes which are grammatically relevant.

The causal approach focuses on the grammatically relevant causal relations between events.

**The big question for the next four lectures:**
Is there a single model of event conceptualization which can serve as an interface between conceptual structure and grammatical structure? If so, what is it?

The answer is a matter of continuing debate, with aspectual, causal, localist, and hybrid models all receiving support.
The content of Lectures II and III:
— The localist and aspectual approaches will be shown to both fall short: they predict cuts in the data that do not line up with argument realization patterns.
— A SCALAR approach will be introduced and shown to better account for the data involving those changes that are grammatically relevant.

The content of Lectures IV and V: The causal approach also has a contribution to make to argument realization, as we will show by exploring one argument realization phenomenon in English.

2 The localist approach to event conceptualization

(3) The basic claims of the localist approach:
   a. Events involving motion and location in space are central to the construal of all happenings as events.
   b. The machinery used for representing such events can be harnessed for the description of events which are not obviously events of spatial motion and location.

This approach is most fully developed by Jackendoff (1983, 1987, 1990), drawing on earlier work by Gruber (1965); see also L&RH (2005: Section 4.1).

2.1 The basics of the localist approach

• Events fall into two major types, one of which has two subtypes:

(4) Location events involve a thing and its location: The vase sat/ remained on the shelf.
   a. Stative: Described by the verb be and other stative verbs.
   b. Eventive: Described by the verbs remain and stay when predicated of animates.

(5) Motion events involve a thing and the path that it travels along: The truck went from the warehouse to the store.

• The notion of THEME: The moving or located entity; given the definition of the two major event types, every event must have a theme, making it a key notion in the localist approach.

• Jackendoff also recognizes the existence of causative events that embed events of each type.

(6) a. Non-causative: The rock fell from the roof to the ground.
   b. Causative: Linda lowered the rock from the roof to the ground.
   (i.e. ‘Linda made the rock go down/fall from the roof to the ground’)
   (Jackendoff 1976: 104; see Jackendoff (1990) for refinements of the typology of causatives)

• Lexical semantic representations are built from a set of primitive predicates, each associated with an event type:
(7) a. **GO**: for motion events; takes two arguments, theme and path; the path itself includes a source and goal.
   b. **BE**: for stative location events; takes two arguments, theme and location.
   c. **STAY**: for eventive location events; takes two arguments, theme and location.
   d. **CAUSE** and **LET**: for causative events; each takes an agent and embeds an event of one of the other three types.

- How are verbs that are not clearly verbs of motion or location analyzed?
  — Identify them as verbs of motion or location in another **FIELD**—an abstract semantic domain.
  — Each field sets up a correspondence between the components of motion and location situations in the basic “positional field”—the field representing the most basic type of location, physical location—and the comparable components of more abstract fields.
  — Having done this, represent their meanings by exploiting the basic primitive predicates.

(8) *Thematic Relations Hypothesis* (Jackendoff 1983:188)

In any semantic field of [EVENTS] and [STATES], the principal event, state, path, and place functions are a subset of those used for the analysis of spatial motion and location. Fields differ in only 3 possible ways:

a. what sorts of entities may appear as theme;

b. what sorts of entities may appear as reference objects [=locations];

c. what kind of relation assumes the role played by location in the field of spatial expressions.

**Possessional Field**

(9) a. John gave the house to Mary.
   b. The house went to Mary.

(10) Key properties of the possessional field:

a. Things appear as themes.

b. Things appear as reference objects.

c. Being alienably possessed plays the role of location: ‘y has/possesses x’ is the conceptual parallel to spatial ‘x is at y.’

(Jackendoff 1983: 192)

**Identificational Field**

(11) a. Terry is angry [in a rage].
   b. Pat quickly went from ecstatic [being in ecstasy] to a funk.
   c. The hit man shot the politician to death.
   d. We roasted the chicken to a golden brown.
Key properties of the identificational field:

- Things appear as themes.
- Properties appear as reference objects.
- Having a property plays the role of location: ‘y is x’ is the conceptual parallel to spatial ‘x is at y.’

The fields summarized:

<table>
<thead>
<tr>
<th>Theme</th>
<th>Reference Object</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positional</td>
<td>physobj spatial location</td>
<td>Lee kept Pat in the room</td>
</tr>
<tr>
<td>Possessional</td>
<td>physobj ownership</td>
<td>Lee kept the book</td>
</tr>
<tr>
<td>Identificational</td>
<td>physobj property</td>
<td>Lee kept Pat busy</td>
</tr>
<tr>
<td>Circumstantial</td>
<td>physobj event or state of affairs</td>
<td>Lee kept Pat working</td>
</tr>
<tr>
<td>Temporal</td>
<td>events moment in time</td>
<td>Lee kept the class at 2pm</td>
</tr>
</tbody>
</table>

2.2 Pluses and minuses of the localist approach

The advantages of the localist approach

- It accounts for patterns of polysemy.

Jackendoff notes that in English there are many verbs which can be used to describe events which are very different from one another.

(13) a. Andy kept the car in the garage.
     b. Andy kept the book
     c. Andy kept Carl happy.

Although each example involves a different semantic field, they all involve the combination of the predicates CAUSE and STAY, each receiving a representation of the general form in (14).

(14) \([\text{CAUSE} (x, (\text{STAY} y, z))]\)

Other patterns of polysemy are evident in the examples, where what appear to be motion verbs can be used to express changes of state, with to, for example, indicating both the endpoint of a change of state and the endpoint of a change of location.

- It accounts for patterns of inference across semantic fields.

A single rule of inference, such as (15), can hold across semantic fields.

(15) “if an event is caused, it takes place” (Jackendoff 1976: 110)

(16) a. (13a) entails: ‘The car stayed in the garage.’
     b. (13b) entails: ‘The book stayed with John.’
     c. (13c) entails: ‘Andy stayed happy.’
SHORTCOMINGS OF THE LOCALIST APPROACH

• The notions defined over localist predicate decompositions do not seem to be implicated in subject and object selection; therefore, they are unlikely to play a part in an account of argument realization.

(17)  
  a. Goal as subject: Travis bought the book.
  b. Source as subject: Kim sold the book.
  c. Location as subject: The room contains three beds.
  d. Theme as subject: The statue stood in the corner.

• There does not seem to be a principled way to assign a localist analysis to many verbs.

Based on a paraphrase, Jackendoff argues that the postverbal argument in (18) is a location.

(18)   The champ weighed 654 pounds.
      i.e. ‘The champ weighed in at 654 pounds.’ (Jackendoff 1972: 44)

• Verbs in a wide variety of classes are left unanalyzed, as they do not seem to fall under any of the primitive predicates.

(19)  ACTIVITY VERBS: play, laugh, think, scribble, write, flutter, spin, rock, exercise, . . .

In more recent work, Jackendoff (1990) overcomes this shortcoming by adding further primitive predicates, but these predicates are not well integrated into the overall localist approach.

• Given its very nature, the localist approach suggests a critical parallel between motion and change of state events; however, while there is something to this parallel, it is not as clear cut as the localist approach suggests.

3 Exploring the change of state/change of location (i.e. motion) parallel

While change of state verbs are remarkably stable and uniform in terms of their argument realization properties, motion verbs are not. Crucially, some motion verbs parallel change of state verbs in their behavior, while others appear to be quite different.

(20)   Two major types of motion verbs (e.g., Talmy 1975, 1985):
      a. DIRECTED MOTION VERBS: specify a direction of motion, but not how the motion is effected.
         e.g., arrive, ascend, descend, enter, fall, go, . . .
      b. MANNER OF MOTION VERBS: specify a manner of motion, but are neutral as to the specific direction of motion.
         e.g., amble, fly, jog, jump, run, swim, tiptoe, trot, walk, . . .
Manner of motion verbs show a range of argument realization options, while directed motion verbs are rigid in their behavior, not exhibiting a comparable range of options.

**Example**: The verb *go* is not found in the same range of contexts as *run*, as the attempt to insert it in contexts parallel to those in (21) shows.

\[
\begin{align*}
(21) & \quad a. \text{Pat ran.} \\
& \quad b. \text{Pat ran to the beach.} \\
& \quad c. \text{Pat ran herself ragged.} \\
& \quad d. \text{Pat ran her shoes to shreds.} \\
& \quad e. \text{The athlete outran his coach.}
\end{align*}
\]

\[
\begin{align*}
(22) & \quad a. \text{The students went.} \\
& \quad b. \text{The students went to the beach.} \\
& \quad c. \quad \ast \text{The jetsetters went themselves ragged.} \\
& \quad d. \quad \ast \text{The runner went his shoes to shreds.} \\
& \quad e. \quad \ast \text{The athlete outwent his coach.}
\end{align*}
\]

The pattern is general: *swim* patterns with *run* and *fall* patterns with *go*.

\[
\begin{align*}
(23) & \quad a. \text{Pat swam.} \\
& \quad b. \text{Pat swam to the island.} \\
& \quad c. \text{Pat swam herself ragged.} \\
& \quad d. \text{Pat ran her swimsuit to tatters.} \\
& \quad e. \text{Pat outswam Nat.}
\end{align*}
\]

\[
\begin{align*}
(24) & \quad a. \text{Kim fell.} \\
& \quad b. \text{Kim fell to the floor.} \\
& \quad c. \quad \ast \text{The toddler fell himself ragged.} \\
& \quad d. \quad \ast \text{The toddler fell his clothes to shreds.} \\
& \quad e. \quad \ast \text{The toddler outfell the six year old.}
\end{align*}
\]

- Nonetheless, there appears to be something right about the parallel between change of state and change of location—i.e. motion—because, as we now show, SOME motion verbs—the directed motion verbs—show striking parallels with change of state verbs in terms of argument realization.

### 3.1 The distinctive argument realization pattern of change of state verbs

\[
\text{(25) \ \text{The crucial property of change of state verbs (RH&L 2005):}}
\begin{align*}
\text{The patient—the entity undergoing the change of state—must be realized and can only be realized as a direct object.}
\end{align*}
\]

- The patient must be realized: COS verbs aren’t found with unspecified objects, nor with direct objects that are not patients—e.g., in nonsubcategorized NP resultatives or with *out*-prefixation.
(26) Unspecified objects: *Pat broke/dimmed.

(27) Nonsubcategorized objects:
   a.  *My kids broke me into the poorhouse.
   b.  *The stagehand dimmed the scene dark.

(28) _out_– prefixation:
   a.  *The two-year old outbroke the three-year old.
   b.  *The stagehand outdimmed the director.

• The patient must be realized as the direct object: It cannot be realized as an oblique, nor do these verbs participate in object alternations.

(29) a. Alex broke the vase.
    b.  *Alex broke at the vase.

(30) a. Sam dimmed the lights.
    b.  *Sam dimmed at/from the lights.

(31) a. Kelly broke my arm.
    b.  *Kelly broke me on my arm. (cf. Kelly hit me on the arm)

(32) a. Sam broke the fence with the stick.
    b. Sam broke the stick against the fence. (not a paraphrase of (a))

• No other argument can be direct object, even when having an entailment (e.g., change of location) often associated with direct objective.

(33) a. Sam broke the fence with the stick. (fence breaks; stick moves)
    b. Sam broke the stick against the fence. (stick breaks; stick moves)

(34) a. Sam hit the fence with a stick.
    b. Sam hit a stick against the fence. (Fillmore 1977:75)

• Most change of state verbs participate in the causative alternation, having intransitive anticausative uses, as well as the transitive causative uses illustrated so far.

(35) Terry broke the window./The window broke.

— These intransitive uses, too, conform to the argument realization generalization (25), assuming an unaccusative analysis (L&RH 1995), with the patient—the surface subject—underlyingly an object.

— Evidence that the patient **MUST** be an object comes from the lack of nonsubcategorized objects and _out_– prefixation in these uses; presumably, they are precluded as the patient is already an object.

(36) a. Nonsubcategorized objects: *The jar broke honey all over the floor.
    b. _out_– prefixation: *The porcelain mug outbroke the ceramic mug.
3.2 The argument realization patterns of change of location verbs

- The verbs *bring* and *take* are the causative counterparts of directed motion verbs such as *come* and *go* and, interestingly, they parallel transitive *break* in their behavior.

(37) Casey brought/took a cake to the party.

(38) **THE CRUCIAL PROPERTY OF bring AND take:**
    The theme—the entity undergoing the change of location—**MUST** be realized and **CAN ONLY** be realized as a direct object. (cf. (25))

— The theme must be realized: These verbs aren’t found with unspecified objects, nor with direct objects that are not themes—e.g., in nonsubcategorized NP resultatives or with *out*-prefixation.

(39) a. ∗Casey brought/took to the party.
    b. ∗Casey brought/took her parents’ house bare.
    c. ∗Casey brought/took her arms sore.
    d. ∗Casey outbrought/outtook Stacey.

— The theme must be realized as the direct object: It cannot be realized as an oblique.

(40) Casey brought/took (*at) a cake to the party.

**NOTE:** *Casey brought me a cake* is not a true object alternation. Though it passivizes, the first object of a double object construction is not a clear “object” (Baker 1997, Hudson 1992, Maling 2001, Marantz 1993).

- The constrained argument realization patterns of *fall* and *go* illustrated in (22) and (24) can be viewed as comparable to those of the anticausative uses of change of state verbs.

Their theme—the surface subject—is underlyingly an object, and it **MUST** be an object: nonsubcategorized objects and *out*-prefixation are precluded.

(41) a. Nonsubcategorized objects: ∗The runner went his shoes to shreds.
    b. *out*-prefixation: ∗The athlete outwent his coach.

- Other verbs whose arguments are entailed to undergo a change of location show more options.

— Verbs like *splash* and *spray* lexically entail the movement of a liquid substance; however, the theme of the change of location need not be realized.

— Nor does the theme have to be direct object: It may be left unexpressed or expressed in a PP.

(42) Brett splashed/sprayed.
Brett sprayed/splashed (at) the dog.

b. Brett splashed/sprayed the children with water.

— Need an account of why spray and splash are different.

4 Interim summary

• The localist approach assumes parallel analyses of changes of state and changes of location; however, the relevant verbs are only partially parallel in their behavior, and the appropriate approach to event conceptualization should provide insight into why this is so.

• The localist approach was not developed to account for argument realization.

• Another distinction in meaning previously implicated in argument realization better captures the parallel between change of location and change of state: the manner vs. result verb distinction.

5 Manner and result as a wide-ranging lexical distinction

5.1 The manner vs. result verb distinction introduced

EXAMPLE: A vandal throws a rock at a store window and the window breaks.

This happening can be described with either break or hit though different facets are presented:

(45) a. The vandal broke the window with a rock
b. The vandal hit the window with a rock.

(a) asserts that the window is no longer intact, but is silent about how it happened.

→ This is because break is a result verb.

(b) asserts that something forcefully came into contact with the window, but is silent as to whether this had any effect on the window. The verb does not entail that the window broke, though it may have, as it describes an action that often results in this change of state.

→ This is because hit is a manner verb.

5.2 The manner vs. result verb distinction elaborated

This semantic distinction crosscuts many domains in the verb lexicon:
<table>
<thead>
<tr>
<th>Manner Verbs</th>
<th>vs.</th>
<th>Result Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>hit</td>
<td></td>
<td>break</td>
</tr>
<tr>
<td>smear</td>
<td>vs.</td>
<td>cover</td>
</tr>
<tr>
<td>pour</td>
<td></td>
<td>fill</td>
</tr>
<tr>
<td>shovel</td>
<td>vs.</td>
<td>empty</td>
</tr>
<tr>
<td>shake</td>
<td></td>
<td>combine</td>
</tr>
<tr>
<td>stab</td>
<td>vs.</td>
<td>kill</td>
</tr>
<tr>
<td>run</td>
<td>vs.</td>
<td>come</td>
</tr>
<tr>
<td>shout</td>
<td></td>
<td>say</td>
</tr>
</tbody>
</table>

- In the table, verbs in the Manner column share meaning components of the same type, as do those in the Result column.

- The class of verbs defined in the Manner column is grammatically relevant despite the perceived semantic diversity of its members; the same holds of the class defined in the Result column.

- However, the “semantic classes” in the leftmost column are not grammatically relevant; they may be perceived as semantic classes due to intuitions that certain manner verbs and certain result verbs can sometimes describe the same events.

- Many result verbs lexicalize results that are conventionally associated with particular manners. e.g., clean and clear lexicalize a state that may result from removing stuff from a surface in a prototypical manner.

- Many manner verbs lexicalize manners that are conventionally associated with particular results. e.g., wipe and scrub lexicalize a manner and describe actions involving surface contact and motion; these actions are often used to remove stuff from a surface.

HOWEVER, such result verbs don’t entail the manners, nor do such manner verbs entail the results. That is, their lexicalized meaning is distinct from what may be inferred in a particular use in context.

(46)  a. I just wiped the table, but it’s still dirty/sticky/covered in crumbs.
      b. I cleaned the silver by rubbing it with silver polish/soaking it in hot water/scrubbing it with steel wool/saying “abracadabra”.

5.3 The grammatical relevance of manner and result: Their role in argument realization

- The manner/result distinction is grammatically relevant: each verb type shows its own argument realization patterns.

- The limited argument realization properties of change of state and change of location verbs illustrated in sections 3.1 and 3.2 are hallmarks of result verbs in general.

- In contrast, manner verbs allow unspecified and non-subcategorized objects, as well as object–oblique alternations.

(47)  a. UNSPECIFIED OBJECTS: Kim scrubbed/#broke.
      b. NONSUBCATEGORIZED OBJECTS: Kim scrubbed/#broke her fingers raw.
      c. CONATIVE ALTERNATION: Kim scrubbed at/#broke at the window.
• More generally, manner verbs allow considerable more flexibility in argument realization than result verbs: contrast the multiple argument realization options shown by run and swim to the limited options available to come and fall.

• **CONCLUSION:** The manner/result distinction appears to cut the data better than the localist approach with respect to argument realization.

### 6 Grounding the notions of manner and result

In RH&L (2010) we suggest that the notions of manner and result can be explicated in terms of a distinction between **SCALAR VS. NONSCALAR CHANGE**.

• Aspectual classifications make a basic distinction between dynamic and stative predicates (Dowty 1979): those that denote situations which involve change over time and those that do not.

• Equally basic is a distinction between those dynamic predicates which lexicalize a **SCALAR change** and those that do not (McClure 1994, Rappaport Hovav 2008, in press, RH&L 2006, 2010).

\[(48)\]  
\[
\begin{array}{l}
\text{a. SCALAR CHANGE VERBS: warm, ripen, cool, fall, rise, . . .} \\
\text{b. NONSCALAR CHANGE VERBS: flap, exercise, writhe, scream, laugh, rain, . . .}
\end{array}
\]

• A **SCALE** is constituted by a set of degrees—points or intervals indicating measurement values—on a particular dimension (e.g., cost, depth, height, temperature), with an ordering relation. The dimension represents an attribute of an entity, with the degrees indicating the possible values of this attribute (Kennedy 2001, Kennedy & McNally 2005).

• A **SCALAR CHANGE** in an entity involves a change in the value of one of its scalar attributes in a particular direction on the relevant scale.

• Concomitantly, there is a set of verbs which lexically specify a scale: **SCALAR CHANGE VERBS**.

• But verbs can be associated with a scale without lexicalizing a scale.

**EXAMPLE:** roll, although it does not lexicalize a scale (e.g., a rolling event need not lead to an inference of change of state), may be associated with an XP which denotes a scalar attribute, and thus adds a scale.

\[(49)\]  
\[
\text{We rolled the lump of butter smooth.}
\]

Comparable XPs may appear with scalar change verbs such as freeze, but with such verbs they further elaborate on a scalar change lexicalized in the verb.

\[(50)\]  
\[
\text{We froze the ice cream solid.}
\]
7 Building scalar change verbs I: Change of state verbs

• Events of scalar change are built upon attributes of entities whose values constitute points on a scale—attributes that themselves do not involve a change.

• Such attributes are of two types, giving rise to the two major types of scalar change verbs: (L&RH 2006, RH&L 2010, Rappaport Hovav 2008, in press):
  — property concepts, which give rise to change of state (COS) verbs. [This lecture]
  — locational concepts, which give rise to directed motion (DM) verbs. [Lecture III]

The notion of scalar change will allow parallels to be established between the domains of change of state and change of location that conform better to the argument realization patterns in the two domains than the parallels established by the localist approach. [Lecture III]

7.1 The foundation of most COS verbs: Scalar attributes lexicalized by gradable adjectives

• Certain property concept predicates (Dixon 1982)—typically, gradable adjectives in English—lexicalize a SCALAR ATTRIBUTE—an attribute whose values constitute a scale.

(51) cool, deep, fast, large, long, old, short, warm, . . .

• These predicates are stative, lacking any notion of change.

• Establishing their applicability to an entity requires invoking a STANDARD—a contextually determined value on the associated scale.
  
— Depending on the property lexicalized, the adjective attributes a value on the scale to this entity which is either higher or lower than the standard.

— The standard is necessary—especially for scales with no inherent bound—for determining the part of the scale that the predicate covers.

EXAMPLE: If someone has long/short eyelashes, then the value of the length attribute on the relevant dimension is greater/lower than the standard for eyelashes.

— The standard is context dependent: long eyelashes are much shorter than long hair as there are different standards of length for eyelashes and the hair on one’s head.

• Evidence for the scalarity of these scalar attributes:
  They may appear in the comparative and superlative and with degree modifiers.

(52) longer, longest, quite long, very long, 3 inches long, . . .

7.2 From scalar attributes to scalar change

• Most English verbs of scalar change are deadjectival, taking their name from the associated adjective and lexicalizing a change in the value of the scalar attribute lexicalized by the adjective.
• Even those scalar change verbs which are not deadjectival—e.g., evaporate, freeze, and melt—nevertheless lexicalize a change in the value of a scalar attribute.

• A SCALAR CHANGE in an entity involves a change in value of one of its scalar-valued attributes.

• The direction of the change in value—an increase or decrease along the scale associated with the attribute—is determined by the polarity of the scale.

• On the HK&L (1999) and K&L (2008) account, when such a change occurs, there is a difference in the value of the relevant attribute at the beginning of the event and the end of the event: the DIFFERENCE VALUE.

• Therefore, all uses of a scalar attribute involve a comparison between values of the attribute:— for a stative scalar predicate, the value of the attribute is compared to the standard;— for a scalar change, the values of the attribute at the beginning and end of the event are compared.

7.3 Types of COS verbs: A reflection of types of scalar attributes

COS verbs fall into subtypes, reflecting the types of scales associated with property concepts.

Two major types of COS verbs stand out: Those based on multi- vs. two-valued scalar attributes.

7.3.1 COS verb based on inherently multi-valued scalar attributes

• The associated scale is open, lacking a maximal value; i.e. it is unbounded.

(53)  a. ADJECTIVES: cool, deep, glad, long, rough, warm, wide, . . .  
     b. VERBS: cool, deepen, gladden, lengthen, roughen, warm, widen, . . .

EXAMPLE: warm specifies that the value of the attribute of temperature for an entity is above the contextually determined standard; a warming event necessarily involves an entity showing an increase in value along this dimension.

(54)  warm:  
       Dimension: temperature  
       Degrees: conventionalized degrees of temperature  
       Relation to standard: above  
       Ordering: increasing  
       Scale: unbounded

EXAMPLE: cool specifies that the value of the attribute of temperature for an entity is below the contextually determined standard; a cooling event necessarily involves an entity showing a decrease in value along this dimension.
(55) **cool:**
Dimension: temperature
Degrees: conventionalized degrees of temperature
Relation to standard: below
Ordering: decreasing
Scale: unbounded

- The associated scale is upper-bound closed; i.e. the attribute has a maximal possible value which constitutes the upper bound of the scale.

(56) a. **ADJECTIVES:** flat, empty, clear, dry, straight, . . .
b. **VERBS:** flatten, empty, clear, dry, straighten, . . .

Such attributes can be modified by *completely, entirely, . . .*

(57) **completely flat/empty/clear . . .**

The maximal value constitutes a default standard, invoked when no other standard is specified or provided by context (K&L 2008, Kearns 2007).

**EXAMPLE:** *flat* specifies that the value of the attribute of flatness is either above a contextually determined standard, or, in the absence of such a standard, is the maximal degree of flatness. A flattening event involves an increase in value along the dimension of flatness—by default, a change in which the maximal degree of flatness is reached.

- The associated scale is lower-bound closed; thus, there is necessarily a non-zero value of the measured property, but no upper bound.

(58) a. **ADJECTIVES:** wet, impure, dirty, dangerous, . . .
b. **VERBS:** wet, dirty, . . .

Such attributes hold of an entity once the smallest value of the attribute is instantiated; something is dirty as soon as there is some dirt on it.

7.3.2 **COS verbs based on two-valued attributes**

- Properties giving rise to multi-valued scales of change enter into CONTRARY oppositions.

(59) a. # This table is both long and short.
b. This table is neither long nor short.

- There are other properties which enter into CONTRADICTIONARY oppositions; these are associated with scales with only two values.
Some of these scales give rise to verbs of nongradual change.

(60)  
   a. **ADJECTIVES**: dead, false, cracked . . .  
   b. **VERBS**: crack, die, explode, faint, . . .

Following Beavers (2008), we consider these verbs to lexicalize a two-point scale, the points being the two possible values, e.g., not dead vs. dead.

• Such verbs give rise to punctual events, involving a near instantaneous transition between the state of being not associated with a property and being associated with that property.

**NOTE**: Once the notion of a scale is generalized to include two-point scales, the notion of scalar change is NOT equivalent to gradual change.

### 7.3.3 A summary of the major types of COS verbs

• COS verbs can be subclassified according to the nature of their associated scale:
  — two-valued (e.g., _die_) vs. multi-valued (e.g., _cool_);
  — if multi-valued, bounded (e.g., _flatten_) vs. unbounded (e.g., _widen_).

• Lecture IV will show that the same subtypes are represented in the other major class of scalar change verbs: directed motion verbs.

### 8 Nonscalar changes

• Scalar change verbs are one of the two major subclass of dynamic predicates; the other consists of verbs that do not lexicalize a scalar change.

• A **NONSCALAR CHANGE** in an entity is any change which isn’t characterizable in terms of a scale, that is, an ordered set of degrees along a dimension representing a single attribute.

• Two properties contribute to making a change nonscalar (RH&L 2010):
  — lack of an ordering relation
  — complexity

• A few verbs qualify as nonscalar change verbs because, although they describe a simple change, it lacks an ordering relation.

(61) float, move, roll, slide, . . .

• The vast majority of nonscalar change verbs involve a complex combination of many changes at once, so that there is no single, privileged scale of change.

(62) bounce, crawl, exercise, flap, flutter, gallop, grimace, jog, kick, knead, laugh, leap, rake, rock, run, scribble, scrub, shudder, swim, waltz, wave, wink, wipe, . . .
EXAMPLE: The verbs scrub and wipe each involve a specific pattern of movement of the hand and arm that is repeated an indefinite number of times against a surface. Collectively, these changes do not represent a change in the values of one attribute, nor is any one element in the sequence of movements a necessary starting point of the activity.

- Precisely for this reason, manner (as opposed to result) verbs involve nonscalar changes.

(63) hit (vs. break), jog (vs. go), spray (vs. cover), whisk (vs. mix), wipe (vs. clean), . . .

- Some nonscalar change verbs may have agentive subjects: This is another manifestation of the complexity of the changes such verbs lexicalize.

(64) exercise, jog, scribble, think, waltz, . . .

In contrast, verbs that predicate a scalar change of an entity never require that entity to be agentive, even when they are predicated of animates, as in (65b).

(65) a. widen, flatten, cool, warm, break, empty, lengthen, deepen, darken, . . .
    b. faint, pale, redden, swoon, whiten, . . .

- Tying up a loose end: The argument realization options of spray and splash differ from those of bring and take (see section 3.2) because they are nonscalar change verbs.

References