Grammatically relevant ontological categories underlie manner/result complementarity
(or: the fine art of lexical semantic investigation)
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I. MANNER/RESULT COMPLEMENTARITY

1. Background:
   - Discussion of what has come to be called Manner/Result Complementarity (MRC) began with an observation from an extended study of the English verb lexicon:
   1. "...there do not seem to be verbs in English that lexicalize both manner/means and result/direction components." Levin and Rappaport Hovav (1991: 147)

2. Motion:
   direction (type of result) – arrive, come, go, rise, fall, approach, increase, near...
manner – run, jump, roll, rock, spin, jog, dance, taxi...

3. Change of state:
   result – break, clean, clear, empty, remove...
manner – hit, bash, scour, rub, scrub, pour...

4. Speech:
   result – say, propose, declare, proclaim, admit...
manner – whisper, bellow, yell, murmur, scream...

Note that this is an observation about the content of the semantic components encoded in the verb.

- The generalization may be the result of extra-grammatical factors – in which case it may be just a statistical tendency (Beavers and Koontz-Garboden 2012; Goldberg 2010; Ramchand 2014) – or it may reflect something deep about the architecture of language, in which case we can elevate it to a hypothesis, and we will want to figure out what it reflects and how it can be derived.

- Concomitantly, the term MRC can refer to an observed phenomenon or to a specific hypothesis about what gives rise to the phenomenon. I adopt MRC as a grammatically relevant hypothesis.

2. Challenge:
Common assumptions of a bi-partite view of "event/verb" semantics:

   Structural component of meaning – henceforth, event structure
   - Has a syntax with embedding relations and clear categorical distinctions;
   - Typically taken to encode skeletal structure of linguistically significant event types.
   - Directly related to grammatical generalizations;

   Idiosyncratic component of meaning – henceforth, root.
   - Roots are conceptual categories;
   - Rules and principles of grammar do not directly make reference to the semantic content of roots.
**Question I:** Assuming MRC is about the semantic content of roots, and assuming that rules and principles of grammar do not make reference to the content of roots, how MRC could be derived from anything remotely grammatical?

I suggest this is related to a second question:

**Question II:** Different types of roots appear in different event structure positions and hence in different syntactic environments. What determines the distribution of roots in an event structure representation? What determines the 'linking' between the two components of meaning?

Broadly speaking, there are two approaches to this question:

i. **Free distribution approach:** (Borer 2005, Aceto-Matellán and Mateu 2012)
   Roots are a-categorical. Any root can appear in any position; clashes between the semantic content of root and event structure position are ruled out at CI interface;

ii. **Distribution by grammatically relevant ontological categories (GROC) approach:**
   (Rappaport Hovav and Levin (RHL) 1998; Alexiadou, Anagnostopoulou and Schäfer 2015 (AAS), Reinhart 2002, Ramchand 2014)
   Roots are inherently categorized with grammatically relevant ontological features which serve as the interface between full conceptual content and grammar and determine basic syntactic distribution.

Examples of GROCs used in the literature:
   - **RHL (1998):** manner; instrument, container, internally/ externally caused state...
   - **AAS (2015):** agentive; internally caused state; externally caused state...
   - **Ramchand (2014):** cause, change, scalar, nonscalar change, result of change...
   - **Reinhart (2002):** [+/- c]; [+/- m]

3. **Response to challenge:**
   RHL (2010) derive MRC from the second kind of approach.

Canonical Realization Rules (RHL 1998):

5. a. manner → [ x ACT< MANNER> ]
   (e.g., jog, run, creak, whistle ...)

b. internally caused state → [ x <STATE> ]
   (e.g., bloom, blossom, decay, flower, rot, rust, sprout ...)

c. externally caused state → [ [ x ACT] CAUSE [ y BECOME <RESULT-STATE> ] ]
   (e.g., break, dry, harden, melt, open ...)

RHL (2010) assume that manner and result are GROCs;
   ▶ MRC derives from the assumption that a root can belong to one such GROC.

Need an explication of "manner" and "result" in order to be able to test any hypothesis about the phenomenon.
   ▶ RHL (2010): result = scalar change; manner = non-scalar change

4. **Some comments on the notion result:**
   - The notion of scalar vs. non-scalar change was introduced as an aspectual property of verbs (Rappaport Hovav 2008, Beavers 2008); argued to be relevant to argument
realization (RH 2008). It does not follow that it is also relevant for MRC, especially if the latter applies to roots, not verbs.

- If MRC is manifested in roots, then the notion of result cannot be equated with scalar change, since clearly for verbs like narrow and cool, the root does not encode change, assuming that these verbs share a root with the homophonous adjectives.

However, Rappaport Hovav (2014) shows that the semantic basis of two major classes of scalar change verbs (change of state and directed motion) is a stative attribute, which can be multi-valued or not (see RH 2014 for details).

A scalar change, then, is either a transition into a state, or a change in the value of a multi-valued state and a result root is a root that is interpreted as a predicate of a state (cf. AAS 2015, Embick 2009, Kratzer 2000, a.o who take roots of COS verbs to be the predicate of a SC which attributes a state to an individual, and which combines with v to introduce the notion of change).

Interim summary

- Result roots are predicates of states, whereas manner roots have a meaning which cannot be analyzed in terms of a basic stative property; they are predicates of events. MRC then is taken to mean that a root can have only one GROC and that crucially a root which is a predicate of states cannot simultaneously be a predicate of events.

Remainder of talk:

II. Against Beavers and Koontz-Garboden (2012, BKG) – a case study

1. **MANNER OF KILLING VERBS**

   BKG argue against the interpretation of MRC as a generalization over the truth-conditional content of verbs. **MANNER OF KILLING VERBS** (MKVs) figure prominently in their critique:

   6. *crucify, drown, electrocute, guillotine, hang*

   BKG argue that these verbs entail death and a manner of bringing about the death. In Rappaport Hovav (2015a, b) I argue that some of these verbs are not relevant to MRC since they are morphologically derived (either overtly bi-morphemic or denominal) and MRC is about the content of roots, as already mentioned. In this talk, I focus on *drown*.

   - If MRC is about what is encoded in the root, we have to distinguish the semantic core of the root and inferences which can be drawn from the use of a root in a particular context: syntactic, semantic and pragmatic. We must distinguish, then, between *drown* as a root and *drown* as a MKV. Crucially, BKG do not make this distinction.
   - I will show that the lexical core of the root *drown* conforms to MRC, and that uses of verbs based on the roots, along with their inferences, can be derived compositionally. *drown* is assumed by BKG to lexically encode death brought about by submersion.
BKG assume that:
- submersion in water = manner
- death = result
- both are encoded lexically encoded
  (don’t distinguish between verb and root)

I will show that:
- no, it is a result
- yes
- no, only one encoded in root

Manner is often (but not necessarily\(^1\)) associated with the action of an agent, and in purporting to test for manner BKG in fact test for actions. They develop a number of diagnostics for general actions, which sentences with the verb used as a manner of killing of course pass.

7. The governor drowned the prisoner, but didn’t move a muscle – rather, during the execution she just sat there, refusing to order a halt! (= BKG 39b)

All the sentences brought to bear on the issue by BKG involve *drown* as a MKV, and so they of course have both the inference of death and the inference of an accompanied action.

However, it is easy to show that *drown* does not encode anything about an action. The specific manner of bringing about death with MKV *drown* is submersion in water, but this is not necessarily the action of an agent. Death and submersion in water can be inferences in unaccusative uses of *drown*, where the notion of an action is irrelevant.

8. The boy drowned (#by choking) (?but the paramedics got to him before he died)

2. Interlude - Some methodological points on isolating lexically encoded meaning:

Since it is crucial for me to distinguish between semantic content encoded in the root and inferences derived in other ways, I stress the following points:

- *Whenever possible*, we will try to isolate an invariant component of meaning, common to a wide variety of uses of a verb (RHL 2010; LRH 2013) and attribute it to the root;
- The inferences drawn from the use of a verb in particular sentences come from many different sources, in addition to what is lexically encoded in the root, including the nature of a DP filling a particular argument position (such as its animacy), the particular mode of argument realization (i.e. the variant of an argument alternation a verb appears in), the tense or aspect that a verb appears in.
- A COMPOSITIONAL analysis is to be preferred to the extent possible: will avoid positing polysemy to the extent possible, and we will avoid the need to remove lexically encoded components of meaning. With respect to *drown*, it will turn out that there IS an invariant component of meaning, which we can attribute to the root, and this component conforms to MRC.

I will show that the element of meaning that is constant across uses of *drown* is actually the component of meaning having to do with submersion, though not necessarily in water. If so, this element should be encoded in the root and the inference of death, if not encoded in the root, should be contextually derived or specified.

\(^1\) Verbs like *roll, rock, spin, rotate*... encode a non-scalar change, though they do not encode the action of an agent.
3. The root *drown* does not encode death

There are many examples of uses of *drown* without an inference of death; if the root encoded death, these uses would involve the removal of a lexically encoded property, incompatible with the principle of Monotonicity (RH&L 1998; Koontz-Garboden 2009). Note that (9) is with an animate theme.

9. Amy reminded me from downstairs to wash Jake’s hair ...I poured a cup of water over Jake’s head and it promptly flushed his eyes and choked him a little. ... I waited for him to calm down, which he didn’t, so I did what I had to do and drowned him again. http://www.chocolatediapers.com/?m=200910

Looking at a wider range of contexts which the root can appear in: there are many uses of *drown* which involve inanimates, in which case dying is not relevant:

10. X (inanimate) drowning in y; cake drowning in icing; poached pears drowning in sauce; lasagna drowning in oil, a city drowning in corruption; a city drowning in beer; the world drowning in images; lettuce drowning in dressing

There are also uses of *drown* involving an *animate* theme but no inference of death at all, but as opposed to (9), the submersion is not in water (11). In (12) the theme is not abstract.

11. X (animate) drowning in y; y= sorrow, grief, work, information, happiness, in madness, in gratitude, in heartache, in troubles, in bureaucracy, in red tape, in cash, in patients…

12. While the colour is gorgeous against Salma’s skin tone and glossy black hair, she is drowning in fabric...the humongous billowing sleeves make her look wider, and short. http://www.bohomoth.com/2013/04/26/drowning-in-angelinas-gown-someone-throw-salma-hayek-a-life-jacket/


While many uses of *drown* do not involve death, we see that all of them involve some kind of submersion, literal or metaphorical. I take this to be the lexically encoded content of *drown*; we now want to understand its argument structure and determine its GROC.

4. *drown* encodes a locative state (result)

I argue that *drown* inherently encodes a state, and, hence, is a result root. I will soon analyze stative uses of *drown*, but here I would like to point out that at least one standard test shows that even a non-stative use of *drown* can involve an embedded state.

14. I recall my KWA LM4 when i first started airsoft giving me problems as well - I got fed up and removed the upper, boiled a ton of water, and drowned it for a few minutes, got all that glue off. http://www.airsoftcanada.com/showthread.php?t=166942

15. And afterwards, when I thought it was still too frozen for my liking, I set it under a faucet of hot water and drowned it for a couple of minutes. http://knockoutkitty.com/blog.html
In these examples, the time adverbial can modify an embedded state.

- Now, let's look more carefully at the argument structure of *drown*.

As the examples above indicate, *drown* is associated with two arguments: I will call them for now the **figure** and the **medium**.

When the medium is not expressed, especially when the figure is animate, the default interpretation is that the medium is liquid, usually water. In other cases, both arguments have to be expressed:

16. a. John drowned. (Inference: he drowned in water. There is a further inference that he died which we will return to.)
   b. John is drowning # (in work) (out of the blue; in context, work could be recovered)
   c. The lasagna drowned, was drowning *(in cheese).
   d. The room is drowning *(in color.)

The verb shows an **argument alternation**: the medium may be realized as PP (17a) or as subject (17b); the figure is expressed either as surface subject (17a) or as direct object (17b).

17. a. The lettuce<sub>figure</sub> is drowning in dressing<sub>medium</sub>. (medium = PP; figure = surface subject)
   b. The dressing<sub>medium</sub> is drowning the lettuce<sub>figure</sub> (medium = subject; figure = d. object)

18. a. The room is drowning in light/darkness/ bright color. (medium = PP)
   b. The light/darkness/bright color is drowning the room. (medium = subject)

Unlike in (17, 18), for most choices of arguments, one or other of the realization options is usually pragmatically odd.

19. a. The music drowns/is drowning the lyrics
   b. ??The lyrics are drowning/drowns in the music.

20. a. He is drowning in debt = 29,200 Google hits,
    b. Debt is drowning him = 2 Google hits Oct. 12, 2016

The argument alternation stems from the fact that the root *drown* can be integrated into the structure of two independently established classes of locative verbs, with the thematic structure (theme, location). The two classes differ in how the location is expressed.

**A. Location-PP verbs**: Theme = subject (probably underlying object); Location = PP

21. a. The vase is sitting on the desk.
    b. The statue is standing in the corner.
    c. The North Channel lies to the north of the Irish Sea.
    d. The city sprawls along the coastline.

These verbs all specify a spatial configuration of the theme with respect to a location. When used *non-agentively*, the location argument is near obligatory, but not absolutely:

22. a. John is standing (in the hall).
    b. The keys are lying *(on the piano).
c. The vase is sitting *(on the piano).
d. The city is sprawling (in every direction).

B. Location-object verbs: Theme = subject; Location = direct object:

23. a. Snow covered the mountain.
   b. The fragrance suffused the room.
   c. Trash is blocking the doorway.
   d. The furniture fills the room.

In Class B the location argument is realized as a direct object rather than in a PP, because the location argument is interpreted as an incremental theme (Dowty 1991).

24. a. Snow covered the roof in three days.
   b. #Snow covered roofs in three days
   c. Snow half-covered the roof = snow covered half of the roof.

* Drown shows two argument realization options because the medium can either be conceptualized as a location containing a theme or a theme covering a location. When the medium is conceptualized as a location containing the theme (=figure), drown shows the argument realization pattern of the Location-PP (Class A) class.

25. The poached pears\textsubscript{theme=figure} are drowning in sauce\textsubscript{medium=location}. (cf. The pears are sitting in the sauce.)

When the medium is conceptualized as a theme covering a location as an incremental theme, drown shows the argument pattern of the Location-object class (Class B).

26. The sauce\textsubscript{medium=theme} drowned the pears\textsubscript{location=figure}. (cf. The sauce covered the pears)

The Location-object pattern is appropriate when drown focuses on the relation between the medium and the spatial extent of the figure (incremental theme). The degree to which the predicate holds depends on the amount of the figure covered by the medium.

Goya: Painting sometimes called \textit{Half-Drowned Dog}
Drown, when used statively, is, like sit and cover, an interval stative (Dowty 1979), where the use of the progressive vs. simple tense is connected to the stage/individual level distinction. In (27a) the room inherently has a color which drowns the room. In (27b), the lettuce happens to have the property of drowning in oil.

27. a. “I love the color but for me the color drowns the room.

   http://www.houzz.com/photos/dining/color-/p/64

   b. The lettuce is drowning in oil./Oil is drowning the lettuce.

There are two special lexical properties associated with the root drown mentioned so far:

- the medium can be conceptualized either as the theme or as the location (incremental theme), so it can express its arguments as in Class A or Class B;
- when the medium is not specified it is understood by default as water.

Drown contrasts with other theme-location verbs which allow only either the A or the B pattern. For example, sprawl accepts only the location-PP pattern (28), and cover accepts only the location-object pattern (29):

28. a. The city sprawls along the coast.

   b. *The coast sprawls the city.

29. a. Snow covers the mountain.

   b. *The mountain covers in snow.

   c. The mountain is covered in/with snow.

   (passive necessary for location as subject)

This probably has to do with the fact that drown does not only lexicalize a spatial relation between the medium and the theme, but this relation must be considered somehow "overwhelming" or "overpowering" with respect to the theme. For example, if there are oyster crackers in a soup, one would not say that they are drowning in soup.

In both patterns, both arguments of drown are internal arguments. Two pieces of evidence that non-agentive transitive drown (like stative cover) has two internal arguments:

- It has only an adjectival passive, but not a verbal passive:

30. a. Oil drowned the lettuce.

   b. The lettuce is drowned in oil./*The lettuce is being drowned by oil

- An independent external argument can be added:

31. The chef drowned the lettuce in oil.

CONCLUSION: The most basic use of drown is stative with two internal arguments. Other uses can be compositionally derived.

5. From stative to COS interpretation

Theme-location verbs have both a stative and an inchoative (change of state: COS) interpretation in English. The availability of the different interpretations is dependent on the choice of arguments:
32. a. Snow is (slowly) covering the mountain. (ambiguous between stative and dynamic).
b. The table cloth is covering the table. (not ambiguous).
33. a. John stood (up).
b. The statue stood (*up).

The derivation of COS from states is productive and (typically) morphologically unmarked in English.

34. a. The tree is blossoming. (ambiguous)
b. John understood the problem. (ambiguous)

drown can also be used as a state or a COS, though certain argument combinations render one interpretation most salient:

35. a. The lettuce is drowning in oil./The room is drowning in color (most naturally state interpretation)
b. The city is drowning in the lava. (state or COS both natural)
36. a. Lava is drowning the city/Lava drowned the city. (COS most natural)
b. Light drowned the room. (state or COS).

In addition to the derivation of the COS reading from the stative reading, we can also add an agent external argument (31 above).

Schematically, this is how we derive the causative MKV use of the root drown:

\[
drown_{state} (x,y): x \text{ drown in } y \rightarrow \text{ COS } \rightarrow \text{ BECOME (x drown y): x drown in y; } \rightarrow \text{ causative } \rightarrow z \text{ cause (BECOME (x drown in y): z drown x (in y))}
\]

And the root conforms to MRC.

Given the analysis so far, (37a) is an ellipsis of (37b) and (39a) is paraphrase of (39b)²:

37. a. John drowned.
b. John drowned in water.

38. a. Mary drowned John.
b. Mary caused John to drown (in water).

Whence the inference of death in (37-38)?

The worst case scenario is that there is a contextual specification for an inference of death when the theme argument of the root is animate.

However, given examples such as (9) above, it is fairly clear that this inference of death, even in the context of an animate argument, is not lexically encoded directly in the root. I suggest that when the object is animate, then the contextually derived sense of 'overwhelming' can be understood either spatially, as in (9), or, more commonly, as an inference of death.

² John drowned cannot be an ellipsis of (water) drowned John because Class B verbs do not allow ellipsis of their subject argument (Snow covered the mountain/*The mountain covered.)
6. Some final remarks on the analysis of *drown*

BKG provide a series of counterexamples to MRC as an empirical generalization. In this talk, I pointed out some methodological shortcomings to their discussion, and I provided a detailed analysis of one counterexample. One can of course point to other potential counterexamples, but I cannot in this talk guarantee that the kind of analysis appropriate for *drown* will be appropriate for other counterexamples. The important points are that when doing the lexical semantic analysis carefully, paying attention to the points in section II.2. above, the assumption that MRC does indeed hold led to a more perspicuous analysis of the potential counterexample.

III. Against a relational view of MRC (Mateu and Aceto-Matellán 2012)

- Roots are not inherently typed and there are no constraints on the conceptual content of roots (cf. Grimshaw 2005). Roots in principle can be integrated into syntax in any way, the only constraint being the semantic/pragmatic compatibility of the skeletal semantics of the syntactic structure with the conceptual content of the root, visible only at the CI-Interface.
- M&AM take the notion manner and result to be *relational notions*. Roots are *interpreted* as manner or result according to syntactic position: result if they appear as the predicate of a SC and manner if they are adjuncts of v. MRC comes about because a root, as a morpho-syntactic object, can appear in only one position in a syntactic representation.

M&AM’s argument for this approach comes from the fact that a result root like *break* can be used in what has been taken to be a manner construction, as in (39), analogous to (40):

39. a. He broke the hammer-head off.
   b. They broke the bottle open.
40. They banged the door open.

Another purported example of a result verb in a manner environment is (42), analogous to (41):

41. He *slammed* his way to #1
   (Interpreted as: He traversed the path which ended at his being #1 and he did it by slamming the tennis ball.)

42. The woman’s 13-year-old, who *broke his way* out to safety, says he woke up to find his whole house on fire. (intended meaning: the child broke windows in order to reach safety)
   (Interpreted as: She traversed the path to safety and did it by breaking windows.)

1. MRC preserved as constraint on truth-conditional content
   - Recall that MRC, as an observation, started out as a hypothesis about semantic (truth conditional) content. Notice that in the cases under discussion, the verb *break* still
conforms to MRC in specifying the result (a state) of an event but no nonscalar change (manner).

43. a. The hammer-head broke off. (There was a breaking; no specification how breaking came about)
   b. The squash split open.  (There was a splitting; no specification how splitting came about)

In (42), too, the verb break maintains its truth-conditional content as a result, not a manner, root. It appears to me that the way construction generally selects manner verbs because it is supposed to specify the kind of action which brings about or accompanies a certain change of state (Goldberg). Precisely because result verbs do NOT specify any manner of action, they typically do not appear in this construction. Only in heavily contextualized environments, where the action can clearly be recovered are COS verbs compatible with this construction.

(This does, however, suggest that the syntactic incompatibility of unaccusative verbs in the construction needs to be revisited.)

2. Distribution of roots more constrained than often claimed

While roots can appear in wide range of environments, I believe there are constraints on their distribution that cannot be attributed to filtering at the CI interface. For example, manner roots never appear as a morphologically unmarked predicate of a result phrase:

44. *John closed the door bang.

In fact, if roots did not have a basic ontological type, and in principle could be integrated into any syntactic environment, we would expect them to have a much fuzzier distribution and it is not clear how the generalization of MRC – whether it is entirely accurate or not – would arise.

IV. Concluding Remarks

The real purpose of this talk is less to defend MRC, than to illustrate what I take to be the right way to account for the distribution of roots in varying syntactic contexts, which is my research agenda in lexical semantics. This approach takes seriously both the lexical semantics of roots, and the contribution of syntactic and pragmatic context. It assumes that roots come with a grammatically relevant ontological category which determines its basic grammatical distribution and in many cases an invariant semantic element which can be integrated into different syntactic structures which generate, along with the choice of arguments and pragmatic context, a variety of inferences which we as speakers know how to draw.

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References


Berlin: Mouton de Gruyter.
Goldberg, Adele. 2010. Adele E. Goldberg. "Verbs, frames and constructions." In M.
Rappaport Hovav, M., 2015a. "Towards an understanding of the notions of ‘manner’ and ‘result’ and their role in the construction of verb meaning," Roots IV, NYU.
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