**On the History
(and a Bit of Post-History)
of Montague's PTQ**

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OUTLINE

- What led Montague to his "linguistic" work -- EFL, UG and PTQ?
- How Montague got from working on *seek* to generalized quantifiers.
- What got "left on the cutting room floor": from the Montague archives.
- Tectogrammatical structure: seeing the 'grammar' in derivation trees
- (if time) Montague's syntax and responses to it
  - Real categorial grammar vs. Montague's use of it
  - Early responses to Montague's syntax – positive and negative
  - Two directions: combine with TG, add constraints; or non-T

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1. Why did Montague turn to "linguistic" work?

- The immediate precursors to Montague's three centrally language-related papers were three papers developed in seminars and talks from 1964 to 1968: 'Pragmatics and Intensional Logic' ('P&IL'), (Montague, 1970c); 'Pragmatics' (Montague, 1968), and 'On the nature of certain philosophical entities' ('NCPE') (Montague, 1969).

- In 'Pragmatics and Intensional Logic' (talk 1967, pub 1970), Montague distinguished between 'possible worlds' and 'possible contexts'; contexts were introduced to treat the indexical character of such words as *now*, *I*, and *here* (this latter development represents joint ideas of Montague, Dana Scott, and Hans Kamp).

- In NCPE, he applied his logic to the analysis of a range of philosophically important notions (like *event*, *obligation*); this was all before he started working directly on the analysis of natural language.

Why did Montague turn to "linguistic" work? *cont'd.*

- That work, like most of what had preceded it, still followed the tradition of not formalizing the relation between natural language constructions and their logico-semantic analyses or 'reconstructions': the philosopher-analyst served as a bilingual speaker of both English and the formal language used for analysis, and the goal was not to analyze natural language, but to develop a better formal language.

- Montague in an article in Staal (ed.) 1969, from a symposium in 1967, continued to maintain the latter goal as the more important one, although he was already working on EFL (talks starting in 1966, published in 1970).

A note on the Kalish and Montague textbook.

- The first edition of Kalish and Montague's logic textbook (1964, but drafted much earlier) contains the following passage:
- "In the realm of free translations, we countenance looseness...To remove this source of looseness would require systematic exploration of the English language, indeed of what might be called **the 'logic of ordinary English'**, **and would be either extremely laborious or impossible. In any case, the authors of the present book would not find it rewarding**." (p.10)
- On page 10 of the 2nd ed., 1980, the passage is altered:
- "In the realm of free translations, … would be extremely laborious or perhaps impossible. **In any case, we do not consider such an exploration appropriate material for the present book (however, see Montague [4 [*Formal Philosophy*]] and Partee [1 [*ed., Montague Grammar*]])**."
- Thanks to Nick Drozd (p.c.) for alerting me to this quotation and its revision.
- So Montague's attitude evidently underwent a change in the late 60's.

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Notes from Hans Kamp, e-mail Oct 1, 2009 (abridging and slightly paraphrasing)

- The quoted passage from p. 10 is, I believe, highly significant. Richard emphasised to me repeatedly that there was something odd about the way the book presents the subject.
- Everything about the formal languages of logic is presented with precision, but when the student is asked to apply the formal languages in the exercises, an appeal is made not only to the student's grasp of the formal definitions but also to his intuitive understanding of English.
- Montague was acutely aware this odd 'gap'.

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Notes from Nino Cocchiarella

- (Cocchiarella, e-mail Dec 2010): [Montague's] early work on pragmatics and intensional logic had not yet [in the mid 60's] affected [his] basic philosophical view: namely, that all philosophical analyses can be carried out within a definitional extension of set theory, which explains why in "English as a Formal Language" Montague uses set theory to construct the syntax and semantics of a fragment of English in a way that resembles the construction of the syntax and semantics of a first-order modal predicate calculus.
- But Montague did not remain satisfied with set theory as a *lingua philosophica*, …, and in the end he proposed instead the construction of an intensional logic as a new theoretical framework within which to carry out philosophical analyses. …
- Once Montague moved on to an intensional logic we have a distinctive new tone about English and natural language in his papers … .

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Montague's turn to "linguistic" work – new clue.

- A new clue about Montague's motivations: from an early talk version of "English as a Formal Language", July 31, 1968, UBC, Vancouver, RM's handwritten prefatory notes, not on handout: (I'm pretty sure I'm deciphering RM's shorthand (for small words only) right.)
- "This talk is the result of 2 annoyances:
  - The distinction some philosophers, esp. in England, draw between "formal" and "informal" languages;
  - The great sound and fury that nowadays issues from MIT under the label of "mathematical linguistics" or "the new grammar" -- a clamor not, to the best of my knowledge, accompanied by any accomplishments.
- I therefore sat down one day and proceeded to do something that I previously regarded, and continue to regard, as both rather easy and not very important -- that is, to analyze ordinary language*. I shall, of course, present only a small fragment of English, but I think a rather revealing one."
- *Montague's inserted note: Other creditable work: Traditional grammar, Ajdukiewicz, Bohnert and Backer, JAW Kamp.
- Later notes (1970) suggest he eventually found it not entirely easy. [Part 3.]

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2: From puzzles about intensional verbs to Generalized Quantifiers in Montague's work

- The problem of intensional transitive verbs seems to have occupied Montague's attention as he was developing his intensional logic.
- Some puzzles by Benson Mates provided an impetus for his 1969 NCPE, "On the nature of certain philosophical entities", which preceded all his explicitly language-related papers (talk: 1967).
  - (19) **Jones sees a unicorn having the same height as a table actually before him.** (Mates, with non-veridical 'see'.)
- Montague handled that via *seems to see*, which his intensional logic let him treat, but needed something else for *seeks* or *conceives*.
- In NCPE he analyzes sentences with *seeks* via paraphrase. He wants to show why, as Quine (1960) had noted, the argument in (9) is not valid, although the analogous argument with *finds* is valid.
- (9) **Jones seeks a unicorn; therefore there is a unicorn.**

From intensional verbs to GQs, *cont'd.*

- He first describes a solution analyzing *seek* as *try to find*, symbolizing (9) as (10), which puts the existential quantifier for *a unicorn* in the premise under the scope of an intensional operator.
- (10) **Tries [Jones, ^λu ∃x (Unicorn [x] & Finds [u, x])]**
- He gives a similar paraphrase analysis of Buridan's examples with *owe*.
- Then he raises the question of whether resorting to these paraphrases is necessary.
- **We may wonder whether it is possible to approximate English more closely within our intensional language.** What we can do in the case of 'seeks'—and that of 'owes' would be completely analogous—is to introduce *several* predicate constants; and it would be possible to define them by means of the following equivalences: [emphasis added, BHP]
- (15) □∀x∀P(x Seeks-a P ↔ Tries [x, ^λu ∃y (P[y] & finds [u, y])]).
- (16) □∀x∀P(x Seeks-the P ↔ Tries [x, ^λu ∃y (∀z (P[z] ↔ z = y) & Finds [u, y])]).
- (17) □∀x∀P(x Seeks-two-objects-having P ↔ Tries … [similarly]

From intensional verbs to GQs, *cont'd.*

- But he rejects that solution on several grounds, including the need for infinitely many predicate constants, something he had criticized Quine for when Quine suggested treating *seeks a unicorn* as an unanalyzed predicate constant. Then we find:
- "If, however, we were to pass to a *third-order*, rather than a *second-order*, language, the situation would change: we should then be able to introduce a single predicate constant in terms of which all notions analogous to those introduced by (14)-(17) could be expressed; I shall give a more detailed account of the situation in a later paper."
- So he had evidently gotten the GQ idea before NCPE was published in 1969. The GQs first appear in print in UG (1970, talks in 69 and 70, ideas developed in lectures starting 1967).
- One of my 'history' puzzles is who was first, Montague or Lewis? Both published papers with GQs in 1970, with talks in 1969.
- I can't precisely date Lewis, but I've found the birth of the idea for Montague work in 3 pages of notes from September 1, 1968.

From intensional verbs to GQs, *cont'd.*

- In the Montague archives in Box 1, Folder 7, "Intensional verbs and Berkeley's argument", three pages of notes from September 1, 1968 seem to record his first idea about solving the problem of intensional transitive verbs by giving them "third order" arguments, properties of properties of entities, i.e. intensional versions of generalized quantifiers.
- I now suppose that that is the source of the comment in NCPE that such a thing could be done, an idea that came after the "talk" version of NCPE (early 1967) but before the final manuscript was submitted (presumably sometime in the fall of 1968). I quote from these pages in my SuB paper to show both that the proposal is explicitly there and that it appears to be new to him at that time. Here are tiny extracts.
- Page 1 begins with "**We can improve on 25 Apr 68**"; the second half of the page begins with "**Try:**"

From intensional verbs to GQs, *cont'd.*

- What follows, after some crossings-out, are essentially the GQs of UG and PTQ.
- *all-R = ^λQ∀x[R[x] → Q[x]]*
- *an-R = ^λQ∃x[R[x] & Q[x]]*
- *two-R's = ^λQ∃x∃y[x ≠ y & R[x] & R[y] & Q[x] & Q[y]]*
- *the-R = ^λQ∃x[{x} = {y: R[y]} & Q[x]]*
- *Jones = ^λQ[Q[Jones]] (with the "usual" denotation for the inner occurrence of 'Jones')*
- ***Thus in general a term ζ of the sort above denotes the property of (being a property) applying to ζ.***

(Note that at this point he sometimes mixed set notation and lambda notation, and that he had plural as well as singular determiners.)

(There are more details in my 2013 *SuB* paper.)

From intensional verbs to GQs, *cont'd.*

- Then on page 2 of the pages dated 1 Sep 68, he works out '***u seeks an-R***' in this new third-order way and in his old ***tries-to-find*** way, and assuming as he did that ***seek*** is equivalent to ***try to find***, he shows in three lines that they come out equivalent.
- And then he writes below that: "**So this works.**" And then he checks the equivalences with ***two-R's*** and with ***all-R's.***
- The "**Try:**" on page 1 and "**So this works.**" on page 2 make it pretty clear that this was when intensional generalized quantifiers first occurred to him: they provided a solution to the problem of ***seeks***.
- In other works one could see that he had been reluctant to go beyond second-order intensional logic.
- That initial reluctance may account for his choice of the title of PTQ; it hadn't been at all obvious to him that natural language quantification would need such a treatment.
- If Ede Zimmermann is right, ***seek*** does not require intensional GQ arguments; but GQ theory has been really fruitful whether GQs are 'right' in the long run or not.

Richard Montague and David Lewis
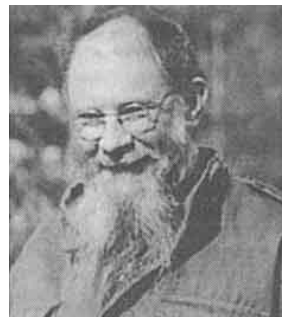
Montague and Lewis and the priority question

- Linguists know of generalized quantifiers (not under that terminology) mainly from Montague 1973 (PTQ) and Lewis 1970 (General semantics). Montague and Lewis overlapped at UCLA from 1966 to 1970 and discussed various things together.
- There is no decisive evidence as to which of them thought of using GQs for English DPs first;
- But now we've seen evidence that Montague had the idea in September 1968, before he had submitted the ms. for 'On the nature of certain philosophical entities', where he states that such a thing could be done but doesn't do it.
- It's still not conclusive: Lewis's talk was March 1, 1969. But I also have a letter from Lewis that reports a conversation with Montague and seems to suggest that Montague had the idea first.

Further note about GQs in UG and PTQ

- One historical detail that is clear is that Montague was greatly occupied with the analysis of intensional TVs, and that his ideas about GQs arose from that concern. The version of his intensional logic in which those intensional GQs can be expressed is the version first published in UG and repeated in PTQ.
- The English fragment of PTQ is the first in which GQs occur together with bound-variable pronouns for which they are the antecedents: there he first introduced the rules for "Quantifying In" a term phrase into a sentence, a CNP, or an IVP, giving an account of quantification, scope and anaphora that evidently satisfied him, judging by the title he chose for that paper.
- There too his motivation was to account for puzzles of intensionality, including examples of Karttunen's that I had told him about, like *John wishes to catch a fish and eat it*, which could not be generated in the UG fragment.
- In UG the content of such sentences could be expressed only with the help of predicate *such-that* locutions, as in *John wishes to be such that he catches a fish and eats it*. In PTQ the binding could be managed directly within the verb phrase.

3. What got left on the cutting room floor? ("easy"?)

- In 1968 Montague said he still considered the project "rather easy".
- There is circumstantial evidence that he may have changed his mind. (And Hans Kamp thinks so (p.c.).)
- He devoted most of his research to that topic for the following years, and indicated his intention to write further papers and a book.
- And there are fascinating handwritten pages in his files from 1967 to 1970 that show attempts to treat quite a number of phenomena that never made it into PTQ.
- For example, he had intended to include a much larger class of quantifiers than the three (*a, the, every*) that ended up being treated in PTQ. But he abandoned the attempt to include a treatment of plural expressions in PTQ, which eliminated most quantifiers and eliminated term phrases conjoined with *and*, leaving only the three singular determiners and term phrases conjoined with *or*. He also made attempts at *any* and *no*, but then left them out.

Unfinished work, *cont'd.*

- It has often been noted that although Montague in PTQ analyzed *every man, a man, the man* as term phrases, interpreted as generalized quantifiers, he did not put *every, the, a* into any category, but treated them syncategorematically.
- As later work made clear, there is no obstacle to having a category of Det, representable as T/CNP in the notation of PTQ. Montague evidently didn't bother as long as he had only three determiners.
- But we see notes in which he was considering expanding the set of determiners, and then giving them a category. He has discussion in various places about treating *any* as a wide-scope universal quantifier and *a certain* as a wide-scope existential, and the complications that would be required in the syntax to enforce that.
- The student-written notes from Philosophy 260 in Winter 1968 include two pages of "An example of Prof. M's grammar: English" – just the syntax, in very formal form, but it includes *a, all, every, some, no, two, three, any, a certain, the*.

Unfinished work, *cont'd.*

- Later in a set of notes from fall quarter 1968, there is a discussion of two "possible extensions" (of the EFL fragment, I believe), each of which requires some supplementary defined syntactic notions. One is "modern negation" (EFL just used sentence-final *not* for syntactic simplicity), for which we "need to be able to single out *main occurrence* of *main verb* of a formula." And then there come some more notes about quantifiers:
- "To do '*all*', need to single out *main noun occurrence* in order to pluralize correctly." (Montague had in mind to derive plural CNPs from singular ones.)
- And then the notes report him as going on to say, "Cardinals should be easy once we can do plurals. Since there are infinitely many, we would probably want to introduce Quantifiers as a syntactic category."

Unfinished work, *cont'd.*

- In another folder among notes that seem to be related to EFL, we find a handwritten page with an early idea about including a category Q of quantifiers, including lexical "basic quantifiers": "BQ = {*every, no, the, a, only the, all, 1, 2, ...* }". As well as striking out the last ones, he added a marginal note "**Probably no category**".
- He continued worrying about plurals in fall 1969 and spring 1970. He pretty clearly hoped to include some plurals in PTQ, but in the end he did not; he even had to spoil the generality of his treatment of *and* and *or*; with term phrases he has only *or*, to avoid plurality.
- We find notes in Oct 69 where he is worrying about '**committee**' and about whether plurals designate sets and plural verbs sets of sets; in an update Mar 70 he notes that he still thinks so, and thinks '**committee**' also designates a set of sets, ... and that '**numerous**' is a higher-order predicate (since it can apply to '**committee**').
- This strategy, which he did not implement anywhere, was later followed by Michael Bennett in his work on plurals (Bennett, 1974).

Unfinished work, *cont'd.*

- Compared to linguists' work in the 1960's, Montague's fragments come close to "direct compositionality". Many of us argued that with his powerful semantics, syntax could be simpler.
- But in his handwritten notes from 1970, there are quite a few cases where he explores making a distinction between "deep structure" and "surface structure" (his words) for some problematic cases, e.g. involving the distribution of *any*.
- And these notes from September 1970 are surprising, because Montague grammarians used Montague's analysis of quantifiers and relative clauses to argue against Generative Semantics:

'**two men love a woman who loves them**' 'perhaps get this from: **two men love a woman and she loves them**. (How get THAT??)

A woman who loves them kills two men / Women who love them kill two men

perhaps get the first from: **a woman kills two men and she loves them**.

Unfinished work, *cont'd.*

- But he didn't put anything like that in any of his fragments; he evidently knew that he hadn't figured out everything about plurals and plural anaphora, and he evidently didn't like to put anything really speculative into published fragments.
- Another case of invoking something like transformations and a deep vs. surface structure distinction (for him 'direct generation' vs 'indirect generation via paraphrase'):
- In PTQ he says that now, unlike in UG, he is not directly deriving "J.M.E. Moravcsik's **a unicorn appears to be approaching**, in which an indefinite term *in subject position* would have a nonreferential reading, but must treat it indirectly as a paraphrase of **it appears that a unicorn is approaching** or **that a unicorn is approaching appears to be true.**" (PTQ, p. 248)
- N.B.: How can indirect derivation be compatible with his framework? I believe that most of us figured that 'transformations' could be included in the "ambiguating relation". Maybe that was McCawley's idea – I've forgotten and haven't gone back to check.

Unfinished work, *cont'd*: Passive.

- The treatment of passives comes up quite a few times in Montague's notes but never got into any published fragment.
- The main semantic problems concern the relation between a passive sentence and the corresponding active sentence.
- If an active sentence has an intensional object position (e.g. with **seeks**), does the corresponding passive with **is sought by** have an intensional subject position? Do quantifier scopes sometimes change from active to passive, as Chomsky claimed (1957, 1975) with his famous '**Everyone in this room speaks two languages**' and '**Two languages are spoken by everyone in this room.**'
- Is the semantics of passives best accounted for by deriving them from active sentences, or by generating them separately?

Unfinished work, *cont'd*: Passive.

- At the time of Montague's death (March 7, 1971) (b. Sept. 20, 1930), I had been hoping to ask him how he would want to treat sentences like 'There was believed to be a unicorn in the garden', sentences with interaction of passive, existential *there*, and 'raising', all topics which Michael Bennett subsequently treated in his dissertation (1974) and in (Bennett, 1976).)

Michael R. Bennett

Unfinished work, *cont'd*: Passive.

- Montague never discussed any of these issues in his writings, so it is interesting that we find in the archives that he did worry about passives, particularly in connection with intensionality, with quantifier scope issues, and with the same sorts of issues concerning direct compositionality vs. a transformation-like treatment that we saw him debating for *appears* between UG and PTQ.
- In Box 3, Folder 2, there is an undated page with a passive rule made up from a TVP and two T's, putting one as subject and the other as accusative object of *by*, i.e. a direct derivation. But then he inserted a marginal note, "Probably omit."
- Summer 69: a big set of handwritten notes, including a lot about *seek* and *conceive*, continuing to worry about Berkeley's argument. And those notes include more worrying about passive.

Unfinished work, *cont'd*: Passive.

- Included are 3 pages of notes, thinking about passive.
- (i) *P is sought by Q*:
- For every term β without free variables, ⌜λQ β is sought by Q⌝ is extensional w.r.t. [model] *A*. ⌜seeks⌝ is extensional w.r.t. its subject (but not its object) (in the intended model *A*). ⌜is-sought-by⌝ is extensional w.r.t. its object (in intended model *A*).
- ... Compare:
- Every man loves a woman.
  A woman is-loved-by every man
- Perhaps these are not synonymous. Hence also perhaps not
- Jones seeks a unicorn
  A unicorn is sought by Jones

Unfinished work, *cont'd*: Passive.

- [Montague's notes, continued:]
- No, I now think not. It's only that although ⌜loves⌝ is an extensional transitive verb and is extensional w.r.t. its subject, it's not extensional w.r.t. its object. For ⌜is-loved-by⌝ we have two courses: (i) to regard ⌜P is loved by Q⌝ as synonymous with ⌜Q loves P⌝ for all terms P and Q; then ⌜is-loved-by⌝ would not be an extensional transitive verb. Or (2) to define
- ⌜is-loved-by⌝ λQ λP ...
  (*P* is-loved-by *Q* ≡ *P* is-*u* such that *Q* is-*v* such that it-*v* loves it-*u*.)
  I think that course (2) is preferable. But let's try applying it also to ⌜is-sought-by⌝ :
  P is-sought-by *Q* ≡ *P* is-*u* such that *Q* is-*v* such that it-*v* seeks it-*u*.
  Then ⌜is-sought-by⌝ becomes an extensional transitive verb. And so will all passives.
- [End of those three pages of notes.]

Unfinished work, *cont'd*: Passive.

- Later in the same set of notes (45-51), he considers issues connected with scope ambiguities involving the present perfect, the adverb *necessarily*, other adverbs, and the passive.
- (see my SuB paper for some details)
- There are other places in his notes where we can see him debating with himself about whether passive sentences unambiguously have wide scope for the surface subject (as he evidently believed when he wrote the notes just above) and about whether they are unambiguously extensional with respect to the surface subject position.
- Some of the same uncertainties appeared (independently – I never heard him say anything about passives in my presence) in my first work on Montague grammar (Partee, 1973). He seems to be accumulating evidence that passive should be an operation on transitive verbs, as later advocated by Dowty (1979), or on transitive verb phrases, as advocated by Bach (1980), not as operations on sentences as in classical transformational grammar, not even on sentences with free variables in argument position, as suggested by Partee (1973).

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4. Montague's syntax and responses to it

- Real categorial grammar and Montague's use of categorial grammar
  Compare David Lewis in 'General semantics': categorial base, plus transformations
- Early responses to Montague's syntax, positive and negative
  terminology note: Montague Grammar, Montague Semantics
- Two directions:
  - MG & TG, and adding constraints, vs.
  - Non-transformational grammar (Gazdar and later; an intermediate step was Dowty's "Governed transformations as lexical rules".

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Montague's syntax and responses, *cont'd.*

- Much of my own early work was concerned with how to make MG compatible with TG and with the generative grammar enterprise more generally.
- About Partee, Barbara H. 1979. Constraining Montague grammar: a framework and a fragment (description by the editors of the volume):
- Partee addresses a major concern of linguists not generally shared by logicians: that of constraining as narrowly as possible the class of possible grammars of human language. She notes that while Montague's theory of grammar incorporates strong constraints on the relation between syntactic and semantic rules, it has almost no constraints on the form of syntactic or semantic operations.

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Montague's syntax and responses, *cont'd.*

- Partee takes on the task of further constraining the syntax. She first proposes several modifications of Montague's syntactic component. These include the use of labeled brackets, the introduction of syntactic "features" as recursively defined properties of expressions, relaxation of the requirement that syntactic operations be total functions, and the concomitant addition of "structural analysis statements" to syntactic rules and the separation of syntax and morphology.
- She then suggests the following constraints on the syntax:
- (C1) no internal structure building;
- (C2) no extrinsic rule ordering;
- (C3) no obligatory rules;
- (C4) no purely abstract morphemes; and
- (C5) no appeal to derivational history.

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Montague's syntax and responses, *cont'd.*

- She proposes that syntactic operations be required to be expressed by a combination of subfunctions [added note: in a footnote I note that I got this idea from Emmon], the subfunctions representing language particular recurrent operations which are definable as a composition of primitive operations.
- She presents a stock of these primitive operations and a framework containing these modifications and constraints, then reconsiders the fragment of English in PTQ in light of this framework. [end of description by editors]
- Comment: This had little influence. Instead, attention pretty soon turned to non-transformational grammars -- GPSG and Extended Categorial grammars especially. Nobody ever worked hard on revising TG to be compatible with MG in a direct compositionality mode; when formal semantics and TG got together, it was through Irene Heim's work, with a derived level of LF as the input to semantics.

5. Tectogrammatical Structure

- The "tectogrammatical" level of the Prague school is similar to Lewis's structured meanings, and linguistically motivated.
- The distinction between **tectogrammatical** and **phenogrammatical** structure comes from Haskill Curry (1961).
- Tectogrammatical structure is analogous to Montague's derivation trees; it reflects how a sentence is built up, abstracting away from language-particular realization.

Tectogrammatical Structure, *cont'd.*

- David Dowty (1982) advocated linguistic recognition of the tectogrammatical - phenogrammatical distinction, using a modified version of Montague's analysis trees, eliminating the language-particular expressions at the nodes.
- Montague's distinction between syntactic **rules** (such as transitive verb-plus-object combination) and syntactic **operations** (such as concatenation and assignment of accusative case) corresponds to the tecto-/pheno- distinction.
- Dowty suggested that the **rules**, and hence the tectogrammatical structures, may well be universal. What varies are the morpho-syntactic **operations** that are used in the rules.

Tectogrammatical Structure, *cont'd.*

- Reinhard Muskens offers a version which gives a core tectogrammatical structure for each sentence, and then with explicit mapping rules maps that common structure homomorphically both onto a morphosyntactic structure (and a terminal string) and a semantic interpretation.
- This structure in effect shows the common algebraic structure of semantics and syntax for a language, and is compatible with many different theories of what meanings are and of morpho-syntactic structure.
- As in Montague: syntax is an algebra, semantics is an algebra, and there should be a homomorphism between them. This is the same idea in cleaner and clearer form.

Selected references

- Here are a few key references; you can ask me for more. My history work is collected on my website:
  http://people.umass.edu/partee/
  Research.htm#1._The_History_of_Formal_Semantics

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