1 Type theories

For each of the following type definitions, provide a succinct description of the set of types generated. This shouldn't take more than a few sentences for each. The more concise, the better, but the description needs to be an intuitive English one of the sort you would use in giving a lecture.

Definition 1 (PTQ; Montague 1973). The smallest set $\text{Types}_M$ such that

i. $e, t \in \text{Types}_M$

ii. If $\sigma, \tau \in \text{Types}_M$, then $\langle \sigma, \tau \rangle \in \text{Types}_M$

iii. If $\sigma \in \text{Types}_M$, then $\langle s, \sigma \rangle \in \text{Types}_M$

Definition 2 (Potts 2005). The smallest set $\text{Types}_{\text{CP}} = \text{Types}_{\text{AI}} \cup \text{Types}_{\text{CI}}$ such that

i. $e, t \in \text{Types}_{\text{AI}}$

ii. $e^c, t^c \in \text{Types}_{\text{CI}}$

iii. If $\sigma, \tau \in \text{Types}_{\text{AI}}$, then $\langle \sigma, \tau \rangle \in \text{Types}_{\text{AI}}$

iv. If $\sigma \in \text{Types}_{\text{AI}}$ and $\tau \in \text{Types}_{\text{CI}}$, then $\langle \sigma, \tau \rangle \in \text{Types}_{\text{CI}}$

2 Entailments

i. Provide both scope representations for Most unicorns love every student using the fragment from the 'Lambda calculi for linguistic theories' handout.

ii. If there is an entailment relation between the two representations, say what it is, and try to convey why it holds. If there is no entailment relation between the two representations, then provide models that fully distinguish them.

3 Generalizing booleans

i. Extend the fragment from the 'Lambda calculi for linguistic theories' handouts to include $\neg$ (negation; type $\langle t, t \rangle$), $\lor$ (disjunction; type $\langle t, \langle t, t \rangle \rangle$), and $\land$ (conjunction; $\langle t, \langle t, t \rangle \rangle$).

ii. Now define terms that allow us to use your boolean denotations on as wide a range of expressions as you can manage. Intuitively, you should be allowing for phrases like student and unicorn, run and walk, believe or deny, and every or no. Your terms should use meta-variables over types. You will need to define them recursively for the functions that are not in $\langle \sigma, t \rangle$.

4 Chutes and ladders

Define a path around Partee’s (1987) Diagram 1 that begins with an entity (type $e$) and leads you all the way back around to that entity again. Write down the semantics of the steps you take.
5 Definite and indefinite  [1 point]

Show that Partee's (1987) THE and a differ by finding an argument for which they return different values. Articulate what the difference between the values is.

6 Predicative universals  [2 points]

What is the status of BE(every(φ))? Is it defined? If not, why not? If so, what values can it have?

7 A question and answer from you  [2 points]

Articulate your own question and answer it. The goal should be a question that could have been included on this assignment. Ideally, it will be a question that encourages further reflection on the handouts or required readings for this unit, leading to new and deeper insights for the person who answers it. I plan to include a selection of these responses in a future assignment.

References


