PS Introduction to Semantics SoSe 2013

Final Exam

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You can reach a total number of 64 points in this exam. You have to reach more than 50% of the points (i.e., at least 32.5 points) to pass.

1 Predicate Logic

Task 1: Ambiguous sentences (7 points)
Consider the following ambiguous sentences:

(1) a. Kenobi trusted Luke because he was a jedi.
b. Every jedi owns a lightsaber.
c. Luke and Han fought the Death Star.
d. Darth Vader killed a jedi with a lightsaber.

1. For **each** of these, determine the type of ambiguity.
2. Pick **one** of the sentences provide an unambiguous paraphrase for the possible readings.

Task 2: Model and Interpretation (7 points)
(Note: For this task you do not need to use the functional notation and the types)

1. Define a universe that consists of Han Solo and Chewbacca.
2. Define the interpretation of the names **han** and **chewbacca** in an intuitively plausible way.
3. Define the interpretation of the properties **wookiee**, **pilot**, and **sith-lord** is such a way that Chewbacca is a Wookiee, both are pilots and neither is a sith-lord.
4. Define the interpretation of the 2-place relation **friend-of** in such a way that Han Solo is Chewbacca's friend an the other way around.

Task 3: Formulæ (7 points)
Write down logical formulæ that express the meaning of the following sentences.

1. Chewbacca is a Wookiee.
2. Han Solo is a pilot or Chewbacca is a Sith-Lord.
3. Chewbacca is the friend of Han Solo.

Task 4: Interpreting formulæ (8 points)
Compute the interpretation of the following formulæ step by step.

1. $\neg$**friend-of**(**han**, **chewbacca**)
2. **pilot**(**chewbacca**)
3. **wookiee**(**chewbaccca**)$\supset$**pilot**(**chewbacca**))

Task 5: Variables (2 points)
Provide a g-function that maps the variables x, y, and z to individuals from the universe and compute the interpretation of the following formula with respect to the model and your g.

(i) **wookiee**(z)

Task 6: Truth table (4 points)
Provide the truth table for the following abstract formula: $((\neg p) \vee q)$

2 Lexical Resource Semantics

Task 7: Lexical entry (8 points)
Add the values of the semantic features (marked by "???") and include the linking information to the lexical entry in (i).

$$\begin{bmatrix} \textsc{phon} & \langle \textit{likes} \rangle \\ \textsc{head} & \textit{verb} \\ \textsc{val} & \begin{bmatrix} \textsc{subj} & \langle \text{NP} \left[\textsc{cont|index|var} \quad \textit{???}\right] \rangle \\ \textsc{spr} & \langle\rangle \\ \textsc{comps} & \langle \text{NP} \left[\textsc{cont|index|var} \quad \textit{???}\right] \rangle \end{bmatrix} \\ \textsc{cont} & \begin{bmatrix} \textsc{index} & \begin{bmatrix} \textsc{phi} & \textit{???} \\ \textsc{var} & u_e^{ev} \end{bmatrix} \\ \textsc{main} & \textit{???} \end{bmatrix} \\ \textsc{lrs} & \left[\textsc{parts} \quad \textit{???}\right] \end{bmatrix}$$

Task 8: Syntactic structure (6 points)
Using the lexical entry from Task 7, provide the syntactic structure of the sentence *Chewbacca likes Han Solo* according to the conventions introduced in class. Indicate **all** the syntactic features at each node in the tree.

Task 9: General mechanisms of LRS (12 points)

1. Provide the logical form for the sentence from Task 7, add the semantic types!
2. Indicate the PARTS lists for each node in the syntactic tree of the sentence.
3. How is it ensured that the syntactic arguments are interpreted in the right semantic argument slots?

Task 10: Local semantic phenomena (3 points)
What kind of semantic restriction is violated in the deviating forms of the following sentences? Give a reason for your decision.

1. [Luke's strike against the Death Star]/#[Luke's ship] happened in the last possible moment.
2. [The Millenium Falcon]/?[The traverlers in the Millenium Falcon] landed safely in the Rebellion's hiden base.

Good luck!