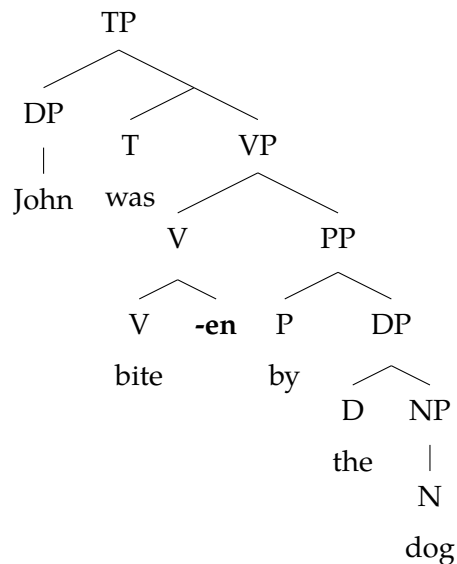


Problem Set 4

Due February 15 before class. Submit on IVLE > Files > Student Submission > PS4.

1. **Passivization:** Propose a semantics for the passive morpheme $\llbracket\text{-en}\rrbracket$ for the following tree. (“bite-en” is pronounced “bitten.”) Assume $\llbracket\text{by}\rrbracket = \text{Id}$, the identity function.



Then compute the truth conditions for this sentence, giving semantic types, denotations, and the rule used for each node.

2. **Fake:** The semantics for adjectives that we have developed has the following property: if an individual is a $[\text{Adj N}]$ then it is a N . In general this is fine. For example, the entailment in (1) is true.

(1) Kara is a black cat. \Rightarrow Kara is a cat.

However, this is a problem for adjectives like *fake*.

- (a) First assume $\llbracket\text{fake}\rrbracket = \lambda x . x \text{ is fake}$. Compute the truth conditions for (2). Remember to give a tree and then for each node, give its semantic type, denotation, and what rule was used.¹ Show that the truth conditions you derived entails that (3) is true.

(2) This is a fake diamond.

(3) This is a diamond.

- (b) Write a different semantics for $\llbracket\text{fake}\rrbracket$ which does not run into this problem. Then recompute the truth conditions for (2), again showing all steps.

Hints: The entailment that “(2) \Rightarrow (3)” will be predicted as long as Predicate Modification is used to compose “fake” and “diamond.” So another rule must be used. Then what type must $\llbracket\text{fake}\rrbracket$ be?

¹Assume $\llbracket\text{this}\rrbracket \in D_e$. Its identity is not important here.