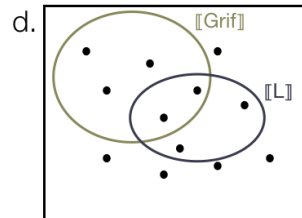
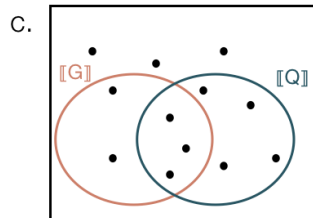
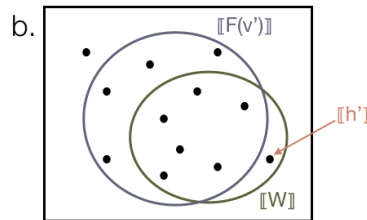
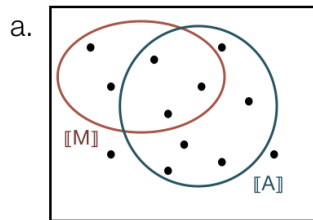


Semantic Theory 2020: Solutions exercise sheet 5

Exercise 1

Give the truth conditions for the following sentences, interpreting the (complex) determiner as a relation between sets. You can interpret each VP as a property (i.e., a set of entities). Illustrate your answer with a graphical representation of a model in which the sentence is true.

- a. $\llbracket \text{Some but not all Muggles are afraid of magic} \rrbracket = 1$ iff
 $\llbracket A \rrbracket \in \{P \subseteq U_M \mid \llbracket M \rrbracket \cap P \neq \llbracket M \rrbracket \text{ and } \llbracket M \rrbracket \cap P \neq \emptyset\}$ iff
 $\llbracket A \rrbracket \in \{P \subseteq U_M \mid \llbracket M \rrbracket \cap P \subset \llbracket M \rrbracket\}$ iff
 $\llbracket M \rrbracket \cap \llbracket A \rrbracket \subset \llbracket M \rrbracket$
- b. $\llbracket \text{Every wizard but Harry fears Voldemort} \rrbracket = 1$ iff
 $\llbracket F(v) \rrbracket \in \{P \subseteq U_M \mid \llbracket W \rrbracket \cap P = \llbracket W \rrbracket \setminus \llbracket h \rrbracket\}$ iff
 $\llbracket W \rrbracket \cap \llbracket F(v) \rrbracket = \llbracket W \rrbracket \setminus \llbracket h \rrbracket$
- c. $\llbracket \text{At most five girls play Quidditch} \rrbracket = 1$ iff
 $\llbracket Q \rrbracket \in \{P \subseteq U_M \mid \text{card}(\llbracket G \rrbracket \cap P) \leq 5\}$ iff
 $\text{card}(\llbracket G \rrbracket \cap \llbracket Q \rrbracket) \leq 5$
- d. $\llbracket \text{Few Gryffindors are lazy} \rrbracket = 1$ iff
 $\llbracket L \rrbracket \in \{P \subseteq U_M \mid \text{card}(\llbracket Grif \rrbracket \cap P) < \text{card}(\llbracket Grif \rrbracket \setminus P)\}$
 (“there are less lazy than non-lazy Gryffindors”) iff
 $\text{card}(\llbracket Grif \rrbracket \cap \llbracket L \rrbracket) < \text{card}(\llbracket Grif \rrbracket \setminus \llbracket L \rrbracket)$



Exercise 2

Determine the monotonicity properties (left and right) of the following determiners. Show how you derived these monotonicity properties.

- a. at least five: $\uparrow mon \uparrow$
- b. at most five: $\downarrow mon \downarrow$
- c. exactly five: $-mon-$
- d. some but not all: $\uparrow mon-$

Derived using the following tests:

$\downarrow mon$	DET animals walked \models DET dogs walked.
$\uparrow mon$	DET dogs walked \models DET animals walked.
$mon \downarrow$	DET dogs walked \models DET dogs walked rapidly.
$mon \uparrow$	DET dogs walked rapidly \models DET dogs walked.