

Natural Language Processing

Problem set 4

Q1.

- a. Amanda likes all snakes.

$$\forall x, Likes(Amanda, x)$$

- b. Everyone likes the sky. (I.e., every person likes the sky)

$$\forall x, Likes(sky, x)$$

- c. All foods that are sweet are delicious.

$$\forall x, Food(x) \wedge Sweet(x) \Rightarrow delicious(x)$$

- d. Some people who like snakes are crazy.

$$\exists x, Likes(x, snake) \Rightarrow crazy(x)$$

- e. Everyone who knows Genevieve loves Genevieve.

$$\exists x, \forall y, knows(Genevieve, x) \Rightarrow Loves(Genevieve)$$

Q2.

Everyone misses someone.

$$\forall x, \exists y, misses(x, y)$$

$$\exists x, \forall y, misses(x, y)$$

Q3.

Grace put the car in the garage at 5 p.m.

$$\exists e Person(e, Grace) \wedge park(e, car) \wedge place(car, garage) \wedge At(garage, 5 p.m)$$

Q4.

Hypernym - hyponym example:

Bird - Pelican, Peacock, Parrot

Troponym example for verb:

Lisp - Talk

Crawl - Travel

Q5.

Homonym: Same spelling & same sounds but different senses or no related meaning.

pen (a writing implement with a point from which ink flows)

pen (female swan)

pen (a correctional institution for those convicted of major crimes)

Polysemy: Same spelling and same sounds but expresses different meanings.

pen (an enclosure for confining livestock)

pen (a portable enclosure in which babies may be left to play)