

## Symbolizations with multi-place predicates (Unit 5: Sections 5.6-5.9)

Symbolize each of the following sentences using the abbreviation scheme provided

$A^1$ :  $a$  is an animal.

$B^1$ :  $a$  is a mouse.

$C^1$ :  $a$  is cat.

$D^1$ :  $a$  is a dog.

$F^2$ :  $a$  is afraid of  $b$ .

$G^2$ :  $a$  chases  $b$ .

$a$ : Astro

$b$ : Bandit

- S5.74** All dogs chase cats.
- S5.75** All mice are chased by animals.
- S5.76** Some cats are chased by dogs.
- S5.77** No dog chases all cats.
- S5.78** Some dogs do not chase any cats.
- S5.79** Some dogs do not chase some cats.
- S5.80** Some cats chase mice, but not all mice are chased by cats.
- S5.81** All cats and dogs chase mice.
- S5.82** Some dogs chase cats and mice.
- S5.83** Mice are afraid of cats and dogs.
- S5.84** Although Astro is a dog, he doesn't chase cats or mice.
- S5.85** No dog that chases Bandit is afraid of cats that chase dogs.
- S5.86** Any animal that Bandit chases is afraid of her.
- S5.87** Any dog that chases mice chases cats.
- S5.88** Not all animals that chase cats are dogs.
- S5.89** Some dogs chase cats that chase mice.
- S5.90** Mice are afraid of cats that chase them.
- S5.91** Mice, which are afraid of cats, get chased by them.
- S5.92** Some cats are chased by dogs that don't chase mice.
- S5.93** Dogs and cats are animals that chase things.
- S5.94** Astro chases those and only those cats that don't chase Astro.
- S5.95** Any cat is afraid of a dog that chases it.
- S5.96** Bandit isn't afraid of dogs unless they chase her.
- S5.97** Some cats are not afraid of dogs unless the dogs chase them.
- S5.98** No dog is afraid of a cat unless the cat chases them.
- S5.99** Dogs that are afraid of cats don't chase any animals at all.
- S5.100** Bandit chases only those dogs that chase the mice that Bandit chases.

Symbolize each of the following sentences using the abbreviation scheme provided

$A^1$ :  $a$  is an author.

$B^1$ :  $a$  is a book.

$C^1$ :  $a$  is a magazine.

$F^1$ :  $a$  is a person.

$G^1$ :  $a$  is a time.

$H^2$ :  $a$  writes  $b$ .

$I^2$ :  $a$  is about  $b$ .

$L^2$ :  $a$  likes  $b$ .

$M^3$ :  $a$  reads  $b$  at  $c$

**S5.101** Nobody likes everyone.

**S5.102** Someone likes everyone. (Ambiguous – symbolize two different ways.)

**S5.103** Everybody likes somebody. (Ambiguous – symbolize two different ways.)

**S5.104** Nobody is liked by everyone.

**S5.105** Everybody likes those who like them.

**S5.106** Some people like only those who like them.

**S5.107** Nobody who likes only those who like them likes people who like nobody.

**S5.108** Authors are people who write books.

**S5.109** People who write books like at least some books.

**S5.110** People who like exactly the same books as each other like the same magazines too.

**S5.111** Some people write books that are about people who write books.

**S5.112** Any authors who only write books about things that they like, also like things that they don't write books about.

**S5.113** All books are read by someone or another at some time or another.

**S5.114** Everybody who writes books reads books.

**S5.115** Those people who never read books don't write books.

**S5.116** People who only ever read magazines don't like books.

**S5.117** Only people who have never read magazines like everything that they have ever read.

**S5.118** Some authors don't ever read magazines, but every magazine gets read by some author.

**S5.119** Anybody who likes every book that he/she ever reads doesn't ever read books about things that he/she doesn't like.

**S5.120** Not all authors write books about things that they have read books about.

**S5.121** Nobody who reads books likes all the books he/she has ever read.

**S5.122** Only authors like all the books that they have ever read.

**S5.123** Although all books are read by people sooner or later, not all books are ever read by the same person.

**S5.124** Not everyone reads the same book at the same time.

**S5.125** Someone is always reading a book. (Ambiguous – symbolize 4 diff. ways.)

Symbolize each of the following sentences using the abbreviation scheme provided

$A^1$ :  $a$  is a restaurant.

$B^1$ :  $a$  is a business.

$C^1$ :  $a$  is a store.

$D^1$ :  $a$  is a day.

$F^1$ :  $a$  is a food.

$H^1$ :  $a$  is a person.

$J^2$ :  $a$  is more expensive than  $b$ .

$K^2$ :  $a$  shops at  $b$ .

$L^3$ :  $a$  eats at  $b$  on  $c$ .

$M^3$ :  $a$  buys  $b$  from  $c$ . (Or  $c$  sells  $b$  to  $a$ .)

$a$ : Honest Ed's

$b$ : Holt Renfrew

**S5.126** Some stores are more expensive than any restaurant.

**S5.127** Some people only buy things from stores that are more expensive than Honest Ed's.

**S5.128** Nothing people buy at Honest Ed's is more expensive than anything people buy at Holt Renfrew.

**S5.129** Stores and restaurants are businesses that sell things to people.

**S5.130** Some days nobody eats at some restaurants.

**S5.131** For a business to be a store, it is necessary that people shop there.

**S5.132** For a business to be a restaurant, it is not sufficient that people buy food from it.

**S5.133** Unless a person eats at restaurants every day, that person has to buy food from a store.

**S5.134** If anybody shops at a store, then somebody buys things from somebody.

**S5.135** If anybody shops at a store, he/she buys something from somebody.

**S5.136** Everybody buys things from stores, but no store sells things to everybody.

**S5.137** Not every business that sells food to people is a restaurant.

**S5.138** Some people don't shop at stores unless those stores are less expensive than Holt Renfrew.

**S5.139** Although Holt Renfrew is more expensive than Honest Ed's, not everything that Holt Renfrew sells to people is more expensive than everything that Honest Ed's sells to people.

**S5.140** Everybody eats at a restaurant some days, but nobody eats at restaurants every day.

**S5.141** A business that sells things that are more expensive than anything people buy from any store is not a place where people shop.

**S5.142** Some people who shop at exactly the same stores as each other, don't buy anything from the same person.

**S5.143** Nobody buys everything they buy from the same store.

**S5.144** Every store sells things to someone. (Ambiguous – symbolize two different ways.)

**S5.145** There are restaurants where people eat every day. (Ambiguous – symbolize two different ways)

**S5.146** Somebody eats at some restaurant every day. (Ambiguous – symbolize four different ways.)