

CSE 415 Homework 2 Part 1

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1. For each of the following, determine which of the two relations “subsetof” or “element-of” is being represented, and reformulate the statement to make this clearer. The first one is done for you. If you find genuine ambiguity in a statement, justify each of the possible interpretations.

- Fido is a dog

Fido \in dogs

- A parrot is a bird

parrot \subset birds

- Polly is a parrot

Polly \in parrots

- David Jones is a Jones

David Jones \in Jones

- George Washington is a great name

George Washington \in names

- Artificial Intelligence is a state of mind

Artificial Intelligence \subset state of minds

2. For each of the following relations, state whether or not it is reflexive, whether or not it is symmetric, whether or not it is transitive, whether or not it is antisymmetric, and whether or not it is a partial order. For each example, let the set S on which the relation is defined be the set of elements mentioned in that example.

- (a, a) Reflexive, antisymmetric, symmetric and transitive. So it is partial order.
- (a, b), (a, c), (b, c) Antisymmetric only.

- $(a, b), (b, c)$ Antisymmetric only.
- Reflexive, antisymmetric, symmetric and transitive. So it is partial order.