Green Mathematics for Machine Learning
Bayesian Creatures
Lesson 1: Sets

Teacher's Guide

The purpose of this lesson is to prepare students to create sets from data tables by giving them a foundation in set theory.

The set theory used is naive set theory as there is little practical application at this stage for axiomatic set theory.

Students will be asked to make sets and subsets, calculate set cardinalities, and set ratios.

Terms used in this lesson

- **Set**

A collection of things.

- **Subset**

A smaller set formed from a larger set (called a **superset**).

- **Set Cardinality**

The number of elements that are members of a set.

Set rules

1) Sets don’t repeat elements.
S = {1, 2}, not S = {1, 1, 2, 2, 2}

2) Order doesn’t matter
{1, 2, 3} = {1, 3, 2} = {2, 1, 3} = etc.

3) Sets can be members of sets
{a, b, {c, d}, e, f}

4) A set containing something is not the same as the thing itself.
{a} ≠ a

Additional materials

Bayesian Creatures L1 - Worksheet 1.pdf

Bayesian Creatures L1 - Worksheet 1 - Large Print.pdf

Estimated time

50-60 minutes