**Nearest neighbour worked example**

Instances are: 2 classified reviews – topic is film or books; plus a new (unclassified) review - topic unknown.

Attributes are the word counts for 3 different words.

| | Word 1 | Word 2 | Word 3 | Class |
|---|---|---|---|---|
| Review 1 | 10 | 25 | 10 | films |
| Review 2 | 10 | 10 | 35 | books |
| New review | 5 | 8 | 12 | ? |

Compute the sum-squared distance between each instance *a* and the new instance *b* with attributes from 1 to *F*

$$\sum_{i=1}^{F-1}(v(a,i)-v(b,i))^2$$

and pick the smallest.

Subtract values for the unknown review

| | Word 1 | Word 2 | Word 3 | Class |
|---|---|---|---|---|
| Review 1 | 10-5 = 5 | 25 - 8 = 13 | 10 – 12 =2 | films |
| Review 2 | 10 -5 = 5 | 10 – 8 = 2 | 35 – 12 = 23 | books |

Square the result

| | Word 1 | Word 2 | Word 3 | Class |
|---|---|---|---|---|
| Review 1 | 25 | 169 | 4 | films |
| Review 2 | 25 | 4 | 506 | books |

Sum

| | |
|---|---|
| 25 + 169 + 4 = 198 | films |
| 25 + 4 + 506 = 535 | books |

198 < 535 so the class of the new review is **films.**