## **Knowledge Representation**

## **Activity 1**

Vera, Winifred, Xanthippe, Yvette and Zelda are all women living in different UK cities (From West to East: Cardiff, Bristol, Bath, Oxford, London). They all have different shoe sizes (4,5,6,7,8) and have favourite foods (pizza, curry, pasta, sorbet and cake). Given the following clues, can you work out where each woman lives, how what size shoe she takes and what her favourite food is?

The smallest shoe is worn by either Vera or Yvette

Xanthippe's closest Western neighbour is a pizza lover; she also has a friend to the West who takes size 7 shoes

The Bristolian likes curry while Winifred prefers a dessert.

Xanthippe lives to the East of the lady with the largest feet, but this is not Zelda or Winifred (Yvette's neighbour-but-one to the East)

Vera lives in Oxford; the Welsh lady\* likes cake.

Zelda's feet are only just bigger that Yvette's but only just smaller than the lady who likes pasta

Fill in your answers in the table below.

Name	City	Shoe Size	Food
Vera			
Winifred			
Xanthippe			
Yvette			
Zelda			

## **Introduction to Artificial Intelligence**

1:1

range of height is cm transitive

## **Activity 2: A Richer KRL**

Derek, Eric, Simon, Victor and Walter are all men related to each other in an unbroken line, great great grandfather to son. They are all of different heights (145, 155, 165, 175 and 185cm) and have favourite foods (apples, oranges, bananas, potatoes and Brussels sprouts). Given the following clues, can you work out where each man is in the family tree, how tall he is and what his favourite food is?

- 1. The shortest member of the family is Victor or Eric 3 negations
- 2. Derek's father is an apple lover; he also has an ancestor who is 175cm tall. 3 negations
- 3. The great grandfather likes oranges while Walter prefers a vegetable

subclass food = {fruitlveg}

- 4. Derek is descended from the tallest member of the family, but this is not Simon or Walter (Eric's grandson)
- 5. Victor is the father in the family tree; the great grandfather likes Brussels sprouts
- 6. Simon is 10cm taller than Eric but 10cm shorter than the person who likes bananas transitive: eric does not like bananas, 2+ people shorter than banana person

The grid below effectively uses a richer KRL – you can express what things could be, or can't be, or might be. Each row and column in each sub-table should have exactly one tick in it when you have finished

	Relationship					Height (cm)				Favourite Food					
	Great Great Gran dfath er	Gran dfath er	Gran dfath er	Fathe r	Son	145	155	165	175	185	Appl es	Bana nas	Bruss els Spro uts	Oran ges	Potato es
Derek															
Eric															
Simon															
Victor															
Walter															
Apples	X														
Bananas	X														
Brussels Sprouts	×														
Oranges	V	×	X	X	X										
Potatoes	X														
145cm															
155cm															
165cm															
175cm															
185cm															