

F06 Functions exercise

Course in Semantics · Ling 531 / 731
McKenzie · University of Kansas

Key

1. Distinguish a function's domain from its range.

A function's domain is the set of possible inputs to the function. Its range is the set of possible outputs

2. If we had a function from the set of US presidents to the set of states, such that $f(x) = x$'s birth state, complete the following.

$$f = \left[\begin{array}{lll} \text{Coolidge} & \rightarrow & \text{Vermont} \\ \text{Nixon} & \rightarrow & \text{California} \\ \text{Obama} & \rightarrow & \text{Hawai'i} \\ \text{Jefferson} & \rightarrow & \text{Virginia} \end{array} \right]$$

3. Given the following mappings, write a description of the function.

$$f = \left[\begin{array}{lll} \text{Roman} & \rightarrow & a \\ \text{Greek} & \rightarrow & \alpha \\ \text{Cyrillic} & \rightarrow & a \\ \text{Arabic} & \rightarrow & \text{alif} \\ \text{Hebrew} & \rightarrow & \text{aleph} \end{array} \right]$$

The function f is the function from alphabets to their first letter

$$g = \left[\begin{array}{lll} \text{One Direction} & \rightarrow & \text{UK} \\ \text{98 Degrees} & \rightarrow & \text{UK} \\ \text{Backstreet Boys} & \rightarrow & \text{US} \\ \text{Menudo} & \rightarrow & \text{Puerto Rico} \\ \text{Westlife} & \rightarrow & \text{Ireland} \\ \text{New Kids on the Block} & \rightarrow & \text{US} \end{array} \right]$$

g is the function from boy bands to their country of origin

4. Write the above functions formally. For example

$$f : \{ x \mid x \text{ is a president} \} \rightarrow \{ x \mid x \text{ is a state} \}$$
$$f(x) = x\text{'s birth state}$$

$$f : \{ x \mid x \text{ is an alphabet} \} \rightarrow \{ x \mid x \text{ is a letter} \}$$
$$f(x) = x\text{'s first letter}$$

$$g : \{ x \mid x \text{ is a boy band} \} \rightarrow \{ x \mid x \text{ is a country} \}$$
$$g(x) = x\text{'s country of origin}$$