

3/10 (1:) Set isomorphism, String over  $V$

$$f: A \rightarrow B, \quad f^{-1} \subseteq B \times A$$

1-1  $f^{-1}$  uniqueness rel.  
 $\wedge$  onto  $f^{-1}$  total rel.

1-1 onto  $f^{-1}$  is function  $\rightarrow f: A \leftrightarrow B$

$$A \cong_f B \quad |A| = |B|$$

graph  $G = (V, E), \quad E \subseteq V \times V$

$$G^+ = (V, E^+)$$

$$G^* = (V, E^*)$$

$A^B \triangleq \{f: B \rightarrow A\}$ , Then  $|A^B| = |A|^{|B|}$ .

Example

$$V^{\{1, 2, \dots, n\}} = \{f: \{1, 2, \dots, n\} \rightarrow V\}$$

Ex.  $V = \{a, b, \dots, z\}$  string over  $V$  whose length is  $n$ .

$$n = 6$$

$$f(1) = s, f(2) = c, f(3) = h, f(4) = o, f(5) = o, f(6) = l$$

school

$V^*$  ... string over  $V$ .