

## Mapping Reducibility.

a function  $f: \Sigma^* \rightarrow \Sigma^*$

is a computable function

if some TM  $M$ , on every input  $w$  halts w/ just  $f(w)$  on its tape.

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Lang.  $A$  is mapping reducible to lang.  $B$  (written  $A \leq_m B$ )

if there is a computable function  $f: \Sigma^* \rightarrow \Sigma^*$  where for every  $w$   $w \in A \iff f(w) \in B$ .

$f$  is called the reduction of  $A$  to  $B$ .

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If  $A \leq_m B$  and  $A$  is undec. then  $B$  is undec.

If  $A \leq_m B$  and  $B$  is recognizable then  $A$  is recognizable.

If  $A \leq_m B$  and  $A$  is not Turing recognizable, then  $B$  is not Turing recognizable.

<http://public.gettysburg.edu/~cpresser/cs301/palindrome.jff>

0..23

person i : input i and 23-i

input of length i and 23-i

how many Times did you  
hit next.