

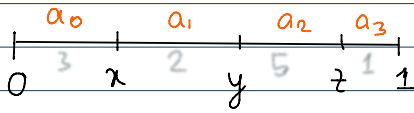
## Lemma 2

$$I(B) \rightarrow \bigcup_{\sigma \in R} I(\sigma, L, l, U, u)$$

$$\text{where } B = (R, L, l, U, u)$$

Infimum is the left endpoint.

Supremum is the right endpoint.



Infimum: 1

Supremum: 5

(1, 5)

$I(B)$  is an open interval.

if all  $a_i$ 's were  $\sigma$ 's, then the interval would have been closed.

Statement:  $A \leftarrow$  Timed automata  
 $\{p \in I \leftarrow$  duration constraint

$R_0, R_f \leftarrow$  2 regions on  $A$ .

$\exists$  two states  $\sigma \in R_0$  and  $\tau \in R_f$  and a real no.  $\delta \in I$  such that

$$(\sigma, 0) \xrightarrow{*} (\tau, \delta)$$

iff  $\exists$  in  $B_{p, R_f}(A)$ ,  $\exists$  a path to  $R_f$  from a bound labelled region  $B$  with region component  $R_0$  and  $I(B) \cap I \neq \emptyset$ .

An implication of Lemma 1.