

1. TAD DICCIONARIO(α)

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igualdad observacional

$$(\forall d, d' : \text{dicc}(\alpha)) \left(d =_{\text{obs}} d' \iff \left((\forall s : \text{string}) (\text{definido?}(s, d) =_{\text{obs}} \text{definido?}(s, d') \wedge (\text{definido?}(c, d) \Rightarrow \text{obtener}(s, d) =_{\text{obs}} \text{obtener}(s, d'))) \right) \right)$$

parámetros formales

géneros string, α

géneros $\text{dicc}(\alpha)$

exporta $\text{dicc}(\alpha), \text{generadores}, \text{observadores}, \text{borrar}, \text{claves}$

usa $\text{BOOL}, \text{NAT}, \text{CONJUNTO}(\text{STRING})$

observadores básicos

| | | | | | |
|--------------------|---|---|-------------------|---------------|------------------------------|
| definido? | : | string | \longrightarrow | bool | |
| significado | : | $\text{string } s \times \text{dicc}(\alpha)$ | \longrightarrow | α | $\{\text{definido?}(s, d)\}$ |

generadores

| | | | | |
|------------------|---|--|-------------------|-----------------------|
| crearDicc | : | | \longrightarrow | $\text{dicc}(\alpha)$ |
| definir | : | $\text{string} \times \alpha \times \text{dicc}(\alpha)$ | \longrightarrow | $\text{dicc}(\alpha)$ |

otras operaciones

| | | | | | |
|-----------------------------|---|---|-------------------|------------------------------|------------------------------|
| borrar | : | $\text{string } s \times \text{dicc}(\alpha) \ d$ | \longrightarrow | $\text{dicc}(\alpha)$ | $\{\text{definido?}(s, d)\}$ |
| claves | : | $\text{dicc}(\alpha)$ | \longrightarrow | $\text{conj}(\text{string})$ | |
| todosLosSignificados | : | $\text{dicc}(\alpha)$ | \longrightarrow | $\text{conj}(\alpha)$ | |

axiomas $\forall d : \text{dicc}(\alpha), \forall s, s' : \text{string}, \forall a : \alpha$

| | | |
|--|----------|--|
| $\text{definido?}(s, \text{crearDicc})$ | \equiv | false |
| $\text{definido?}(s, \text{definir}(s', a, d))$ | \equiv | $s = s' \vee \text{definido?}(s, d)$ |
| $\text{significado}(s, \text{definir}(s', a, d))$ | \equiv | if $s = s'$ then a else $\text{significado}(s, d)$ fi |
| $\text{borrar}(s, \text{definir}(s', a, d))$ | \equiv | if $s = s'$ then if $\text{definido?}(s, d)$ then $\text{borrar}(s, d)$ else d fi else $\text{definir}(s', a, \text{borrar}(s, d))$ fi |
| $\text{claves}(\text{crearDicc})$ | \equiv | \emptyset |
| $\text{claves}(\text{definir}(s, a, d))$ | \equiv | $\text{Ag}(s, \text{claves}(d))$ |
| $\text{todosLosSignificados}(\text{crearDicc})$ | \equiv | \emptyset |
| $\text{todosLosSignificados}(\text{definir}(s, a, d))$ | \equiv | $\text{Ag}(a, \text{todosLosSignificados}(d))$ |

Fin TAD