$[CELEBRITY]$
$ANS ::= YES \mid NO$
$LOC ::= HOME \mid AWAY$

___ *TrackingSystem* _____
  $observed : \mathbb{F}\ CELEBRITY$
  $home : \mathbb{F}\ CELEBRITY$
  _____
  $home \subseteq observed$
_____

___ *TrackingSystemInit* _____
  $TrackingSystem'$
  _____
  $observed' = \varnothing$
_____

___ *NewCeleb* _____
  $\Delta TrackingSystem$
  $in? : CELEBRITY$
  $where? : LOC$
  _____
  $where? = AWAY \Rightarrow home' = home$
  $where? = HOME \Rightarrow home' = home \cup \{in?\}$
  $observed' = observed \cup \{in?\}$
_____

___ *DeleteCeleb* _____
  $\Delta TrackingSystem$
  $in? : CELEBRITY$
  _____
  $observed' = observed \setminus \{in?\}$
  $home' = home \setminus \{in?\}$
_____

___ *Query* _____
  $\Xi TrackingSystem$
  $query? : CELEBRITY$
  $ans! : ANS$
  _____
  $query? \in observed \Rightarrow ans! = YES$
  $query? \notin observed \Rightarrow ans! = NO$
  $home' = home$
_____

```
┌─ WhereMet ─────────────────────────────────────────────
│ Ξ TrackingSystem
│ query? : CELEBRITY
│ ans! : LOC
├────────────────────────────────────────────────────────
│ query? ∈ observed
│ ans! = HOME ⇔ query? ∈ home
└────────────────────────────────────────────────────────
```