```
hsum_ty_def  THM

⊢  ∀'a,'b:S.
|  exists
|  (λrep:hsum('a; 'b) → hbool → 'a → 'b → hbool. type_definition
|                                                    (is_sum_rep
|                                                    ,rep))
| by Simpsetp [`hol_to_nuprl`] THEN StrongAuto
|
1. 'a : S
2. 'b : S
⊢  ∃rep:(hsum('a; 'b)→hbool→'a→'b→hbool).
|  type_definition(hbool→'a→'b→hbool;hsum('a; 'b);is_sum_rep;rep)
| by DTerm rep_sum 0 THEN Unab [`his_sum_rep`;`type_definition`]
|
|\
| 1. 'a : S
| 2. 'b : S
| 3. x' : hsum('a; 'b)
| 4. x'' : hsum('a; 'b)
| 5. rep_sum(x') = rep_sum(x'')
| ⊢  x' = x''
|   by L
|      Thm* ∀'a,'b:S, u,v:'a+'b.
|           rep_sum(u) = rep_sum(v) ∈ 𝔹→'a→'b→𝔹 ⇒ u = v
|      {hrep_sum_inj}
|      THEN
|      StrongAuto
|      THEN
|      Try (Complete (Unfold `label` 0))
|
|\
| 1. 'a : S
| 2. 'b : S
| 3. x : hbool→'a→'b→hbool
| 4. (λf:𝔹→'a→'b→𝔹. ∃_b u:'a+'b. (f =_b (rep_sum(u))))(x)
| ⊢  ∃x':hsum('a; 'b). x = rep_sum(x')
|   by Simpsetp [`hol_to_nuprl`] THEN StrongAuto
|
.\
. 1. 'a : S
. 2. 'b : S
. 3. x : hbool→'a→'b→hbool
. 4. ∃x':hsum('a; 'b). x = rep_sum(x')
. ⊢  (λf:𝔹→'a→'b→𝔹. ∃_b u:'a+'b. (f =_b (rep_sum(u))))(x)
.   by Simpsetp [`hol_to_nuprl`] THEN StrongAuto
END
```