```
lang_union_functionality  THM

⊢  ∀L,L',M,M':LangOver(Alph). L = L' ⇒ M = M' ⇒ (L U M) = (L' U M')
| by Unfold ‘languages‘ 0 THEN Unfold ‘lang_union‘ 0
|    THEN
|    Unfold ‘lang_eq‘ 0
|    THEN
|    UnivCD
|
1. Alph : Type
2. L : Alph*→Prop
3. L' : Alph*→Prop
4. M : Alph*→Prop
5. M' : Alph*→Prop
6. ∀l:Alph*. L(l) ⟺ L'(l)
7. ∀l:Alph*. M(l) ⟺ M'(l)
8. l : Alph*
⊢  (λl.L(l) ∨ M(l))(l) ⟺ (λl.L'(l) ∨ M'(l))(l)  by Reduce 0
|
⊢  L(l) ∨ M(l) ⟺ L'(l) ∨ M'(l)  by RWH (HypC 6) 0
|
⊢  L'(l) ∨ M(l) ⟺ L'(l) ∨ M'(l)  by RWH (HypC 7) 0
|
⊢  L'(l) ∨ M'(l) ⟺ L'(l) ∨ M'(l)  by Auto
END
```