```
fpf-compatible-join  THM

⊢  ∀A:Type, eq:EqDecider(A), B:(A→Type), f,g,h:a:A fp-> B(a).
|  h || f ⇒ h || g ⇒ h || f ⊕ g
| by Auto THEN All (Unfold `fpf-compatible`) THEN Analyze 0
|
1. A : Type
2. eq : EqDecider(A)
3. B : A→Type
4. f : a:A fp-> B(a)
5. g : a:A fp-> B(a)
6. h : a:A fp-> B(a)
7. ∀x:A. x ∈ dom(h) & x ∈ dom(f) ⇒ h(x) = f(x)
8. ∀x:A. x ∈ dom(h) & x ∈ dom(g) ⇒ h(x) = g(x)
9. x : A
⊢  x ∈ dom(h) & x ∈ dom(f ⊕ g) ⇒ h(x) = f ⊕ g(x)
| by Auto
|    THEN
|    RWO
|    Thm* ∀B:(A→Type), eq:EqDecider(A), f,g:a:A fp-> B(a), x:A.
|         x ∈ dom(f ⊕ g)
|         ⇒
|         f ⊕ g(x) = if x ∈ dom(f)→ f(x) else g(x) fi ∈ B(x)
|    {fpf_DASH_join_DASH_ap}
|    0
|    THEN
|    SplitOnConclITE
|    THEN
|    BackThruSomeHyp
|
1. A : Type
2. eq : EqDecider(A)
3. B : A→Type
4. f : a:A fp-> B(a)
5. g : a:A fp-> B(a)
6. h : a:A fp-> B(a)
7. ∀x:A. x ∈ dom(h) & x ∈ dom(f) ⇒ h(x) = f(x)
8. ∀x:A. x ∈ dom(h) & x ∈ dom(g) ⇒ h(x) = g(x)
9. x : A
10. x ∈ dom(h)
11. x ∈ dom(f ⊕ g)
12. ¬x ∈ dom(f)
⊢  x ∈ dom(g)
  by (RWO
      Thm* ∀B:(A→Type), eq:EqDecider(A), f,g:a:A fp-> B(a), x:A.
           x ∈ dom(f ⊕ g) ⟺ x ∈ dom(f) ∨ x ∈ dom(g)
      {fpf_DASH_join_DASH_dom}
      -2)
     THEN
     (Analyze -2)
END
```