```
inv_image_ind_a  THM

⊢  ∀r:(T→T→Prop), S:Type, f:(S→T).
|  WellFnd{i}(T;x,y.r(x,y)) ⇒ WellFnd{i}(S;x,y.r(f(x),f(y)))
| by RepD
|
1. T : Type
2. r : T→T→Prop
3. S : Type
4. f : S→T
5. WellFnd{i}(T;x,y.r(x,y))
⊢  WellFnd{i}(S;x,y.r(f(x),f(y)))
| by RepUnfolds [`wellfounded`;`guard`] 0 THEN RepD
|
6. P : S→Prop
7. ∀j:S. (∀k:S. r(f(k),f(j)) ⇒ P(k)) ⇒ P(j)
8. n : S
⊢  P(n)
| by Assert (∀x:T, y:S. f(y) = x ⇒ P(y))
|    THEN
|    IfLabL [`assertion`,(Analyze 0);`main`,(InstHyp [f(n);n] -1)]
|
9. x : T
⊢  ∀y:S. f(y) = x ⇒ P(y)  by (WFndHypInd 5 -1) THEN RepD
|
9. j : T
10. ∀k:T. r(k,j) ⇒ (∀y:S. f(y) = k ⇒ P(y))
11. y : S
12. f(y) = j
⊢  P(y)
| by Assert (∀y':S. r(f(y'),f(y)) ⇒ P(y'))
|    THEN
|    IfLabL [`main`,(OnHyps [12;10;9;8] Thin);`assertion`,RepD]
|
|\
| 13. y' : S
| 14. r(f(y'),f(y))
| ⊢  P(y')  by (HypSubst 12 14) THEN (InstHyp [f(y');y'] 10)
|
.\
. 8. y : S
. 9. ∀y':S. r(f(y'),f(y)) ⇒ P(y')
. ⊢  P(y)  by BackThru 7
END
```