```
iter_via_intseg_singleton  THM

⊢  ∀A:Type, f:(A→A→A), u:A.
|  is_ident(A; f; u)
|  ⇒
|  (∀a,b:ℤ, e:({a..b⁻}→A).
|   a+1 = b ⇒ (Iter(f;u) i:{a..b⁻}. e(i)) = e(a))  by Auto
|
1. A : Type
2. f : A→A→A
3. u : A
4. is_ident(A; f; u)
5. a : ℤ
6. b : ℤ
7. e : {a..b⁻}→A
8. a+1 = b
⊢  (Iter(f;u) i:{a..b⁻}. e(i)) = e(a)
| by Compute
|      ⌈Iter(f;u) i:{a..b⁻}. e(i)⌉
|      *⇒
|      if a<₂b→ f((Iter(f;u) i:{a..b-1⁻}. e(i)),e(b-1)) else u fi
|    THEN
|    SplitOnConclITE
|
.....truecase .....
9. a<b
⊢  f((Iter(f;u) i:{a..b-1⁻}. e(i)),e(b-1)) = e(a)
| by Compute
|      ⌈Iter(f;u) i:{a..b-1⁻}. e(i)⌉
|      *⇒
|      if a<₂b-1→ f((Iter(f;u) i:{a..b-1-1⁻}. e(i)),e(b-1-1))
|      else u fi
|    THEN
|    SplitOnConclITE
|
.....falsecase .....
10. b-1≤a
⊢  f(u,e(b-1)) = e(a)  by Rewrite by b-1 = a
|
⊢  f(u,e(a)) = e(a)  by BackThru: is_ident(A; f; u)
END
```