```
all_int_pairs_via_all_splits  THM

⊢  ∀P:(ℤ→ℤ→Prop).
|  (∀a:ℤ, b:{...a}. P(a,b))
|  ⇒
|  (∀a:ℤ. (∀b:{...a}. P(a,b)) ⇒ (∀b:{a...}. P(a,b)))
|  ⇒
|  (∀a,b:ℤ. P(a,b))  by Auto
|
1. P : ℤ→ℤ→Prop
2. ∀a:ℤ, b:{...a}. P(a,b)
3. ∀a:ℤ. (∀b:{...a}. P(a,b)) ⇒ (∀b:{a...}. P(a,b))
4. a : ℤ
5. b : ℤ
⊢  P(a,b)  by Decide: b≤a
|
|\
| 6. b≤a
| ⊢  P(a,b)  by BackThru: Hyp:2
|
.\
. 6. ¬b≤a
. ⊢  P(a,b)  by BackThru: Hyp:3
. |
. 7. b1 : {...a}
. ⊢  P(a,b1)  by BackThru: Hyp:2
END
```