```
compose_increasing  THM

⊢  ∀k,m:ℕ, f:(ℕk→ℕm), g:(ℕm→ℤ).
|  increasing(f;k) ⇒ increasing(g;m) ⇒ increasing(g o f;k)
| by Auto THEN Unfold `increasing` 0 THEN Auto THEN Reduce 0
|
1. k : ℕ
2. m : ℕ
3. f : ℕk→ℕm
4. g : ℕm→ℤ
5. increasing(f;k)
6. increasing(g;m)
7. i : ℕ(k-1)
⊢  g(f(i))<g(f(i+1))
| by FwdThruLemma `increasing_implies` [(-2)] THENA Auto

|    THEN BackThruHyp (-1) THEN Auto
|
1. k : ℕ
2. m : ℕ
3. f : ℕk→ℕm
4. g : ℕm→ℤ
5. increasing(f;k)
6. increasing(g;m)
7. i : ℕ(k-1)
8. ∀x,y:ℕm. x<y ⇒ g(x)<g(y)
⊢  f(i)<f(i+1)
  by AllHyps (\i. Unfold `increasing` i THEN BackThruHyp i THEN Auto)
END
```