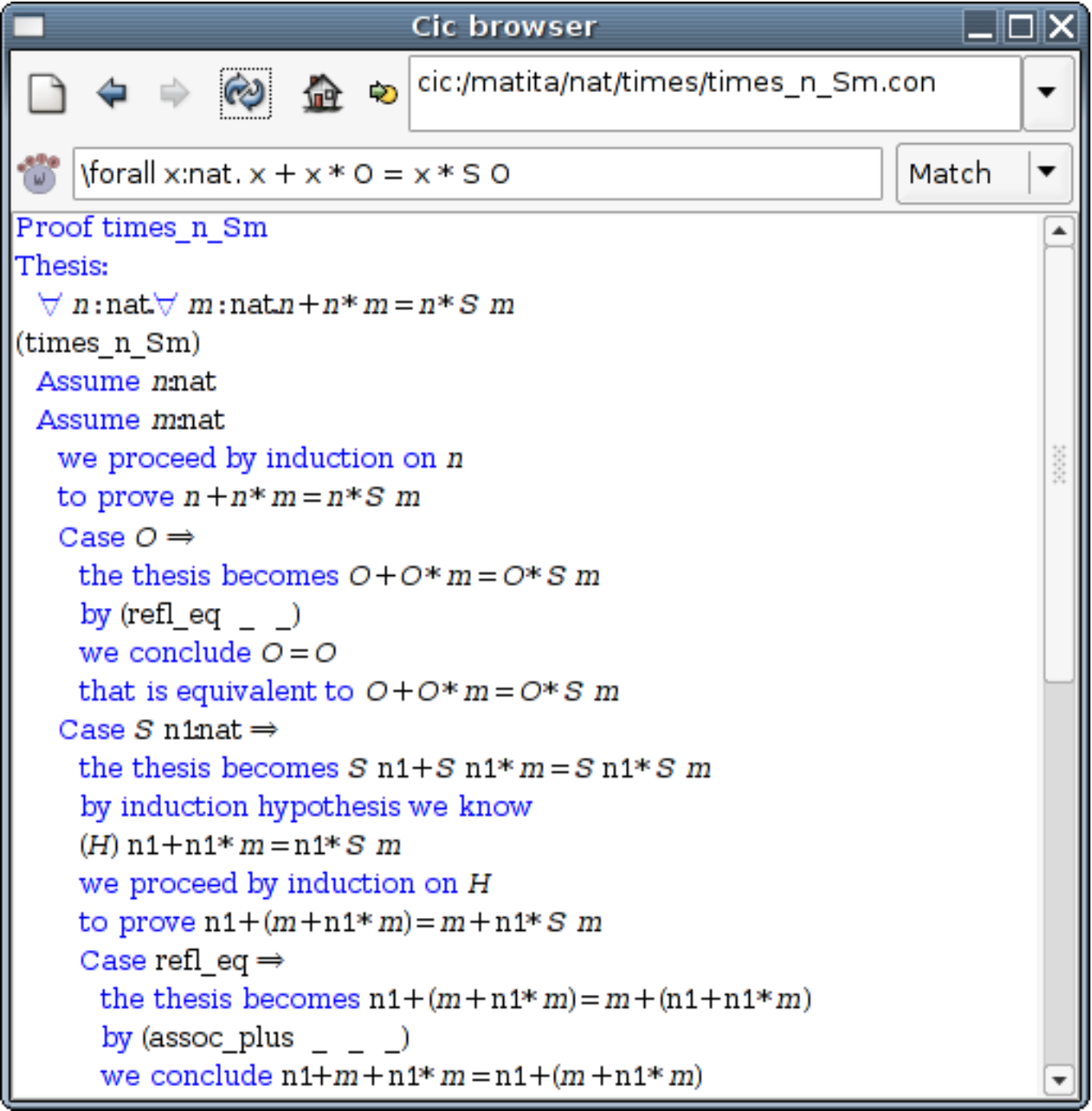
Cic browser
cic:/matita/nat/times/times_n_Sm.con
\forall x:nat. x + x * O = x * S O
Match
Proof times_n_Sm
Thesis:
∀ n:nat.∀ m:nat.n+n* m=n* S m
(times_n_Sm)
Assume n:nat
Assume m:nat
we proceed by induction on n
to prove n+n* m=n* S m
Case O ⇒
the thesis becomes O+O* m=O* S m
by (refl_eq _ _)
we conclude O=O
that is equivalent to O+O* m=O* S m
Case S n1:nat ⇒
the thesis becomes S n1+S n1* m=S n1* S m
by induction hypothesis we know
(H) n1+n1* m=n1* S m
we proceed by induction on H
to prove n1+(m+n1* m)=m+n1* S m
Case refl_eq ⇒
the thesis becomes n1+(m+n1* m)=m+(n1+n1* m)
by (assoc_plus _ _ _)
we conclude n1+m+n1* m=n1+(m+n1* m)