An example showing the use of proofmacros ...

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PROOF main
[A1:] $a[n] = 0$
[A2:] $(\forall i : 0 \leq i < n : 0 < a[j])$
[A3:] $0 \leq j \leq n$
[G1:] $0 \leq a[j]$
BEGIN

1 {integer arithmetics}
$0 \leq j \leq n \quad = \quad 0 \leq j < n \ \vee \ (j = n)$
2 {rewriteA2 with 1}
$0 \leq j < n \ \vee \ (j = n)$
3 {see the subproof below}
$0 \leq j < n \Rightarrow 0 \leq a[j]$

SUBPROOF
[A1:] $0 \leq j < n$
[G1:] $0 \leq a[j]$
BEGIN

1 {∀-Elimination on top.A2 using A1}
$0 < a[j]$
2 {arithmetics}
$0 < a[j] \Rightarrow 0 \leq a[j]$
3 {Modus-ponens on 1,2}
$0 \leq a[j]$

END

4 {follows from A1, prove this yourself}
$(j = n) \Rightarrow 0 \leq a[j]$
5 {Case Split on 2,3,4}
$0 \leq a[j]$
END