Derivation Strategies ($\mathcal{L}_3$)

To Derive:	Try this:
$\forall\alpha\phi$	(1) Set up a universal derivation. Write a show line containing $\forall\alpha\phi$, and then immediately follow this with a show line containing ϕ. When the second show is cancelled, use rule `ud` to cancel the first. (2) Or write a show line with $\forall\alpha\phi$, and then assume $\neg\forall\alpha\phi$ for an indirect derivation. Use `qn` to get $\exists\alpha\neg\phi$ and proceed from there.
$\exists\alpha\phi$	(1) Derive ϕ and then use rule `eg`. (2) Or write a show line with $\exists\alpha\phi$, and then assume $\neg\exists\alpha\phi$ for an indirect derivation. Use `qn` to get $\forall\alpha\neg\phi$ and proceed from there.
$\neg\forall\alpha\phi$	(1) State a show line with $\neg\forall\alpha\phi$, and then assume $\forall\alpha\phi$ for indirect derivation. (2) Or derive $\exists\alpha\neg\phi$ and use `qn`.
$\neg\exists\alpha\phi$	(1) State a show line with $\neg\exists\alpha\phi$, and then assume $\exists\alpha\phi$ for an indirect derivation. (2) Or derive $\forall\alpha\neg\phi$ and use `qn`.

If Available:	Try this:
$\forall\alpha\phi$	Use rule `ui` to derive an instance. (But use rule `ei` first if that is an option.)
$\exists\alpha\phi$	Use rule `ei` to derive an instance.
$\neg\forall\alpha\phi$	Use `qn` to turn this into $\exists\alpha\neg\phi$
$\neg\exists\alpha\phi$	Use `qn` to turn this into $\forall\alpha\neg\phi$

Sage advice: When using both `ei` and ui to instantiate to the same variable, apply rule `ei` before rule `ui`.