$$\mathbf{F}\,\varphi = \mathit{true}\,\mathtt{U}\,\varphi$$
$$\overset{\mathtt{dsc}}{=} \mathit{true}\,\mathtt{U}\,(\varphi \wedge (\mathit{true} \vee \mathit{sing}))$$
$$= \mathit{true}\,\mathtt{U}\,\varphi$$
$$\overset{\mathtt{t}}{=} \mathit{true}\,\mathtt{U}\,(\varphi \wedge \mathit{alive})$$
$$= \mathbf{F}\,(\boxed{\varphi} \wedge \mathit{alive})$$