

$$\begin{aligned}
\varphi_1 \mathbf{M} \varphi_2 &\stackrel{\text{def}}{=} \varphi_1 \mathbf{R} \varphi_2 \wedge \mathbf{F}(\varphi_1 \wedge \varphi_2) \\
&\stackrel{\mathbf{n}, \mathbf{dsc}, \mathbf{t}}{=} \neg(\neg \boxed{\varphi_1} \mathbf{U}(\neg \boxed{\varphi_2} \wedge (\neg \boxed{\varphi_1} \vee \textit{sing}) \wedge \textit{alive})) \wedge \\
&\quad (\textit{true} \mathbf{U}(\boxed{\varphi_1} \wedge \boxed{\varphi_2} \wedge \textit{sing} \wedge \textit{alive}))
\end{aligned}$$