122 Prove specification S is satisfiable for prestate σ if and only if $(S.\top)$. Note: $\top$ is the "true" or "top" binary.

After trying the question, scroll down to the solution.

§		$S.\ \top$	sequential composition
	$=$	$\exists\sigma''.\ \langle\sigma'.\ S\rangle\sigma'' \wedge \langle\sigma.\ \top\rangle\sigma''$	apply
	$=$	$\exists\sigma''.\ \langle\sigma'.\ S\rangle\sigma'' \wedge \top$	identity
	$=$	$\exists\sigma''.\ \langle\sigma'.\ S\rangle\sigma''$	rename σ'' to σ'
	$=$	$\exists\sigma'.\ \langle\sigma'.\ S\rangle\sigma'$	apply
	$=$	$\exists\sigma'.\ S$	