Stalnaker Logic of Conditionals

Define a *candidate Stalnaker model* to be a quadruple <W,I,f,@>, where

> W is a nonempty set of things we're calling worlds;
> I is a function {atomic formulas} $\times$ W $\rightarrow$ {T,F};
> f is a partial function W $\times$ {formulas} $\rightarrow$ W (that is, f is a function from a subset of W $\times$ {formulas} to W); and
> @, the actual world of the model, is anelement of W.

We define what it is for a formula to be true in a world in the model:

> An atomic formula α is true in w iff $I(\alpha,w) = T$
> A conjunction is true in w iff both conjuncts are true in w.
> A disjunction is true in w iff one or both disjuncts are true in w.
> A negation is true in w iff the negatum isn't true in w.
> "_|_" isn't true in w.
> A conditional $(\varphi > \psi)$ is true in w iff either $\langle w,\varphi\rangle$ isn't in Dom(f) or $\langle w,\varphi\rangle$ is in Dom(f) and ψ is true in $s(w,\varphi)$.

A formula is true in the model iff it's true in @.

A *Stalnaker model* is a candidate Stalnaker model that meets these further conditions:

> φ is true in $f(w,\varphi)$.
> If φ is true in w, $f(w,\varphi) = w$.
> If ψ is true in $f(w,\varphi)$, $\langle w,\psi\rangle$ is in Dom(f).
> If ψ is true in $f(w,\varphi)$ and φ is true in $f(w,\psi)$, $f(w,\varphi) = f(w,\psi)$.

A formula is a *Stalnaker theorem* iff it's derived from the following axioms by the following rules:

Axioms:
(Conditional K) $((\varphi > (\psi \rightarrow \theta)) \rightarrow ((\varphi > \psi) \rightarrow (\varphi > \theta)))$
(Reflexive law) $(\varphi > \varphi)$
(Modus ponens) $(((\varphi > \psi) \wedge \varphi) \rightarrow \psi)$
(Centering) $((\varphi \wedge \psi) \rightarrow (\varphi > \psi))$
(Equivalent antecedents) $(((\varphi > \psi) \wedge (\psi > \varphi)) \supset ((\varphi > \theta) \leftrightarrow (\psi > \theta)))$
(Conditional excluded middle) $((\varphi \Rightarrow \psi) \vee (\varphi \Rightarrow \sim \psi))$

Rules:
(Tautological consequence) You may write any tautology or tautological consequence of things you've written earlier.
(Conditionalization). If you've written ψ, you may write $(\varphi \Rightarrow \psi)$.

Soundness Theorem. Every Stalnaker theorem is true in every Stalnaker model.

Completeness Theorem. Every formula that is true in every Stalnaker model is a Stalnaker theorem.

Compactness Theorem. If every finite subset of Γ has a Stalnaker model, there is a Stalnaker model in which all the members of Γ are true.