Denial that modal logics of finite direct powers of ω have the finite model property

Abstract: From the section partitions of frames, local finiteness, and the finite model property, we evaluate that definition. Because it is *not* tautologous, subsequent equations in the conjecture are denied. This means it is a *non* tautologous fragment of the universal logic VŁ4.

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated proof value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). The 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)

LET ~ Not, ¬ ; + Or, ∨, ∪ ; - Not Or; & And, ∧, ∩, · ; \ Not And;
> Imply, greater than, →, ⇒, ↦, ≻, ⊃, ⤚ ;
< Not Imply, less than, ∈, ≺, ⊂, ⊬, ⊭, ↚, ≲;
= Equivalent, ≡, :=, ⟺, ↔, ≜, ≈, ≃; @ Not Equivalent, ≠, ⊔;
% possibility, for one or some, ∃, ◊, M; # necessity, for every or all, ∀, □, L;
(z=z) T as tautology, ⊤, ordinal 3; (z@z) **F** as contradiction, ∅, Null, ⊥, zero;
(%z>#z) N as non-contingency, Δ, ordinal 1;
(%z<#z) C as contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆ y); (A=B) (A~B); (B>A) (A⊢B); (B>A) (A⊨B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From: Shapirovsky, I. (2019).
Modal logics of finite direct powers of ω have the finite model property.
arxiv.org/pdf/1903.04614.pdf shapir@iitp.ru

Definition 1. Let F = (W, R) be a Kripke frame. A partition A of W is tuned (in F) if for every U, V ∈A,

$$\exists u \in U\ \exists v \in V\ uRv \Rightarrow \forall u \in U\ \exists v \in V\ uRv. \quad (2.1.1)$$

LET p, q, r, u, v: U, V, R, u, v.

(((%u<p)&(%v<q))&(%u&(r&%v)))>(((#u<p)&(%v<q))&(#u&(r&%v))) ;
TTTT NTTT TTTT NTTT (2.1.2)

F is tunable if for every finite partition A of F there exists a finite tuned refinement B of A.

Eq. 2.1.2 is *not* tautologous, hence denying subsequent equations in the conjecture.