▸ CYRUS F. NOURANI, *Functorial Projective Set Models.*
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The author had defined specific realizabilities on positive formulas since 2005. Let $L_{P,\omega}$ be the positive fragment obtained from the Kiesler fragment. Define the category $\mathbf{L_{P,\omega}}$ to be the category with objects positive fragments and arrows the subfoumual preorder on formulas. Consider the infinitary counterpart to Robinson consistency, fragment consistency since the author's AMS-ASL, San Diego, January 1997.

Proposition. *The interim sets realizing the interim models on the infinitary consistency on a tower form a projection to the set realizing the limit piece model.*

Let us define a discrete topology on the Keisler fragment K, on $L_{\omega_1,\omega}$. Let M be the infinite product copies on K. Give K the product toplogy. Let $F = \{K, K^2, \dots\}$.

Observations:
(i) *A subset of elements of F from a topological space with a pointset topology.*
(ii) *M is hommorphic to its product with itself.*

Definition. *If* $A \subseteq M^{n+1}$ *the fragment projection of A is* $\{\langle \alpha_1, , \alpha_n, \beta\rangle \in A)\}$.

Theorem 1. *On Fragment consistency theorem, consider the interim fragment models* M_i. $M \models \Sigma$ *iff* $\forall i M_i \models$ *a projection on fragments sets that positively locally realize* Σ_i, $\Sigma_i \subset \Sigma$ *is the set modeled at the i-th tower iteration.*

Definition. *Let us say that model* $\mathcal{R}$ *is positively saturated if for every subset X of* $\mathcal{R}$ *of cardinality* $< \kappa$, *every type is positively locally realized in* $\mathcal{R}_\kappa$.

Corollary. *The interim models* M_i, *theorem 1, are positively* ω*-saturated at the interim language fragment.*

Remark 1. The above might be lifted to local realizability on arbitrary formulas.

Remark 2. Theorem 4 is a projective compactness that might ad insight to an ultraproduct natural transformation.

[1] Nourani,C.F., *Fragment Consistency on Functorial Models*, AMS , San Francisco, April 06, Reference: 1018-18-90

[2] Martin, Donald A. and John R. Steel, *A Proof of Projective Determinacy*, ***Journal of the American Mathematical Society*** , vol. 2 (1989), no. 1, pp. 71–125.