

Index of Symbols

- $(\alpha, \beta) : \mathcal{K} \rightleftarrows \mathcal{K}'$ Conjugate Pair of Inverse Interpretations Between π -Structures \mathcal{K} and \mathcal{K}' , 946
 $B^{\mathcal{I}}$ Binary Reflexive Core of a π -Institution \mathcal{I} , 996
 $C(T)$ Theory Family Generated by T , 174
 $C \leq C'$ Extension Order on π -Institutions, 175
 C^T Closure Subsystem of C with Theorem System T , 175
 C^K Closure Family Associated with the Class K of **F**-Algebraic Systems, 885
 C^M Closure System Induced by a Class M of Matrix Families, 178
 $C^{\mathcal{I}, \mathcal{A}}(T)$ Least \mathcal{I} -Filter Family of \mathcal{A} Including T , 181
 $C^{\mathcal{I}, \mathfrak{M}}$ Closure Family Generated by a Matrix Family, 189
 $C^{K, \tau}$ Assertional Closure System Defined by τ^b -Pointed Class K of Algebraic Systems, 1266
 $C^{\mathfrak{M}}$ Closure System Induced by a Matrix Family, 178
 D^K Closure Operator Associated with a Class K of **F**-Algebraic Systems, 160
 D^K Equational Consequence Relative to a Class K of **F**-Algebraic Systems, 231
 D^f Finitary Companion of D , 713
 $D^{\mathcal{I}^*}$ Closure Family Associated with $\text{ConSys}^{\mathcal{I}^*}(\mathcal{I})$, 964
 $D^{\mathcal{I}^\bullet}$ Closure Family Associated with $\text{ConSys}^{\mathcal{I}^\bullet}(\mathcal{I})$, 979
 $E_{\Sigma}(\vec{\phi})$ Collection of Values of Finitary Natural Transformations in E at $\vec{\phi}$, 213
 $E_{\Sigma}[\vec{\phi}]$ Sentence Family Induced by Collection E of Natural Transformations (with Parameters) and $\vec{\phi}$, 213
 $F^{\mathcal{I}}$ Lindenbaum Core of a π -Institution \mathcal{I} , 1135
 $I_{\Sigma, \Sigma'}^b[\vec{\phi}]$ Σ' -Component of the Sentence Family $I_{\Sigma}^b[\vec{\phi}]$, 745
 $I_{\Sigma}^b(\vec{\phi})$ Image of a tuple $\vec{\phi}$ of Sentences Under a Set I^b of Natural Transformations, 745
 $I_{\Sigma}^b[\vec{\phi}]$ Family of Images of $\vec{\phi}$ Under I^b , 745
 $K^{\mathcal{I}}$ Closure Family Associated with $\text{ThSys}(\mathcal{I})$, 968
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 $L^{\mathcal{I}}$ System Suszko Core of a π -Institution \mathcal{I} , 915
 $L^{\mathcal{I}^{\sharp}}$ Narrow Left Suszko Core of a π -Institution \mathcal{I} , 1103

- N^θ Category of Natural Transformations on SEN^θ , 147
 $P^b \subseteq N^b$ Collection of All Natural Transformations Satisfying P , 224
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 $R^{\mathcal{I}^\sharp}$ Rough Reflexive Core of a π -Institution \mathcal{I} , 1149
 $R^{\mathcal{I}^s}$ Narrow System Reflexive Core of a π -Institution \mathcal{I} , 1159
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 $S^{\mathcal{I}^\sharp}$ Rough Suszko Core of a π -Institution \mathcal{I} , 1084
 $X \leq_{lf} Y$ X is a Locally Finite Subfamily of Y , 226
 $X_{i^{\mathcal{I}, \mathcal{A}, n}}(X)$ n -th Step in Filter Family Generation, 229
 $Z^\mathcal{I}$ System Core of a π -Institution \mathcal{I} , 930
 $Z^{\mathcal{I}^\sharp}$ Rough System Core of a π -Institution \mathcal{I} , 1121
 $[R_\Sigma^{\mathcal{I}^\sharp}[\phi, \psi]]$ Poset of Theory Families in $\text{ThFam}^\sharp(\mathcal{I})$ Containing $R_\Sigma^{\mathcal{I}^\sharp}[\phi, \psi]$, 1154
 $[R_\Sigma^{\mathcal{I}^s}[\phi, \psi]]$ Poset of Theory Systems in $\text{ThSys}^\sharp(\mathcal{I})$ Containing $R_\Sigma^{\mathcal{I}^s}[\phi, \psi]$, 1164
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 Λ Global Frege Operator, 197
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 SEN^θ Quotient Sentence Functor, 147
 $\overset{\triangleleft}{\text{III}}$ Subdirect Intersection Operator on Classes of \mathbf{F} -Algebraic Systems, 159, 245
 $\overset{\triangleleft}{\text{III}}_{\text{ISO}}$ IsoSubdirect Intersection Operator on Classes of \mathbf{F} -Algebraic Systems, 159
 $\overset{\triangleleft}{\text{III}}_{\text{ISO}}$ Subdirect Intersection Operator via Isomorphic Functor Components on Classes of \mathbf{F} -Algebraic Systems, 159
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 $\Theta^{\mathcal{I}, \mathcal{A}}(X)$ $\text{AlgSys}(\mathcal{I})$ -Congruence System on \mathcal{A} Generated by X , 197
 $\Theta^{\mathbf{K}, \mathcal{A}}(X)$ \mathbf{K} -Congruence System on \mathcal{A} Generated by X , 160
 $\Xi^Q(E)$ Congruence System Relative to Q Stepwise Generated by E , 232
 $\Xi^{\mathcal{I}, \mathcal{A}}(X)$ Filter Family Stepwise Generated by X , 230
 $\alpha(T)$ Image of a sentence family T under a morphism $\langle F, \alpha \rangle$, with F an isomorphism, 137
 $\alpha(\mathbf{A})$ Image of an N^b -Algebraic System \mathbf{A} Under a Morphism $\langle F, \alpha \rangle$, with F an isomorphism, 142
 $\alpha[T]$ Image of a Sentence Family T Under a Translation α , 945
 α^* Residual of a Translation α ,

- 947
- $\alpha^{-1}(R)$ Inverse Image of a Relation Family, 138
- $\alpha^{-1}(T)$ Inverse Image of a Sentence Family, 134
- $\alpha^{-1}(\mathbf{A}')$ Algebraic Subsystem of \mathbf{F} Determined by the Universe $\alpha^{-1}(\text{SEN}')$, 209
- $\alpha_{\Sigma}[\Phi]$ Image of the Set Φ of Σ -Sentences Under a Translation α , 945
- $\alpha_{\Sigma}[\phi]$ Image of φ Under a Translation α , 945
- $\bigcap_{i \in I} C^i$ Intersection of Closure Systems, 175
- $\bigcap_{i \in I} \mathcal{I}^i$ Intersection of π -Institutions, 175
- $\bigvee^{\mathcal{I}} \mathcal{T}$ Join of $\mathcal{T} \subseteq \text{ThFam}(\mathcal{I})$ in $\mathbf{ThFam}(\mathcal{I})$, 298
- $\bigvee^{\mathbf{F}} \Theta$ Join of $\Theta \subseteq \text{ConSys}(\mathbf{F})$ in $\mathbf{ConSys}(\mathbf{F})$, 298
- $\bigvee^{\mathcal{A}} \Theta$ Join of $\Theta \subseteq \text{ConSys}(\mathcal{A})$ in $\mathbf{ConSys}(\mathcal{A})$, 305
- $\bigvee^{\mathcal{I}, \mathcal{A}} \mathcal{T}$ Join of $\mathcal{T} \subseteq \text{FiFam}^{\mathcal{I}}(\mathcal{A})$ in $\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$, 305
- $\ddot{R}^{\mathcal{I}}$ Binary Reflexive Core of a π -Institution \mathcal{I} , 996
- $\ddot{\sigma}^b : (\text{SEN}^b)^2 \rightarrow (\text{SEN}^b)^{\ell}$
Parameter-Free Collection of Natural Transformations Induced by $\sigma^b : (\text{SEN}^b)^{\omega} \rightarrow (\text{SEN}^b)^{\ell}$, 222
- $\dot{L}^{\mathcal{I}}$ Unary Left Suszko Core of a π -Institution \mathcal{I} , 1020
- $\dot{S}^b : (\text{SEN}^b)^k \rightarrow (\text{SEN}^b)^{\ell}$
Parameter-Free Collection of Natural Transformations Induced by $S^b : (\text{SEN}^b)^{\omega} \rightarrow (\text{SEN}^b)^{\ell}$, 222
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- $\dot{Z}^{\mathcal{I}}$ Unary System Core of a π -Institution \mathcal{I} , 1027
- $\dot{\sigma}^b : (\text{SEN}^b)^k \rightarrow (\text{SEN}^b)^{\ell}$
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- \hat{P} Restriction of Property P to Parameterless Natural Transformations, 224
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- $\lambda(T)$ Frege Relation Family of a Sentence Family T , 197
- $\lambda^{\mathbf{A}}(T)$ Frege Relation family of T on \mathbf{A} , 198
- $\langle I, \pi^{\theta} \rangle$ Quotient Morphism, 148
- $\langle I, j \rangle$ Injection Morphism, 206
- $\langle V, \vec{v} \rangle$ Source Signature κ -Variable Pair, 168
- $\langle X \rangle$ Universe of \mathbf{A} Generated by a Sentence Family X , 208
- \mathbb{A}^* Tarski Reduction of the \mathbf{F} -Gmatrix Family \mathbb{A} , 192
- $\mathbf{C}(\mathbf{K})$ Class of All \mathbf{K} -Certified Algebraic Systems, 241
- $\mathbf{C}^*(\mathbf{K})$ Class of All Directedly \mathbf{K} -Certified Algebraic Systems, 242
- $\mathbf{G}^{\text{Sem}}(\mathbf{K})$ Semantic Guasivariety Generated by the Class \mathbf{K} , 239
- \mathbf{H} Morphic Image Operator on Classes of \mathbf{F} -Algebraic Systems, 158, 247
- $\mathbf{Q}^{\text{Sem}}(\mathbf{K})$ Semantic Quasivariety Generated by the Class \mathbf{K} , 238
- $\mathbf{V}^{\text{Sem}}(\mathcal{I})$ Semantic Variety of \mathcal{I} ,

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- $\mathbb{V}^{\text{Sem}}(\mathbf{K})$ Semantic Variety
Generated by \mathbf{K} , 167
- $\mathbb{V}^{\text{Sem}}(\mathbf{K})$ Semantic Variety
Generated by the Class \mathbf{K} ,
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- $\mathbb{V}^{\text{Syn}}(\mathcal{I})$ Syntactic Variety of \mathcal{I} ,
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- $\mathbb{V}^{\text{Syn}}(\mathbf{K})$ Syntactic Variety
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- \mathcal{A}/θ Quotient \mathbf{F} -Algebraic
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- $\mathcal{A} \models \sigma^b \approx \tau^b$ Validity of a Natural
Equation in an Algebraic
System, 166
- $\mathcal{A} \models_{\Sigma} \langle \vec{\phi} \approx \vec{\psi}, \phi \approx \psi \rangle$ Satisfaction of
Guasiequation in an
Algebraic System, 237
- $\mathcal{A} \models_{\Sigma} \sigma^b \approx \tau^b[\vec{\phi}]$ Satisfaction of a
Natural Equation by a
Sentence in an Algebraic
System, 165
- \mathcal{A}^{θ} Quotient \mathbf{F} -Algebraic System,
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- \mathcal{D} Dellunde's Logic, 726
- $\mathcal{I} \leq \mathcal{I}'$ Extension Order on
 π -Institutions, 175
- \mathcal{I}^T π -Institution Generated in \mathcal{I}
by a Theory System T of
 \mathcal{I} , 176
- $\mathcal{I}^{\mathbf{M}}$ π -Institution Induced by a
Class \mathbf{M} of Matrix
Families, 178
- \mathcal{I}^f Finitary Companion of \mathcal{I} , 714
- $\mathcal{I}^{\mathbf{K}, \top}$ Assertional π -Institution
Defined by a \top^b -Pointed
Class \mathbf{K} of Algebraic
Systems, 1267
- $\mathcal{K} \stackrel{(\alpha, \beta)}{\rightleftarrows} \mathcal{K}'$ Conjugate Pair of
Inverse Interpretations
Between π -Structures \mathcal{K}
and \mathcal{K}' , 946
- $\mathcal{K}^{\mathcal{I}} = \langle \mathbf{F}, K^{\mathcal{I}} \rangle$ Systemic Skeleton of
a π -Institution \mathcal{I} , 968
- $Q^{\mathcal{I}^*} = \langle \mathbf{F}^2, D^{\mathcal{I}^*} \rangle$ Algebraic
 π -Structure Associated
with a π -Institution \mathcal{I} , 964
- $Q^{\mathcal{I}^*} = \langle \mathbf{F}^2, D^{\mathcal{I}^*} \rangle$ Equational
 π -Structure Associated
with a π -Institution \mathcal{I} , 964
- $Q^{\mathcal{I}^{\bullet}} = \langle \mathbf{F}^2, D^{\mathcal{I}^{\bullet}} \rangle$ Systemic
Equational π -Structure
Associated with a
 π -Institution \mathcal{I} , 979
- \mathcal{R} Raftery's Logic, 730
- $\min[R_{\Sigma}^{\mathcal{I}^i}[\phi, \psi]]$ Collection of
Minimal Elements in
 $[R_{\Sigma}^{\mathcal{I}^i}[\phi, \psi]]$, 1155
- $\min[R_{\Sigma}^{\mathcal{I}^s}[\phi, \psi]]$ Collection of
Minimal Elements in
 $[R_{\Sigma}^{\mathcal{I}^s}[\phi, \psi]]$, 1164
- $\mathbf{K} \models E^b$ Validity of a Set of Natural
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- \mathfrak{A}^* Leibniz Reduction of the
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- \mathfrak{A}^{Su} Suszko Reduction of the
 \mathcal{I} -Matrix Family \mathfrak{A} , 193
- $\nabla^{\mathbf{A}}$ Nabla Congruence System on
 \mathbf{A} , 146
- $\nu^{\mathbf{A}}(X)$ Closure of sentence Family
 X under the Operations of
 \mathbf{A} , 207
- $\nu^{\mathbf{A}}(\vec{X})$ Universe of \mathbf{A} Generated
by X , 208
- $\overleftarrow{E}(T)$ Relation System Consisting
of All Tuples of Sentences
Carried by E into T , 214
- $\overleftarrow{I}^b(T)$ Family of Pairs all of
Whose Images Under
 $I^b \subseteq N^b$ are in T , 746
- $\overleftarrow{I}_{\Sigma}^b(T)$ Collection of all $\langle \phi, \psi \rangle$
such that $I_{\Sigma}^b[\phi, \psi] \leq T$, 746
- \overleftarrow{T} Sentences all of whose images
are in T , 130

- \overleftrightarrow{I}^b Set of all σ and $\bar{\sigma}$, with $\sigma \in I^b$, 746
 $\overrightarrow{C}(T)$ Theory System Generated by T , 174
 $\overrightarrow{C}^{\mathcal{I}, \mathcal{A}}(T)$ Least \mathcal{I} -Filter System of \mathcal{A} Including T , 181
 \overrightarrow{T} Images of all sentences in T , 131
 \overline{I}^b Set of all $\bar{\sigma}$, with $\sigma \in I^b$, 746
 $\bar{\sigma}$ Natural Transformation Resulting from σ by Interchanging the First Two Arguments, 745
 \sim Rough Equivalence Between Theory Families, 448
 $\widetilde{[T]}$ Rough Equivalence Class of T , 448
 $[\widetilde{T}] \leq [\widetilde{T}']$ Order on Family Rough Equivalence Classes, 509
 $\theta^{(F, \alpha)}$ Kernel System of $\langle F, \alpha \rangle$, 136
 $\widetilde{[T]}$ Rough Equivalence Class of the Theory System T , 448
 $[\widetilde{T}] \leq [\widetilde{T}']$ Order on System Rough Equivalence Classes, 509
 $\vec{\phi} \approx \vec{\psi}$ Collection of Equations $\phi_i \approx \psi_i$, 236
 $\widehat{\Omega}^{\mathcal{I}}(T)$ Systemic Suszko Congruence System of a Theory System T in a π -Institution \mathcal{I} , 930
 $\widehat{\Omega}^{\mathcal{I}}(T)$ Systemic Suszko Congruence System of a Theory System T of \mathcal{I} , 651
 $\widehat{\Omega}^{\mathcal{I}^t}$ Narrow Systemic Suszko Operator of a π -Institution \mathcal{I} , 1125
 $\widetilde{L}^{\mathcal{I}}$ Rough Left Suszko Core of a π -Institution \mathcal{I} , 1095
 $\widetilde{R}^{\mathcal{I}}$ Rough Reflexive Core of a π -Institution \mathcal{I} , 1149
 \widetilde{T} Rough Associate of T , 447
 \widetilde{T} Rough Companion of T , 447
 $\widetilde{Z}^{\mathcal{I}}$ Rough System Core of a π -Institution \mathcal{I} , 1112
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 $\widetilde{\Lambda}$ Global Carnap Operator, 200
 $\widetilde{\Lambda}(\mathcal{I})$ Carnap Relation System of $\text{ThFam}(\mathcal{I})$ on \mathcal{F} , 203
 $\widetilde{\Lambda}(\mathcal{T})$ Carnap Relation System of a Collection \mathcal{T} of Sentence Families, 199
 $\widetilde{\Lambda}^{\mathcal{A}}(\mathcal{I})$ Carnap Relation System of $\text{FiFam}^{\mathcal{I}}(\mathcal{A})$ on \mathcal{A} , 202
 $\widetilde{\Lambda}^{\mathcal{T}}$ Global Lindenbaum Operator Relative to \mathcal{T} , 201
 $\widetilde{\Lambda}^{\mathcal{T}}$ Lindenbaum Operator Relative to \mathcal{T} , 201
 $\widetilde{\Lambda}^{\mathbf{A}}(\mathcal{T})$ Carnap Relation System of \mathcal{T} on \mathbf{A} , 200
 $\widetilde{\Lambda}^{\mathcal{I}, \mathcal{A}}(T)$ Lindenbaum Relation System of T on \mathcal{A} Relative to $\text{FiFam}^{\mathcal{I}}(\mathcal{A})$, 202
 $\widetilde{\Lambda}^{\mathcal{I}}(T)$ Lindenbaum Relation System of T on \mathcal{F} Relative to $\text{ThFam}(\mathcal{I})$, 203
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 $\widetilde{\Lambda}^{\mathbf{A}, \mathcal{T}}(X)$ Lindenbaum Relation System of X on \mathbf{A} Relative to \mathcal{T} , 202
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 $\widetilde{\Omega}(\mathcal{I})$ Tarski Congruence System of \mathcal{I} , 192
 $\widetilde{\Omega}^{\mathcal{A}}(\mathcal{I})$ Tarski Congruence System of $\text{FiFam}^{\mathcal{I}}(\mathcal{A})$ on \mathcal{A} , 192
 $\widetilde{\Omega}^{\mathcal{A}}(\mathcal{T})$ Tarski Congruence System of \mathcal{T} on \mathcal{A} , 191
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 $\widetilde{\Omega}^{\mathcal{I}, \mathcal{A}}(T)$ Suszko Congruence of T Relative to $\text{FiFam}^{\mathcal{I}}(\mathcal{A})$,

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- $\widetilde{\Omega}^{\mathcal{I}}$ Narrow Suszko Operator of a π -Institution \mathcal{I} , 1106
- $\widetilde{\mathbf{ThFam}}(\mathcal{I})$ Poset of Family Rough Equivalence Classes, 509
- $\widetilde{\mathbf{ThSys}}(\mathcal{I})$ Poset of System Rough Equivalence Classes, 509
- $\widetilde{\lambda}$ Local Carnap Operator, 200
- $\widetilde{\lambda}(\mathcal{I})$ Carnap Relation Family of $\mathbf{ThFam}(\mathcal{I})$ on \mathcal{F} , 203
- $\widetilde{\lambda}(\mathcal{T})$ Carnap Relation Family of a Collection \mathcal{T} of Sentence Families, 199
- $\widetilde{\lambda}^{\mathcal{A}}(\mathcal{I})$ Carnap Relation Family of $\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$ on \mathcal{A} , 202
- $\widetilde{\lambda}^{\mathcal{T}}$ Local Lindenbaum Operator Relative to \mathcal{T} , 201
- $\widetilde{\lambda}^{\mathbf{A}}(\mathcal{T})$ Carnap Relation Family of \mathcal{T} on \mathbf{A} , 200
- $\widetilde{\lambda}^{\mathcal{I}, \mathcal{A}}(T)$ Lindenbaum Relation Family of T on \mathcal{A} Relative to $\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$, 202
- $\widetilde{\lambda}^{\mathcal{I}}(T)$ Lindenbaum Relation Family of T on \mathcal{F} Relative to $\mathbf{ThFam}(\mathcal{I})$, 203
- $\widetilde{\lambda}^{\mathcal{T}}(X)$ Lindenbaum Relation Family of X Relative to \mathcal{T} , 201
- $\widetilde{\lambda}^{\mathbf{A}, \mathcal{T}}(X)$ Lindenbaum Relation Family of X on \mathbf{A} Relative to \mathcal{T} , 202
- $\widetilde{\mathbf{ThFam}}(\mathcal{I})$ The Collection of All Rough Equivalence Classes of Theory Families of \mathcal{I} , 448
- $\widetilde{\mathbf{ThSys}}(\mathcal{I})$ Collection of All Rough Equivalence Classes of Theory Systems of \mathcal{I} , 448
- $p^k : (\mathbf{SEN}^b)^k \rightarrow (\mathbf{SEN}^b)^k$ Identity Natural Transformation, 222
- \mathbb{L} Łukasiewicz's Infinite Valued Logic, 723
- $\mathbf{A}' \leq \mathbf{A}$ \mathbf{A}' is an Algebraic Subsystem of \mathbf{A} , 206
- \mathbf{A}/θ Quotient of \mathbf{A} by θ , 147
- \mathbf{A}^θ Quotient of \mathbf{A} by θ , 147
- $\mathbf{Cln}(\mathbf{SEN})$ Clone of All Natural Transformations on \mathbf{SEN} , 139
- $\mathbf{ConSys}(\mathbf{A})$ Lattice of Congruence Systems on \mathbf{A} , 146
- $\mathbf{ConSys}^{\mathbf{A}}(T)$ Lattice of All Congruence Systems on \mathbf{A} Compatible with T , 149
- $\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$ Lattice of All \mathcal{I} -Filter Families on \mathcal{A} , 180
- $\mathbf{FiSys}^{\mathcal{I}}(\mathcal{A})$ Lattice of All \mathcal{I} -Filter Systems of \mathcal{A} , 180
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- $\mathbf{SenFam}(\mathbf{SEN})$ Lattice of Sentence Families, 130
- $\mathbf{SenSys}(\mathbf{SEN})$ Lattice of Sentence Systems, 130
- $\mathbf{ThFam}(\mathcal{I})$ Lattice of Theory Families of a π -Institution \mathcal{I} , 172
- $\mathbf{ThFam}(\mathcal{K})$ Lattice of Theory Families of a π -Structure \mathcal{K} , 949
- $\mathbf{ThSys}(\mathcal{I})$ Lattice of Theory Systems of a π -Institution \mathcal{I} , 172
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- $\mathbf{AlgSys}(G)$ Collection of All Algebraic Systems Satisfying Guasiequations in G , 238
- $\mathbf{AlgSys}(\mathcal{I})$ Collection of All Tarski Reduced \mathbf{F} -Algebraic Systems, 192
- $\mathbf{AlgSys}(\mathbf{F})$ Class of All \mathbf{F} -Algebraic Systems, 144
- $\mathbf{AlgSys}^*(\mathcal{I})$ Collection of All Leibniz Reduced

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- $\text{RelFam}(\text{SEN})$ Collection of All
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- $\text{RelSys}(\text{SEN})$ Collection of All
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- $\text{SenFam}(\text{SEN})$ Collection of
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- $\text{SenFam}(\mathfrak{A})$ Collection of All
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- $\text{SenSys}(\text{SEN})$ Collection of
 Sentence Systems, 130
- $\text{ThFam}(\mathcal{I})$ Collection of All
 Theory Families of a
 π -Institution \mathcal{I} , 172
- $\text{ThFam}(\mathcal{K})$ Collection of Theory
 Families of a π -Structure
 \mathcal{K} , 949
- $\text{ThFam}^{\sharp}(\mathcal{I})$ Collection of Theory
 Families of a π -Institution
 \mathcal{I} , with Nonempty
 Components, 448
- $\text{ThSys}(\mathcal{I})$ Collection of All
 Theory Systems of a
 π -Institution \mathcal{I} , 172
- $\text{ThSys}^{\sharp}(\mathcal{I})$ Collection of Theory
 Systems of a π -Institution
 \mathcal{I} , with Nonempty
 Components, 448
- $\text{Thm}(\mathcal{I})$ Theorem Family of a
 π -Institution \mathcal{I} , 171
- $\text{Thm}_{\Sigma}(\mathcal{I})$ Set of Σ -Theorems of a
 π -Institution \mathcal{I} , 171
- $\text{Th}_{\Sigma}(\mathcal{I})$ Collection of All

Σ -Theories of a π -Institution \mathcal{I} , 172	System A , 205
$\text{Unv}(\mathbf{A})$ Collection of All Universes of an Algebraic	ssv^κ Source Signature κ -Variable Pair, 168

