Index of Symbols

$(\alpha, \beta) : \mathcal{K} \rightleftarrows \mathcal{K}'$ Conjugate Pair of Inverse Interpretations Between π-Structures $\mathcal{K}$ and $\mathcal{K}'$, 865

$B^{\mathcal{I}}$ Binary Reflexive Core of a π-Institution $\mathcal{I}$, 908

$C(T)$ Theory Family Generated by T, 120

$C \leq C'$ Extension Order on π-Institutions, 121

C^T Closure Subsystem of C with Theorem System T, 121

C^{M} Closure System Induced by a Class M of Matrix Families, 124

$C^{\mathcal{I},\mathcal{A}}(T)$ Least $\mathcal{I}$-Filter Family of $\mathcal{A}$ Including T, 127

$C^{\mathcal{I},\mathfrak{A}}$ Closure Family Generated by a Matrix Family, 135

$C^{\mathsf{K},\top}$ Assertional Closure System Defined by $\top^\flat$-Pointed Class K of Algebraic Systems, 1150

$C^{\mathfrak{A}}$ Closure System Induced by a Matrix Family, 124

D^{K} Closure Operator Associated with a Class K of $\mathbf{F}$-Algebraic Systems, 106

D^{K} Equational Consequence Relative to a Class K of $\mathbf{F}$-Algebraic Systems, 177

D^f Finitary Companion of D, 659

$D^{\mathcal{I}*}$ Closure Family Associated with $\mathrm{ConSys}^{\mathcal{I}*}(\mathcal{I})$, 883

$D^{\mathcal{I}\bullet}$ Closure Family Associated with $\mathrm{ConSys}^{\mathcal{I}\bullet}(\mathcal{I})$, 899

$E_\Sigma(\vec{\phi})$ Collection of Values of Finitary Natural Transformations in E at $\vec{\phi}$, 159

$E_\Sigma[\vec{\phi}]$ Sentence Family Induced by Collection E of Natural Transformations (with Parameters) and $\vec{\phi}$, 159

$F^{\mathcal{I}}$ Frege Core of a π-Institution $\mathcal{I}$, 1035

$I^\flat(T)$ Family of Pairs all of Whose Images Under $I^\flat \subseteq N^\flat$ are in T, 685

$I^\flat_{\Sigma,\Sigma'}[\vec{\phi}]$ Σ'-Component of the Sentence Family $I^\flat_\Sigma[\vec{\phi}]$, 684

$I^\flat_\Sigma(T)$ Collection of all $\langle \phi, \psi \rangle$ such that $I^\flat_\Sigma[\phi, \psi] \leq T$, 685

$I^\flat_\Sigma(\vec{\phi})$ Image of a tuple $\vec{\phi}$ of Sentences Under a Set $I^\flat$ of Natural Transformations, 684

$I^\flat_\Sigma[\vec{\phi}]$ Family of Images of $\vec{\phi}$ Under $I^\flat$, 684

$K^{\mathcal{I}}$ Closure Family Associated with $\mathrm{ThSys}(\mathcal{I})$, 888

$L^{\mathcal{I}}$ Left Suszko Core of a π-Institution $\mathcal{I}$, 840

$L^{\mathcal{I}\natural}$ Narrow Left Suszko Core of a π-Institution $\mathcal{I}$, 1006

N^θ Category of Natural Transformations on SEN^θ,

94
$P^\flat \subseteq N^\flat$ Collection of All Natural Transformations Satisfying P, 170
$R^{\mathcal{I}}$ Reflexive Core of a π-Institution $\mathcal{I}$, 790
$R^{\mathcal{I}\natural}$ Rough Reflexive Core of a π-Institution $\mathcal{I}$, 1045
$R^{\mathcal{I}s}$ Rough Reflexive System Core of a π-Institution $\mathcal{I}$, 1055
$S^\flat : (\mathrm{SEN}^\flat)^\omega \to (\mathrm{SEN}^\flat)^\ell$ Collection of Natural Transformations in $N^\flat$, 168
$S^{\mathcal{I}}$ Suszko Core of a π-Institution $\mathcal{I}$, 826
$S^{\mathcal{I}\natural}$ Rough Suszko Core of a π-Institution $\mathcal{I}$, 987
$X \leq_{lf} Y$ X is a Locally Finite Subfamily of Y, 172
$Xi^{\mathcal{I},\mathcal{A},n}(X)$ n-th Step in Filter Family Generation, 175
$Z^{\mathcal{I}}$ System Core of a π-Institution $\mathcal{I}$, 856
$Z^{\mathcal{I}\natural}$ Rough System Core of a π-Institution $\mathcal{I}$, 1023
$[R^{\mathcal{I}\natural}_\Sigma[\phi,\psi])$ Poset of Theory Families in $\mathrm{ThFam}^\natural(\mathcal{I})$ Containing $R^{\mathcal{I}\natural}_\Sigma[\phi,\psi]$, 1050
$[R^{\mathcal{I}s}_\Sigma[\phi,\psi])$ Poset of Theory Systems in $\mathrm{ThSys}^\natural(\mathcal{I})$ Containing $R^{\mathcal{I}s}_\Sigma[\phi,\psi]$, 1059
$\Delta^{\mathbf{A}}$ Identity Congruence System on $\mathbf{A}$, 92
$\Lambda(T)$ Frege Relation System of a Sentence Family T, 143
$\Lambda^{\mathbf{A}}(T)$ Frege Relation System of T on $\mathbf{A}$, 144
$\Omega^{\mathbf{A}}(T)$ Leibniz Congruence System, 96
SEN/θ Quotient Sentence Functor, 93
SEN^θ Quotient Sentence Functor, 93
$\overset{\triangleleft}{\amalg}$ Subdirect Intersection Operator on Classes of $\mathbf{F}$-Algebraic Systems, 105, 191
$\Theta^{\mathsf{K}}(X)$ K-Congruence System on $\mathcal{F}$ Generated by X, 106
$\Theta^{\mathcal{I},\mathcal{A}}(X)$ AlgSys($\mathcal{I}$)-Congruence System on $\mathcal{A}$ Generated by X, 143
$\Theta^{\mathsf{K},\mathcal{A}}(X)$ K-Congruence System on $\mathcal{A}$ Generated by X, 106
$\Xi^{Q}(E)$ Congruence System Relative to Q Stepwise Generated by E, 178
$\Xi^{\mathcal{I},\mathcal{A}}(X)$ Filter Family Stepwise Generated by X, 176
$\alpha(T)$ Image of a sentence family T under a morphism $\langle F, \alpha\rangle$, with F an isomorphism, 83
$\alpha(\mathbf{A})$ Image of an $N^\flat$-Algebraic System $\mathbf{A}$ Under a Morphism $\langle F, \alpha\rangle$, with F an isomorphism, 88
$\alpha[T]$ Image of a Sentence Family T Under a Translation α, 864
α^* Residual of a Translation α, 866
$\alpha^{-1}(R)$ Inverse Image of a Relation Family, 84
$\alpha^{-1}(T)$ Inverse Image of a Sentence Family, 80
$\alpha^{-1}(\mathbf{A}')$ Algebraic Subsystem of $\mathbf{F}$ Determined by the Universe $\alpha^{-1}(\mathrm{SEN}')$, 155
$\alpha_\Sigma[\Phi]$ Image of the Set Φ of Σ-Sentences Under a Translation α, 864
$\alpha_\Sigma[\phi]$ Image of φ Under a Translation α, 864

$\bigcap_{i\in I} C^i$ Intersection of Closure Systems, 121
$\bigcap_{i\in I} \mathcal{I}^i$ Intersection of π-Institutions, 121
$\bigvee^{\mathcal{I}} \mathcal{T}$ Join of $\mathcal{T} \subseteq \mathrm{ThFam}(\mathcal{I})$ in $\mathbf{ThFam}(\mathcal{I})$, 244
$\bigvee^{\mathbf{F}} \Theta$ Join of $\Theta \subseteq \mathrm{ConSys}(\mathbf{F})$ in $\mathbf{ConSys}(\mathbf{F})$, 244
$\bigvee^{\mathcal{A}} \Theta$ Join of $\Theta \subseteq \mathrm{ConSys}(\mathcal{A})$ in $\mathbf{ConSys}(\mathcal{A})$, 251
$\bigvee^{\mathcal{I},\mathcal{A}} \mathcal{T}$ Join of $\mathcal{T} \subseteq \mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$ in $\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$, 251
$\ddot{R}^{\mathcal{I}}$ Binary Reflexive Core of a π-Institution $\mathcal{I}$, 908
$\ddot{\sigma}^\flat : (\mathrm{SEN}^\flat)^2 \to (\mathrm{SEN}^\flat)^\ell$ Parameter-Free Collection of Natural Transformations Induced by $\sigma^\flat : (\mathrm{SEN}^\flat)^\omega \to (\mathrm{SEN}^\flat)^\ell$, 168
$\dot{L}^{\mathcal{I}}$ Unary Left Suszko Core of a π-Institution $\mathcal{I}$, 931
$\dot{S}^\flat : (\mathrm{SEN}^\flat)^k \to (\mathrm{SEN}^\flat)^\ell$ Parameter-Free Collection of Natural Transformations Induced by $S^\flat : (\mathrm{SEN}^\flat)^\omega \to (\mathrm{SEN}^\flat)^\ell$, 168
$\dot{S}^{\mathcal{I}}$ Unary Suszko Core of a π-Institution $\mathcal{I}$, 924
$\dot{Z}^{\mathcal{I}}$ Unary System Core of a π-Institution $\mathcal{I}$, 938
$\dot{\sigma}^\flat : (\mathrm{SEN}^\flat)^k \to (\mathrm{SEN}^\flat)^\ell$ Parameter-Free Collection of Natural Transformations Induced by $\sigma^\flat : (\mathrm{SEN}^\flat)^\omega \to (\mathrm{SEN}^\flat)^\ell$, 168
$\hat{P}$ Restriction of Property P to Parameterless Natural Transformations, 170
$\hat{P}^\flat$ Collection of Parameterless Natural Transformations Satisfying Property P, 170
$\lambda(T)$ Frege Relation Family of a Sentence Family T, 143
$\lambda^{\mathbf{A}}(T)$ Frege Relation family of T on $\mathbf{A}$, 144
$\langle I, \pi^\theta \rangle$ Quotient Morphism, 94
$\langle I, j \rangle$ Injection Morphism, 152
$\langle V, \vec{v} \rangle$ Source Signature κ-Variable Pair, 114
$\langle X \rangle$ Universe of $\mathbf{A}$ Generated by a Sentence Family X, 154
$\mathbb{A}^*$ Tarski Reduction of the $\mathbf{F}$-Gmatrix Family $\mathbb{A}$, 138
$\mathbb{C}(\mathsf{K})$ Class of All K-Certified Algebraic Systems, 187
$\mathbb{C}^*(\mathsf{K})$ Class of All Directedly K-Certified Algebraic Systems, 188
$\mathbb{G}^{\mathsf{Sem}}(\mathsf{K})$ Semantic Guasivariety Generated by the Class K, 185
$\mathbb{H}$ Morphic Image Operator on Classes of $\mathbf{F}$-Algebraic Systems, 105, 193
$\mathbb{Q}^{\mathsf{Sem}}(\mathsf{K})$ Semantic Quasivariety Generated by the Class K, 184
$\mathbb{V}^{\mathsf{Sem}}(\mathcal{I})$ Semantic Variety of $\mathcal{I}$, 140
$\mathbb{V}^{\mathsf{Sem}}(\mathsf{K})$ Semantic Variety Generated by K, 113
$\mathbb{V}^{\mathsf{Sem}}(\mathsf{K})$ Semantic Variety Generated by the Class K, 184
$\mathbb{V}^{\mathsf{Syn}}(\mathcal{I})$ Syntactic Variety of $\mathcal{I}$, 140
$\mathbb{V}^{\mathsf{Syn}}(\mathsf{K})$ Syntactic Variety Generated by K, 113
$\mathcal{A}/\theta$ Quotient $\mathbf{F}$-Algebraic System, 95
$\mathcal{A} \vDash \sigma^\flat \approx \tau^\flat$ Validity of a Natural Equation in an Algebraic

System, 112
$\mathcal{A} \models_\Sigma \langle \vec{\phi} \approx \vec{\psi}, \phi \approx \psi \rangle$ Satisfaction of Guasiequation in an Algebraic System, 183
$\mathcal{A} \models_\Sigma \sigma^\flat \approx \tau^\flat[\vec{\phi}]$ Satisfaction of a Natural Equation by a Sentence in an Algebraic System, 111
$\mathcal{A}^\theta$ Quotient $\mathbf{F}$-Algebraic System, 95
$\mathcal{D}$ Dellunde's Logic, 672
$\mathcal{I} \leq \mathcal{I}'$ Extension Order on π-Institutions, 121
$\mathcal{I}^T$ π-Institution Generated in $\mathcal{I}$ by a Theory System T of $\mathcal{I}$, 122
$\mathcal{I}^{\mathsf{M}}$ π-Institution Induced by a Class M of Matrix Families, 124
$\mathcal{I}^f$ Finitary Companion of $\mathcal{I}$, 660
$\mathcal{I}^{\mathsf{K},\top}$ Assertional π-Institution Defined by a $\top^\flat$-Pointed Class K of Algebraic Systems, 1151
$\mathcal{K} \overset{(\alpha,\beta)}{\rightleftarrows} \mathcal{K}'$ Conjugate Pair of Inverse Interpretations Between π-Structures $\mathcal{K}$ and $\mathcal{K}'$, 865
$\mathcal{K}^{\mathcal{I}} = \langle \mathbf{F}, K^{\mathcal{I}} \rangle$ Systemic Skeleton of a π-Institution $\mathcal{I}$, 888
$\mathcal{Q}^{\mathcal{I}*} = \langle \mathbf{F}^2, D^{\mathcal{I}*} \rangle$ Algebraic π-Structure Associated with a π-Institution $\mathcal{I}$, 883
$\mathcal{Q}^{\mathcal{I}\bullet} = \langle \mathbf{F}^2, D^{\mathcal{I}\bullet} \rangle$ Systemic Algebraic π-Structure Associated with a π-Institution $\mathcal{I}$, 899
$\mathcal{R}$ Raftery's Logic, 676
$\min[R^{\mathcal{I}\natural}_\Sigma[\phi,\psi])$ Collection of Minimal Elements in $[R^{\mathcal{I}\natural}_\Sigma[\phi,\psi])$, 1050
$\min[R^{\mathcal{I}s}_\Sigma[\phi,\psi])$ Collection of Minimal Elements in $[R^{\mathcal{I}s}_\Sigma[\phi,\psi])$, 1059
$\mathsf{K} \vDash E^\flat$ Validity of a Set of Natural Equations in a Class of Algebraic Systems, 112
$\mathfrak{A}^*$ Leibniz Reduction of the Matrix Family $\mathfrak{A}$, 133
$\mathfrak{A}^{\mathsf{Su}}$ Suszko Reduction of the $\mathcal{I}$-Matrix Family $\mathfrak{A}$, 139
$\nabla^{\mathbf{A}}$ Nabla Congruence System on $\mathbf{A}$, 92
$\nu^{\mathbf{A}}(X)$ Closure of sentence Family X under the Operations of $\mathbf{A}$, 153
$\nu^{\mathbf{A}}(\overrightarrow{X})$ Universe of $\mathbf{A}$ Generated by X, 154
$\overleftarrow{E}(T)$ Relation System Consisting of All Tuples of Sentences Carried by E into T, 160
$\overleftarrow{T}$ Sentences all of whose images are in T, 76
$\overleftrightarrow{I^\flat}$ Set of all σ and $\overline{\sigma}$, with $\sigma \in I^\flat$, 684
$\overrightarrow{C}(T)$ Theory System Generated by T, 120
$\overrightarrow{C}^{\mathcal{I},\mathcal{A}}(T)$ Least $\mathcal{I}$-Filter System of $\mathcal{A}$ Including T, 127
$\overrightarrow{T}$ Images of all sentences in T, 77
$\overline{I^\flat}$ Set of all $\overline{\sigma}$, with $\sigma \in I^\flat$, 684
$\overline{\sigma}$ Natural Transformation Resulting from σ by Interchanging the First Two Arguments, 684
$\sim$ Rough Equivalence Between Theory Families, 394
$\widetilde{[T]}$ Rough Equivalence Class of T, 394
$\widetilde{[T]} \leq \widetilde{[T']}$ Order on Family Rough Equivalence Classes, 455
$\theta^{\langle F,\alpha\rangle}$ Kernel System of $\langle F, \alpha \rangle$, 83
$\widetilde{[T]}$ Rough Equivalence Class of the Theory System T, 394
$\widetilde{[T]} \leq \widetilde{[T']}$ Order on System Rough

Equivalence Classes, 455
$\vec{\phi} \approx \vec{\psi}$ Collection of Equations $\phi_i \approx \psi_i$, 182
$\widehat{\Omega}^{\mathcal{I}}(T)$ Systemic Suszko Congruence System of a Theory System T of $\mathcal{I}$, 597
$\widehat{\Omega}^{\mathcal{I}}(T)$ Version of Suszko Congruence System of the Theory System T Based on Theory Systems, 856
$\widehat{\Omega}^{\mathcal{I}\natural}$ Narrow Systemic Suszko Operator of a π-Institution $\mathcal{I}$, 1027
$\widetilde{L}^{\mathcal{I}}$ Rough Left Suszko Core of a π-Institution $\mathcal{I}$, 997
$\widetilde{R}^{\mathcal{I}}$ Rough Reflexive Core of a π-Institution $\mathcal{I}$, 1045
$\widetilde{T}$ Rough Associate of T, 393
$\widetilde{T}$ Rough Companion of T, 393
$\widetilde{Z}^{\mathcal{I}}$ Rough System Core of a π-Institution $\mathcal{I}$, 1014
$\widetilde{\Lambda}(\mathcal{I})$ Carnap Relation System of $\mathrm{ThFam}(\mathcal{I})$ on $\mathcal{F}$, 148
$\widetilde{\Lambda}(\mathcal{T})$ Carnap Relation System of a Collection $\mathcal{T}$ of Sentence Families, 145
$\widetilde{\Lambda}^{\mathcal{A}}(\mathcal{I})$ Carnap Relation System of $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$ on $\mathcal{A}$, 148
$\widetilde{\Lambda}^{\mathbf{A}}(\mathcal{T})$ Carnap Relation System of $\mathcal{T}$ on $\mathbf{A}$, 146
$\widetilde{\Lambda}^{\mathcal{I},\mathcal{A}}(T)$ Lindenbaum Relation System of T on $\mathcal{A}$ Relative to $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$, 148
$\widetilde{\Lambda}^{\mathcal{I}}(T)$ Lindenbaum Relation System of T on $\mathcal{F}$ Relative to $\mathrm{ThFam}(\mathcal{I})$, 148
$\widetilde{\Lambda}^{\mathcal{T}}(X)$ Lindenbaum Relation System of X Relative to $\mathcal{T}$, 147
$\widetilde{\Lambda}^{\mathbf{A},\mathcal{T}}(X)$ Lindenbaum Relation System of X on $\mathbf{A}$ Relative to $\mathcal{T}$, 148
$\widetilde{\Omega}(\mathbb{A})$ Tarski Congruence System of the $\mathbf{F}$-Gmatrix Family $\mathbb{A}$, 137
$\widetilde{\Omega}(\mathcal{I})$ Tarski Congruence System of $\mathcal{I}$, 138
$\widetilde{\Omega}^{\mathcal{A}}(\mathcal{I})$ Tarski Congruence System of $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$ on $\mathcal{A}$, 138
$\widetilde{\Omega}^{\mathcal{A}}(\mathcal{T})$ Tarski Congruence System of $\mathcal{T}$ on $\mathcal{A}$, 137
$\widetilde{\Omega}^{\mathcal{I}}(T)$ Suszko Congruence of T Relative to $\mathrm{Thfam}(\mathcal{I})$, 139
$\widetilde{\Omega}^{\mathcal{A},\mathcal{T}}(T)$ Suszko Congruence System of $T \in \mathcal{T}$ Relative to $\mathcal{T}$ on $\mathcal{A}$, 138
$\widetilde{\Omega}^{\mathcal{I},\mathcal{A}}(T)$ Suszko Congruence of T Relative to $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$, 139
$\widetilde{\Omega}^{\mathcal{I}\natural}$ Narrow Suszko Operator of a π-Institution $\mathcal{I}$, 1009
$\widetilde{\mathbf{ThFam}}(\mathcal{I})$ Poset of Family Rough Equivalence Classes, 455
$\widetilde{\mathbf{ThSys}}(\mathcal{I})$ Poset of System Rough Equivalence Classes, 455
$\widetilde{\lambda}(\mathcal{I})$ Carnap Relation Family of $\mathrm{ThFam}(\mathcal{I})$ on $\mathcal{F}$, 148
$\widetilde{\lambda}(\mathcal{T})$ Carnap Relation Family of a Collection $\mathcal{T}$ of Sentence Families, 145
$\widetilde{\lambda}^{\mathcal{A}}(\mathcal{I})$ Carnap Relation Family of $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$ on $\mathcal{A}$, 148
$\widetilde{\lambda}^{\mathbf{A}}(\mathcal{T})$ Carnap Relation Family of $\mathcal{T}$ on $\mathbf{A}$, 146
$\widetilde{\lambda}^{\mathcal{I},\mathcal{A}}(T)$ Lindenbaum Relation Family of T on $\mathcal{A}$ Relative to $\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$, 148
$\widetilde{\lambda}^{\mathcal{I}}(T)$ Lindnbaum Relation Family of T on $\mathcal{F}$ Relative to $\mathrm{ThFam}(\mathcal{I})$, 148
$\widetilde{\lambda}^{\mathcal{T}}(X)$ Lindenbaum Relation Family of X Relative to $\mathcal{T}$, 147
$\widetilde{\lambda}^{\mathbf{A},\mathcal{T}}(X)$ Lindenbaum Relation Family of X on $\mathbf{A}$ Relative to $\mathcal{T}$, 148
$\widetilde{\mathrm{ThFam}}(\mathcal{I})$ The Collection of All

Rough Equivalence Classes of Theory Families of $\mathcal{I}$, 394
$\widetilde{\text{ThSys}}(\mathcal{I})$ Collection of All Rough Equivalence Classes of Theory Systems of $\mathcal{I}$, 394
$p^k : (\text{SEN}^\flat)^k \to (\text{SEN}^\flat)^k$ Identity Natural Transformation, 168
Ł Łukasiewicz's Infinite Valued Logic, 669
$\mathbf{A}' \leq \mathbf{A}$ $\mathbf{A}'$ is an Algebraic Subsystem of $\mathbf{A}$, 152
$\mathbf{A}/\theta$ Quotient of $\mathbf{A}$ by θ, 93
$\mathbf{A}^\theta$ Quotient of $\mathbf{A}$ by θ, 93
Cln(SEN) Clone of All Natural Transformations on SEN, 85
ConSys($\mathbf{A}$) Lattice of Congruence Systems on $\mathbf{A}$, 92
$\mathbf{ConSys}^{\mathbf{A}}(T)$ Lattice of All Congruence Systems on $\mathbf{A}$ Compatible with T, 95
$\mathbf{FiFam}^{\mathcal{I}}(\mathcal{A})$ Lattice of All $\mathcal{I}$-Filter Families on $\mathcal{A}$, 126
$\mathbf{FiSys}^{\mathcal{I}}(\mathcal{A})$ Lattice of All $\mathcal{I}$-Filter Systems of $\mathcal{A}$, 126
SenFam(SEN) Lattice of Sentence Families, 76
SenSys(SEN) Lattice of Sentence Systems, 76
ThFam($\mathcal{I}$) Lattice of Theory Families of a π-Institution $\mathcal{I}$, 118
ThFam($\mathcal{K}$) Lattice of Theory Families of a π-Structure $\mathcal{K}$, 868
ThSys($\mathcal{I}$) Lattice of Theory Systems of a π-Institution $\mathcal{I}$, 118
$\leq$ Signature-Wise Inclusion, 76
AlgSys(G) Collection of All Algebraic Systems Satisfying Guasiequations in G, 184
AlgSys($\mathcal{I}$) Collection of All Tarski Reduced $\mathbf{F}$-Algebraic Systems, 138
AlgSys($\mathbf{F}$) Class of All $\mathbf{F}$-Algebraic Systems, 90
$\text{AlgSys}^*(\mathcal{I})$ Collection of All Leibniz Reduced $\mathbf{F}$-Algebraic Systems, 133
$\text{AlgSys}^\bullet(\mathcal{I})$ Collection of All System Reduced $\mathbf{F}$-Algebraic Systems, 133
$\text{AlgSys}^{\mathsf{Su}}(\mathcal{I})$ Class of All $\mathbf{F}$-Algebraic System Reducts of Suszko Reduced $\mathcal{I}$-Matrix Families, 813
ConSys($\mathcal{A}$) Collection of Congruence Systems on $\mathcal{A}$, 95
ConSys($\mathcal{I}$) Collection of AlgSys($\mathcal{I}$)-Congruence Systems on $\mathcal{F}$, 226
ConSys($\mathbf{A}$) Collection of Congruence Systems on $\mathbf{A}$, 92
$\text{ConSys}^\bullet(\mathcal{I})$ Collection of All $\mathcal{I}^\bullet$-Congruence Systems, 897
$\text{ConSys}^*(\mathcal{I})$ Collection of $\text{AlgSys}^*(\mathcal{I})$-Congruence Systems on $\mathcal{F}$, 226
$\text{ConSys}^{\mathbf{A}}(T)$ Collection of All Congruence Systems on $\mathbf{A}$ Compatible with T, 95
$\text{ConSys}^{\mathcal{I}*}(\mathcal{A})$ Collection of $\text{AlgSys}^*(\mathcal{I})$-Congruence Systems on $\mathcal{A}$, 226
$\text{ConSys}^{\mathcal{I}\bullet}(\mathcal{A})$ Collection of All $\mathcal{I}^\bullet$-Congruence Systems on $\mathcal{A}$, 897
$\text{ConSys}^{\mathcal{I}}(\mathcal{A})$ Collection of AlgSys($\mathcal{I}$)-Congruence

Systems on $\mathcal{A}$, 226
$\mathrm{ConSys}^{\mathsf{K}}(\mathbf{A})$ Collection of All K-Congruence Systems on $\mathbf{A}$, 104
EqvFam(SEN) Collection of All Equivalence Families on SEN, 82
EqvSys(SEN) Collection of All Equivalence Systems on SEN, 82
$\mathrm{Eq}(\mathcal{A})$ Family of Equations Satisfied by $\mathcal{A}$, 183
$\mathrm{Eq}(\mathsf{K})$ Family of Equations Valid in Class K, 183
$\mathrm{Eq}(\mathbf{F})$ Family of $\mathbf{F}$-Equations, 177, 182
$\mathrm{FiFam}^{\mathcal{I}}(\mathcal{A})$ Collection of All $\mathcal{I}$-Filter Families on $\mathcal{A}$, 126
$\mathrm{FiFam}^{\mathcal{I}}(\mathfrak{A})$ Collection of All $\mathcal{I}$-Filter Families of $\mathfrak{A}$, 126
$\mathrm{FiFam}^{\mathcal{I}}(\mathfrak{A})$ Collection of All $\mathcal{I}$-Filter Families of a Matrix Family $\mathfrak{A}$, 133
$\mathrm{FiSys}^{\mathcal{I}}(\mathcal{A})$ Collection of All $\mathcal{I}$-Filter Systems on $\mathcal{A}$, 126
$\mathrm{GEq}(\mathcal{A})$ Family of Guasiequations Satisfied by $\mathcal{A}$, 183
$\mathrm{GEq}(\mathsf{K})$ Family of Guasiequations Valid in Class K, 183
$\mathrm{GEq}(\mathbf{G})$ Family of $\mathbf{F}$-Guasiequations (Generalized Quasiequations), 182
$\mathrm{GMatFam}^{*}(\mathcal{I})$ Collection of All Tarski Reduced $\mathcal{I}$-Gmatrix Families, 138
$\mathrm{Ken}(\langle F, \alpha\rangle)$ Kernel System of $\langle F, \alpha\rangle$, 83
$\mathrm{Ker}(\mathcal{A})$ Kernel of an $\mathbf{F}$-Algebraic System, 112
$\mathrm{Ker}(\mathsf{K})$ Kernel of a Class of $\mathbf{F}$-Algebraic Systems, 113
$\mathrm{LAlgSys}^{*}(\mathcal{I})$ Class of All $\mathbf{F}$-Algebraic System Reducts of (Leibniz) Reduced Lindenbaum $\mathcal{I}$-Matrix Families, 813
$\mathrm{LAlgSys}^{\mathsf{Su}}(\mathcal{I})$ Class of All $\mathbf{F}$-Algebraic System Reducts of Suszko Reduced Lindenbaum $\mathcal{I}$-Matrix Families, 813
$\mathrm{LMatFam}(\mathcal{I})$ Collection of All Lindenbaum $\mathcal{I}$-Matrix Families, 811
$\mathrm{LMatFam}^{*}(\mathcal{I})$ Collection of All (Leibniz) Reduced Lindenbaum $\mathcal{I}$-Matrix Families, 811
$\mathrm{LMatFam}^{\mathsf{Su}}(\mathcal{I})$ Collection of All Suszko Reduced Lindenbaum $\mathcal{I}$-Matrix Families, 811
$\mathrm{MatFam}(\mathcal{I})$ Collection of All $\mathcal{I}$-Matrix Families, 126
$\mathrm{MatFam}(\mathbf{F})$ Collection of All $\mathbf{F}$-Matrix Families, 124
$\mathrm{MatFam}^{*}(\mathcal{I})$ Collection of All Leibniz Reduced $\mathcal{I}$-Matrix Families, 133
$\mathrm{MatFam}^{\mathsf{Su}}(\mathcal{I})$ Collection of All Suszko Reduced $\mathcal{I}$-Matrix Families, 140
$\mathrm{MatSys}(\mathcal{I})$ Collection of All $\mathcal{I}$-Matrix Systems, 126
$\mathrm{MatSys}(\mathbf{F})$ Collection of All $\mathbf{F}$-Matrix Systems, 124
$\mathrm{MatSys}^{*}(\mathcal{I})$ Collection of All Leibniz Reduced $\mathcal{I}$-Matrix Systems, 133
$\mathrm{Mod}(G)$ Collection of All Algebraic Systems Satisfying Guasiequations in G, 184
$\mathrm{NEq}(\mathbf{F})$ Collection of All Natural $\mathbf{F}$-Equations, 111

NThm($\mathcal{I}$) Collection of Natural Theorems of $\mathcal{I}$, 118
QEq($\mathcal{A}$) Family of Quasiequations Satisfied by $\mathcal{A}$, 183
QEq(K) Family of Quasiequations Valid in Class K, 183
QEq($\mathbf{F}$) Family of $\mathbf{F}$-Quasiequations, 182
RelFam(SEN) Collection of All Relation Families on SEN, 82
RelSys(SEN) Collection of All Relation Systems on SEN, 82
SenFam(SEN) Collection of Sentence Families, 76
SenFam($\mathfrak{A}$) Collection of All Sentence Families of a Matrix Family, 126
SenSys(SEN) Collection of Sentence Systems, 76
ThFam($\mathcal{I}$) Collection of All Theory Families of a π-Institution $\mathcal{I}$, 118
ThFam($\mathcal{K}$) Collection of Theory Families of a π-Structure $\mathcal{K}$, 868
ThFam$^\natural$($\mathcal{I}$) Collection of Theory Families of a π-Institution $\mathcal{I}$, with Nonempty Components, 394
ThSys($\mathcal{I}$) Collection of All Theory Systems of a π-Institution $\mathcal{I}$, 118
ThSys$^\natural$($\mathcal{I}$) Collection of Theory Systems of a π-Institution $\mathcal{I}$, with Nonempty Components, 394
Thm($\mathcal{I}$) Theorem Family of a π-Institution $\mathcal{I}$, 117
Thm$_\Sigma$($\mathcal{I}$) Set of Σ-Theorems of a π-Institution $\mathcal{I}$, 117
Th$_\Sigma$($\mathcal{I}$) Collection of All Σ-Theories of a π-Institution $\mathcal{I}$, 118
Unv($\mathbf{A}$) Collection of All Universes of an Algebraic System $\mathbf{A}$, 151

ssv$^\kappa$ Source Signature κ-Variable Pair, 114