

ISO/IEC 10179:1996-04 (E)

Information technology - Processing languages - Document Style Semantics and Specification Language (DSSSL)

Contents		Page
1	Scope.....	1
2	Conformance	2
3	Normative References	3
4	Definitions	4
5	Notation and Conventions.....	7
5.1	Syntax Productions.....	7
5.2	Procedure Prototypes.....	8
6	DSSSL Overview.....	8
6.1	Areas of Standardization	9
6.2	Conceptual Model	10
6.3	DSSSL Languages	11
6.3.1	The Transformation Language.....	11
6.3.1.1	Components of the Transformation Process	12
6.3.1.2	Model for Coded Characters, Characters, and Glyph Identifiers	13
6.3.2	The Style Language	14
6.3.2.1	Components of the Formatting Process.....	15
6.3.2.2	Grove Building.....	15
6.3.2.3	Flow Object Tree.....	15
6.3.2.4	Flow Object Classes	16
6.3.2.5	Areas.....	17
6.3.2.6	Page and Column Geometry	18
6.3.2.7	Expression Language	18
6.3.2.8	Model for Coded Characters, Characters, and Glyph Identifiers	19
7	DSSSL Specifications	19
7.1	DSSSL Document Architecture.....	20
7.1.1	Features.....	24
7.1.2	SGML Grove Plan	24
7.1.3	Character Repertoire.....	25
7.1.4	Standard Characters	25
7.1.5	Other Characters	26
7.1.6	Baset Encoding	26
7.1.7	Literal Described Character	26
7.1.8	Sdata Entity Mapping	27
7.1.9	Separator Characters.....	27
7.1.10	Name Characters	27
7.1.11	Character Combination.....	27
7.2	Public Identifiers.....	27
7.3	Lexical Conventions	27
7.3.1	Case Sensitivity	27
7.3.2	Identifiers	28
7.3.3	Tokens, Whitespace, and Comments.....	28

8	Expression Language	29
8.1	Overview of the Expression Language	30
8.2	Basic Concepts	30
8.2.1	Variables and Regions	30
8.2.2	True and False	31
8.2.3	External Representations	31
8.2.4	Disjointness of Types	31
8.3	Expressions	32
8.3.1	Primitive Expression Types	32
8.3.1.1	Variable Reference	32
8.3.1.2	Literals	33
8.3.1.3	Procedure Call	34
8.3.1.4	Lambda Expression	34
8.3.1.5	Conditional Expression	36
8.3.2	Derived Expression Types	36
8.3.2.1	Cond-expression	36
8.3.2.2	Case-expression	37
8.3.2.3	And-expression	37
8.3.2.4	Or-expression	38
8.3.2.5	Binding expressions	38
8.3.2.6	Named-let	39
8.3.2.7	Quasiquotation	40
8.4	Definitions	41
8.5	Standard Procedures	43
8.5.1	Booleans	43
8.5.1.1	Negation	43
8.5.1.2	Boolean Type Predicate	44
8.5.2	Equivalence	44
8.5.3	Pairs and Lists	45
8.5.3.1	Pair Type Predicate	46
8.5.3.2	Pair Construction Procedure	46
8.5.3.3	car Procedure	46
8.5.3.4	cdr Procedure	47
8.5.3.5	cr Procedures	47
8.5.3.6	Empty List Type Predicate	48
8.5.3.7	List Type Predicate	48
8.5.3.8	List Construction	48
8.5.3.9	List Length	48
8.5.3.10	Lists Appendance	49
8.5.3.11	List Reversal	49
8.5.3.12	Sublist Extraction	49
8.5.3.13	List Access	49
8.5.3.14	List Membership	50
8.5.3.15	Association Lists	50
8.5.4	Symbols	50
8.5.4.1	Symbol Type Predicate	51
8.5.4.2	Symbol to String Conversion	51
8.5.4.3	String to Symbol Conversion	51
8.5.5	Keywords	51
8.5.5.1	Keyword Type Predicate	52
8.5.5.2	Keyword to String Conversion	52
8.5.5.3	String to Keyword Conversion	52
8.5.6	Named Constants	52
8.5.7	Quantities and Numbers	52
8.5.7.1	Numerical Types	52
8.5.7.2	Exactness	53
8.5.7.3	Implementation Restrictions	54
8.5.7.4	Syntax of Numerical Constants	55
8.5.7.5	Number Type Predicates	56
8.5.7.6	Exactness Predicates	56
8.5.7.7	Comparison Predicates	56
8.5.7.8	Numerical Property Predicates	57

8.5.7.9	Maximum and Minimum.....	57
8.5.7.10	Addition.....	57
8.5.7.11	Multiplication.....	58
8.5.7.12	Subtraction.....	58
8.5.7.13	Division.....	58
8.5.7.14	Absolute Value.....	58
8.5.7.15	Number-theoretic Division.....	59
8.5.7.16	Real to Integer Conversion.....	59
8.5.7.17	e" and Natural Logarithm.....	60
8.5.7.18	Trigonometric Functions.....	60
8.5.7.19	Inverse Trigonometric Functions.....	60
8.5.7.20	Square Root.....	61
8.5.7.21	Exponentiation.....	61
8.5.7.22	Exactness Conversion.....	61
8.5.7.23	Quantity to Number Conversion.....	61
8.5.7.24	Number to String Conversion.....	61
8.5.7.25	String to Number Conversion.....	63
8.5.8	Characters.....	63
8.5.8.1	Character Properties.....	64
8.5.8.2	Language-dependent Operations.....	64
8.5.8.3	Character Type Predicate.....	67
8.5.8.4	Character Comparison Predicates.....	67
8.5.8.5	Case-insensitive Character Predicates.....	67
8.5.8.6	Character Case Conversion.....	68
8.5.8.7	Character Properties.....	68
8.5.9	Strings.....	68
8.5.9.1	String Type Predicate.....	69
8.5.9.2	String Construction.....	69
8.5.9.3	String Length.....	69
8.5.9.4	String Access.....	69
8.5.9.5	String Equivalence.....	69
8.5.9.6	String Comparison.....	69
8.5.9.7	Substring Extraction.....	70
8.5.9.8	String Appendence.....	70
8.5.9.9	Conversion between Strings and Lists.....	70
8.5.10	Procedures.....	70
8.5.10.1	Procedure Type Predicate.....	70
8.5.10.2	Procedure Application.....	71
8.5.10.3	Mapping Procedures over Lists.....	71
8.5.10.4	External Procedures.....	71
8.5.11	Date and Time.....	72
8.5.12	Error Signaling.....	72
8.6	Gore Expression Language.....	72
8.6.1	Syntax.....	72
8.6.2	Procedures.....	74
9	Groves.....	75
9.1	Nodal Properties.....	76
9.2	Grove Plans.....	77
9.3	Property Set Definition.....	78
9.3.1	Common Attributes.....	78
9.3.1.1	Component Names.....	78
9.3.1.2	Specification Documents.....	79
9.3.2	Modules.....	79
9.3.3	Data Type Definition.....	80
9.3.4	Class Definition.....	81
9.3.5	Property Definition.....	81
9.3.6	Normalization Rule Definition.....	82
9.4	Intrinsic Properties.....	83
9.5	Auxiliary Groves.....	84
9.6	SGML Property Set.....	84
9.7	DSSSL SGML Grove Plan.....	122

10	Standard Document Query Language	123
10.1	Primitive Procedures	123
10.1.1	Application Binding	123
10.1.2	Node Lists	124
10.1.3	Named Node Lists	124
10.1.4	Error Reporting	125
10.1.5	Application Name Transformation	125
10.1.6	Property Values	125
10.1.7	SGML Grove Construction	126
10.2	Derived Procedures	126
10.2.1	HyTime Support	126
10.2.2	List Operations	130
10.2.3	Generic Property Operations	137
10.2.4	Gore Query Language	143
10.2.4.1	Navigation	143
10.2.4.2	Counting	143
10.2.4.3	Accessing Attribute Values	144
10.2.4.4	Testing Current Location	145
10.2.4.5	Entities and Notations	146
10.2.4.6	Name Normalization	147
10.2.5	SGML Property Operations	147
10.3	Auxiliary Parsing	149
10.3.1	Word Searching	149
10.3.2	Node Regular Expressions	150
10.3.3	Regexp Constructors	151
10.3.4	Regular Expression Searching Procedures	152
11	Transformation Language	152
11.1	Features	153
11.2	Associations	153
11.3	Transform-expression	154
11.3.1	Subgrove-spec	155
11.3.2	Create-spec	156
11.3.3	Result-node-list	158
11.3.4	Transform-grove-spec	159
11.3.5	SGML Prolog Parsing	159
11.4	SGML Document Generator	159
11.4.1	Verification Mapping	160
11.4.2	Transliteration	161
12	Style Language	162
12.1	Features	162
12.2	Flow Object Tree	164
12.3	Areas	164
12.3.1	Display Areas	165
12.3.2	Inline Areas	168
12.3.3	Inlined and Displayed Flow Objects	171
12.3.4	Attachment Areas	172
12.4	Flow Object Tree Construction	173
12.4.1	Construction Rules	173
12.4.2	Primary Flow Object	176
12.4.3	Sosofos	176
12.4.4	Multi-process Feature	180
12.4.5	Styles	180
12.4.6	Characteristic Specification	181
12.4.7	Synchronization of Flow Objects	184
12.5	Common Data Types and Procedures	185
12.5.1	Layout-driven Generated Text	185
12.5.1.1	Constructing Indirect Sosofos	186
12.5.1.2	Layout Numbering	187
12.5.1.3	Reference Values	188

12.5.2	Length Specification	190
12.5.3	Decoration Areas	190
12.5.4	Spaces	191
12.5.4.1	Display Spaces	191
12.5.4.2	Inline Spaces.....	191
12.5.5	Glyph Identifiers	192
12.5.6	Glyph Substitution Tables	192
12.5.7	Font Information	193
12.5.8	Addresses	194
12.5.9	Color	195
12.6	Flow Object Classes	197
12.6.1	Sequence Flow Object Class	197
12.6.2	Display-group Flow Object.....	197
12.6.3	Simple-page-sequence Flow Object Class	199
12.6.4	Page-sequence Flow Object Class	201
12.6.4.1	Page-model	202
12.6.5	Column-set-sequence Flow Object Class.....	205
12.6.5.1	Column-set-model.....	207
12.6.6	Paragraph Flow Object Class.....	217
12.6.6.1	Line Spacing	225
12.6.7	Paragraph-break Flow Object Class	225
12.6.8	Line-field Flow Object Class	225
12.6.9	Sideline Flow Object Class.....	226
12.6.10	Anchor Flow Object Class.....	227
12.6.11	Character Flow Object Class.....	228
12.6.11.1	Character Properties	234
12.6.12	Leader Flow Object Class.....	236
12.6.13	Embedded-text Flow Object Class	237
12.6.14	Rule Flow Object Class.....	238
12.6.15	External-graphic Flow Object Class.....	242
12.6.16	Included-container-area Flow Object Class	247
12.6.17	Score Flow Object Class	251
12.6.18	Box Flow Object Class.....	253
12.6.19	Side-by-side Flow Object Class	258
12.6.20	Side-by-side-item Flow Object Class	260
12.6.21	Glyph-annotation Flow Object Class	261
12.6.22	Alignment-point Flow Object Class.....	262
12.6.23	Aligned-column Flow Object Class	262
12.6.24	Multi-line-inline-note Flow Object Class	265
12.6.25	Emphasizing-Mark Flow Object Class	266
12.6.26	Flow Object Classes for Mathematical Formulae	267
12.6.26.1	Math-sequence Flow Object Class	267
12.6.26.2	Unmath Flow Object Class	268
12.6.26.3	Subscript Flow Object Class.....	269
12.6.26.4	Superscript Flow Object Class	269
12.6.26.5	Script Flow Object Class	269
12.6.26.6	Mark Flow Object Class	271
12.6.26.7	Fence Flow Object Class	272
12.6.26.8	Fraction Flow Object Class	272
12.6.26.9	Radical Flow Object Class.....	273
12.6.26.10	Math-operator Flow Object Class	274
12.6.26.11	Grid Flow Object Class	275
12.6.26.12	Grid-cell Flow Object Class.....	276
12.6.27	Flow Object Classes for Tables	276
12.6.27.1	Table Flow Object Class	277
12.6.27.2	Table-part Flow Object Class	280
12.6.27.3	Table-column flow object	282
12.6.27.4	Automatic Table-width Computation	284
12.6.27.5	Table-row Flow Object Class	284
12.6.27.6	Table-cell Flow Object Class.....	284
12.6.27.7	Table-border Flow Object Class	287

12.6.28	Flow Object Classes for Online Display	289
12.6.28.1	Scroll Flow Object Class	289
12.6.28.2	Multi-mode Flow Object Class	290
12.6.28.3	Link Flow Object Class	290
12.6.28.4	Marginalia Flow Object Class	291
Annex A:	Further Information.....	292