Activity diagrams, 33  
Nature, 33  
Specifications, 34  
Analysing MOPS for MOSS for a Solution, 163  
Analysis of use cases in MOSS, 163  
Analysis of business class diagrams in MOSS, 165  
Analysing activity diagrams in MOSS, 165

Background of Lucky insurance case study, 231

Class diagrams, 35  
Nature, 35  
Putting together class diagrams, 36  
Specification, 36  
Class diagram to sequence dependency, quality, 157  
V&V of Robustness in MOBS, 210  
Communication diagrams, 39  
Nature, 39  
Putting together communication diagram, 40

Composite structure diagrams, 44  
Nature, 44  
Putting together, 44  
Component diagrams, 45  
Nature, 45  
Putting together, 46  
Specifications, 46  
V&V in MOBS, 213  

V&V quality checks Summary, 257  
Working in Background space, 194  
V&V of Component diagrams, 213  
V&V of class diagrams, 208  

Background space, 257  
V&V quality checks Summary, 257  
Working in Background space, 194  
V&V of Component diagrams, 213  
V&V of class diagrams, 208

Class diagrams, 35  
Nature, 35  
Putting together class diagrams, 36  
Specification, 36  
Class diagram to sequence dependency, quality, 157  
V&V of Robustness in MOBS, 210  
Communication diagrams, 39  
Nature, 39  
Putting together communication diagram, 40

Composite structure diagrams, 44  
Nature, 44  
Putting together, 44  
Component diagrams, 45  
Nature, 45  
Putting together, 46  
Specifications, 46  
V&V in MOBS, 213  

V&V of Component diagrams, 213  
SWOT of Component diagrams, 78  
Converting Models into Systems, 189  
Cross-Diagram dependencies MOSS, 189  
Cross-Diagram dependencies MOBS, 222  
Classes and class diagrams in MOBS, 204  
Relational table representation by classes, 204  
Mapping ClientDetails to relational tables, 205  
Active classes in MOBS, 205  
Class and granularity in MOBS, 207  
Assigning classes to components, 208  
Component diagrams in MOBS, 213  
Syntax checks for Component diagrams MOBS, 213  
Semantic checks Component diagrams MOBS, 213

Verification and Validation of Quality for UML 2.0 Models, by Bhuvan Unhelkar
Copyright © 2005 John Wiley & Sons, Inc.
Component diagrams in MOBS (Continued)

Aesthetic checks for Component diagrams, 213

Composite structure diagrams, 218
Syntax checks composite structure diagrams, 218
Semantic checks composite structure diagrams, 218
Aesthetic checks composite structure diagrams, 218
V&V in MOBS, 218

Criteria for evaluating UML case tools, 237

Deployment diagrams, 46
Nature, 46
Putting together, 47
Syntax checks in MOBS, 221
Semantic checks in MOBS, 221
Aesthetic checks in MOBS, 221
V&V in MOBS, 219
SWOT of Deployment diagrams, 79

Employee portal, 234
Lucky Insurance case study, 234

Elasticity in UML diagrams, 28
Extending class diagrams robustness diagrams, 210

E-commerce applications and Use case, 62

Functional slices and Relation to infrastructure, 198

Growth Lucky insurance case study, 234

Iterations and increments in Process, 228
Iterative development, 228
Incremental development, 229
Parallel development, 229
Project-level iterations, 229

Interaction overview diagrams, 41
Nature, 41
Putting together interaction overview diagrams, 41
Interaction overview to sequence and use case dependencies, 157

Lucky insurance case study, 231
Description, 231
Background, 231
Insurance business, 232
Policies and risk categories, 233
Payment types, 234
Interactions, 234
Growth, 234
Employee portal, 234

Levels of quality checks to UML diagrams, 20
Syntax checks and UML elements, 21
Semantics checks and UML elements, 22
Aesthetic checks and UML models, 22

Model driven architecture and quality, 23
Modelling and quality, 2
Modelling advantage, 2
Modelling caveats, 2
Model quality context, 3
Model quality, 4

Modelling spaces in software, 7
Modelling spaces and UML, 7
UML diagrams and models, 8
UML diagrams and modelling spaces, 9
Model of problem space, 10
UML diagrams in MOPS, 10
Model of solution space, 11
UML diagrams in MOSS, 12
Model of Background space, 12
UML diagrams in MOBS, 13

Managing V&V Process, 225
MOPS Summary of V&V quality checks, 241
MOSS Summary of V&V quality checks, 251
MOBS Summary of V&V quality checks, 257

Nature of UML diagrams, 27
Elasticity, 28
Structural and behavioural nature, 28
Static versus dynamic nature, 29

Object diagrams, 41
Nature, 41
Putting together object diagrams, 42

Prototyping and modelling spaces, 23
Positioning UML for modelling, 4

Package diagram, 47
Nature, 47
Putting together, 48
Specifications, 48
SWOT of Package diagrams, 80

Process and UML, 225

Process and process component, 226
Simple process architecture, 226
Process component for V&V class diagrams, 227
Iterations and increments, 228

Quality aspects of UML, 5
Visualizing, 6
Specifying, 6
Constructing, 6
Documenting, 6
INDEX

Quality checks and skills levels, 19
Quality of Activity diagrams, 122
  AddsClientDetails description, 122
  CreatesHomeInsurancePolicy, 124
Syntax checks for Activity diagrams, 126
Semantic checks for Activity diagrams, 126
Aesthetic checks for Activity diagrams, 126
Quality checks of Package diagrams, 129
  Lucky Package description, 129
Syntax checks for Package diagrams, 130
Semantic checks for Package diagrams, 131
Aesthetic checks for Package diagrams, 132
Quality checks of classes and class diagrams, 129
Documenting class and template, 133
Client class description, 135
Syntax checks for Classes, 137
Semantic checks for Classes, 138
Aesthetic checks for Classes, 138
Class Diagrams, 139
ClientDetails description, 139
PolicyDetails description, 142
Syntax checks for Class diagrams, 142
Semantic checks for Class diagrams, 144
Aesthetic checks for Class diagrams, 144
Quality of Sequence diagrams in MOPS, 145
  CreateClient Sequence description, 145
  CreateClientOnInternet description, 146
ApprovalPolicy description, 147
Syntax checks for Sequence diagrams, 148
Semantic checks for Sequence diagrams, 148
Aesthetic checks for Sequence diagrams, 150
Quality of State Machine diagrams in MOPS, 150
  Client State Machine description, 150
  Policy description, 151
Syntax checks for State Machine diagrams, 152
Semantic checks for State Machine diagrams, 153
Aesthetic checks for State Machine diagrams, 153
Quality of Interaction Overview diagrams in MOPS, 154
  CreateClient Interaction Overview description, 154
Syntax for Interaction Overview diagrams, 155
Semantics for Interaction Overview diagrams, 155
Aesthetics Interaction Overview diagrams, 155
Quality of classes and class diagrams in MOSS, 166
  Syntax for classes, 166
  Semantics for classes, 170
  Aesthetics classes, 155
Syntax for class diagrams, 175
Semantic checks for class diagrams, 176
Aesthetics class diagrams, 177
Quality of Sequence diagrams in MOSS, 178
  SubmissionClaim Sequence description, 178
Syntax checks for Sequence diagrams, 180
Semantic checks for Sequence diagrams, 181
Aesthetic checks for Sequence diagrams, 182
Quality of Communication diagrams in MOSS, 182
  SubmitsClaim Communication description, 182
Syntax checks for Communication diagrams, 183
Semantic checks for Communication diagrams, 183
Aesthetic checks for Communication diagrams, 184
Quality of Object diagrams in MOSS, 182
  Policy Claim Object diagrams description, 182
Syntax checks for Object diagrams, 185
Semantic checks for Object diagrams, 185
Aesthetic checks for Object diagrams, 186
Quality of State Machine diagrams in MOSS, 186
  Policy claims timing diagrams description, 188
Syntax checks for Timing diagrams, 188
Semantic checks for Timing diagrams, 188
Aesthetic checks for Timing diagrams, 189
Robustness diagrams, 210
  Extending class diagrams robustness diagrams, 210
Robustness through sequence diagrams, 211
Syntax checks robustness in MOBS, 211
Semantic checks robustness in MOBS, 211
Aesthetic checks robustness in MOBS, 213
Sequence diagrams, 37
  Nature, 37
Putting together sequence diagrams, 38
Specification, 39
UML meta-models and quality, 53
UML diagrams in MOPS, 86
UML diagrams in MOSS, 161
UML diagrams in MOBS, 194
Layers in software architecture, 196
Relating the functional slices to infrastructure, 198
UML case tools, 237
Some case tools, 238

Verification and validation, 14
Quality models syntax, 15
Quality models semantics, 17
Quality models aesthetics, 18
Quality checks and V&V, 18
V&V of Quality of MOPS, 85
V&V of Quality of MOPS, 161
V&V of Quality of MOBS, 193
Syntax checks for package diagrams MOBS, 202
Semantic checks for package diagrams MOBS, 202
Aesthetic checks for package diagrams MOBS, 203
V&V of Use case and use case diagrams in MOPS, 88
List of Use case diagrams, 90
Policy creation and maintenance, 100
Claims Processing, 113
Sales campaigning, 114
Actor class confusion, 95
Actor documentation and quality checks, 96
Use case documentation and quality checks, 103
Use case documentation examples, 108
Syntax checks for Use case diagrams, 115
Semantic checks for Use case diagrams, 118
Aesthetic checks for Use case diagrams, 120
Acceptance testing and documentation, 121
V&V of class diagrams in MOBS, 208
Syntax checks for class diagrams is MOBS, 209
Semantic checks for class diagrams is MOBS, 209

Aesthetic checks for class diagrams is MOBS, 209
V&V of Robustness through class diagrams MOBS, 210
V&V of Component diagrams in MOBS, 213
V&V Composite structure diagrams MOBS, 218
V&V Deployment diagrams MOBS, 219
Factors influencing system deployment, 219
V&V of quality checks in MOPS Summary, 241
V&V of quality checks in MOSS Summary, 251
V&V of quality checks in MOBS Summary, 257
Validating Entire MOPS, 156
Use case to activity dependency, quality, 156
Use case to class diagram dependency, quality, 157
Class diagram to sequence dependency, quality, 157
Interaction overview to sequence and use case dependencies, 157
Quality of documentation MOPS, 158
Aesthetics of MOPS, 158
V&V of Package diagrams in MOBS, 199

Working in Background space, 194
Weakness of Timing diagrams, 82
Weakness of Package diagrams, 81
Weakness of Deployment diagrams, 79
Weakness of Component diagrams, 78
Weakness of Composite Structure diagrams, 77
Weakness of State Machine diagrams, 76
Weakness of Object diagrams, 75
Weakness of Interaction Overview diagrams, 74
Weakness of Communication diagrams, 73
Weakness of Sequence diagrams, 71
Weakness of classes and class diagrams, 68
Weakness of activity diagrams, 66
Weakness of Use case diagrams, 60