Index

abstraction 21
access sort 172
acknowledgment 21, 142
Act 46, 197
action 11, 43, 48
action-sequence 48, 212, 221
Ada 170
agent 11
  (active) 16
  (passive) 16
agent constant 43
agent expression 17, 29, 43
agent parameter 187
agent variable 43
algebra 4, 26
alternating-bit protocol 141
arc 78
Arden's rule 85
arity 175, 189
assignment 175
asynchroniser 203
asynchrony 195
atom 196
atomic action 196
atomic communication 36
automata (finite-state) 85
automata theory 85
axiom system 160

behaviour 12
binding power 44
bisimilarity
  (strong) 4, 88, 90, 136, 223
  (weak) 4, 108, 109
bisimulation 3
  (strong) 88
  up to $\sim$ 92
  up to $\approx$ 111, 125
  (weak) 108
block 175
boolean expression 54
bound variable 18
box 215
buffer 14, 71, 75, 145
  (bounded) 14

calculus 4
  (basic) 43
  (value-passing) 53
causation 4
cell 17
checkpoint 193
Circal 195
clock 196
Com 46
combinator 19, 43, 60
  (dynamic) 61
  (static) 60, 75
command 174
communication 12
complement 30
complete axiomatisation 161
completely expressive 203
Composition 29, 38, 43, 46, 55
Con 46, 186

co-name 37, 43
concurrency 12
Conditional 55
conditional 175
conditional expression 37
confluence 5, 231, 236, 237
  (strong) 237
  (weak) 239
Confluent Composition 244
Confluent Conjunction 245
Confluent Sum 243
congruence 84, 113, 153
Conjunction 194, 236, 245
conjunction 214
Constant 43, 46, 55
convergent 148
counter 132
  (binary) 133
CSP 170
cycle (τ-) 147, 167
cycler 74, 83

data value 36
deadlock 25, 64, 87, 147, 204, 206, 246
decidable 169
declaration 172, 174
defining equation 18, 44, 55
delay 198
depth 227
derivation tree 40, 49, 87
derivation-closed 232, 238
derivative 48
  (immediate) 48
descendant 107
determinacy 5, 194, 206, 231
  (strong) 233
  (weak) 233
diamond 214
distributive law 64, 85, 86, 205, 207
divergent 148
dynamic combinator 61
dynamic laws 62

equality 60, 112, 152, 153, 154
equation 60
equational law 4, 53
equivalence 49
  (strong) 4, 84, 90, 98
equivalence relation 204
ether 13
  (bounded) 13
excess 240
expansion law 61, 69, 96, 129
experiment 86, 87, 150, 233
  (empty) 151
experimenter 86
expression 174

failures equivalence 206
  (strong) 227
finite agent 160
fixed-point 104
  (maximum) 91
flow graph 26, 60, 77
formula 214
function symbol 174

granularity 175, 181
guarded 65, 157
  (weakly) 101
guarded sum 113

handshake 16, 36
Hiding 121, 194, 236, 245
Hoare logic 218

Hoare sentence 219

idle 198
indexing set 43
induction 156
inference (definition by) 190
inference diagram 46, 49
internal action 39, 42, 73
internal transition 73
interrupt 192
invariant 3
iteration 175

jobshop 25, 123

label 37, 43
  (inner) 77
  (outer) 78
labelled transition system 45, 107, 213
lambda-calculus 81, 129, 171
law 60
  (dynamic) 61, 62
  (expansion) 61, 69, 96
  (static) 61, 77, 94
linking 67, 134
liveness property 223
local variable 178
logic 123
  (Hoare) 218
  (modal) 214
  (process) 213
  (program) 218
  (temporal) 4, 149
LOTOS 192

medium 13
Meije 203
memory 2, 139
  (shared) 15
memory map 221
message 13, 141
monitor 2
monoid laws 62
multiplier 75

name 37, 43
necessity 215
  (weak) 217
negation 214
net (Petri) 3
node 77

observation congruence 5, 135, 153
observation equivalence 3, 4, 12, 84, 107
observer 64
one-to-one 80, 94
operator 187
Opr 189
ordinal induction 224
ordinal number 224

parallel composition 175, 218, 247
parallel computation 170
parameter 29
partial correctness 223
particle 196
particulate action 196
Pascal 170
perfect action 39, 42, 43
port 17, 26, 27, 77
possibility 214
  (weak) 217
pre-emptive power 42
pre-fixed-point 104

Prefix 17, 29, 43, 46, 55
procedure 172
  (concurrent) 182
process logic 213
Prod 197
Product 197
program logic 218
program variable 172
programming language 1, 170, 217
property 210
protocol 5, 141, 212

queue 135

Recursion 57, 165
Recursion (guarded) 166
recursion 44, 56, 99, 165, 183
Rel 46
Relabelling 32, 43, 46, 55
relabelling function 32, 43, 79
Res 46, 197
resource 177
restart 193
Restricted Composition 244
Restriction 30, 40, 43, 46, 55

safety property 223
satisfaction 214
scheduler 5, 113, 206, 211, 216
scope 17
semantics 170
  (axiomatic) 223
  (denotational) 170
  (operational) 171, 223
semaphore 2, 32, 92, 181
sequential 65, 157, 190
sequential composition 172, 175, 186, 190, 218
serial 160, 165
shared variable 171
shuffle 188
silent action 43
sort 27
sort (syntactic) 52
sort 51
sorting 136
specification 33
specification 19, 33, 113, 136, 139, 145, 210, 216, 232
stable 112, 118, 127, 156
stack 134
standard concurrent form 68, 83
standard form 161
  (full) 162
state 18, 37, 45, 212
static combinator 60, 113
static laws 75, 77
storage register 172
stratification 223
structure (evolving) 130
structure (inductive) 136
substitution 45, 82, 97, 221
substitutivity 152, 157
Sum 46, 197
Summation 20, 29, 43, 46, 55
synchronisation 36
  (multi-way) 194, 199
synchrony 195

testing equivalence 206
tick 190
time-out 142
total correctness 223
trace equivalence 204, 234, 246
  (strong) 225
transition 3, 37, 45
transition graph 40, 60
transition induction 100, 58
transition relation 45

transition rule 38, 39, 45
transition tree 40
translation 55
Turing machine 101, 135, 165

undecidable 135
unique solution 65, 85, 101, 157, 190, 205

value expression 29, 130
value parameter 187
value-passing 37, 53
variable 17, 55, 174
    (agent) 43
    (bound) 18
    (free) 18
vending machine 23, 212

well-termination 173, 211, 217