

Index

- Abacus, 56, 66, 93, 450, 456, 458
 Abramowitz, M., 148
 ACLS, 114
 Adams, J. B., 161
 AEI, 177
 Ai, C., 378
 AKG, 383, 392
 Amber, 446
 Amsterdam, J., 373
 Anderson, J. R., 15
 Angluin, D., 76, 164
 Application selection, guidelines, 18
 Applications, 368
 analysis of chemical abstracts, 368
 automobile repair, 141
 business databases, 2
 CAD databases, 383
 chromosome analysis, 254
 computer vision, 83
 database security, 514
 electromechanical troubleshooting, 278
 financial, 167, 303
 genetic sequences, 135
 knowledge base refinement, 397
 market research, 328
 medical, 118, 465
 overview, 17
 query optimization, 411
 space shuttle maintenance, 396
 space telescope, 434
 telecommunications, 168
 tomato plant diagnosis, 290
 veterinary medicine, 477
 telecommunications, 263
 AQ, 446, 455
 AQ15, 165, 177, 186, 188, 190, 450
 Aquinas, 492, 502
 Arciszewski, T., 196, 207
 Armstrong, G., 21
 Assistant, 114
 Assisting Computer, 330
 Asymptotic convergence, 73, 84
 Attribute values, hierarchy, 216, 231, 328
 Attribute values, structured, 236
 Attribute-oriented induction, 213
 Attributes
 irrelevant, 9, 195, 492, 493, 495, 499, 500
 minimal sets of, 201, 203
 relative significance, 203
 Augmented transition networks, 373, 374
 Autoclass, 15, 485
 Bachant, J., 397
 Back propagation network, 120
 comparison with other techniques, 473, 474
 limitations in discovery, 474, 475
 Bacon, 31, 36, 37, 56, 66, 93, 100, 229, 456
 Baim, P., 456
 Baker, J., 8
 Barker, V., 397
 Barron, A., 71, 72, 77, 78
 Barrow, H., 72
 Bartle, R., 267
 Baskin, A., 450
 Batchlor, B., 249
 Bayesian classification, 119, 249, 251, 253, 256, 257
 Bayesian inference, 83, 89, 90, 166, 171, 172, 478, 485
 Beard, P., 229
 Beauville, Y., 502
 Belief functions, 480, 481
 derivation from data, 482
 Bellman, R., 347
 Bergadano, F., 278, 279, 281
 Berger, J. O., 172
 Bergeron, R. D., 22, 239
 Bertino, E., 264
 Beta distribution, 172
 Bhattacharyya, G., 35
 Bias, conceptual, 214, 215
 Bias, logic, 217
 Bilofsky, H., 136
 Bins, M., 249
 Blip, 36
 Blower, P., 368, 378
 Blum, R., 17, 229, 412, 466
 Blythe, J., 303
 Bolc, L., 329
 Boose, J. H., 491, 492, 493, 502
 Borgida, A., 496
 Boulton, D., 71
 Bradley, J. V., 148
 Bradshaw, G., 56, 431, 456
 Bradshaw, J. M., 492, 502
 Brancadori, F., 278, 279, 281
 Bratko, I., 108, 109, 110, 114, 277
 Breiman, L., 108, 143, 144, 145, 229, 310, 314, 316, 320
 Breuker, J., 502
 Brillouin, L., 267
 Browsing, of discovered knowledge, 340
 Buchanan, B., 17, 431

- Buchwald, H., 465
 Bull, K., 478
 Buntine, W., 171
 Burbea, J., 128
 Burks, C., 136
 C4, 165
 C4.5, 502
 CAD databases, 383
 Cai, Y., 32, 217, 220, 225
 Carbonell, J., 6, 412, 447
 CART, 314
 Castleman, K., 254
 Cater, A., 380
 Causal relationships, medical, 466
 Cecile, M., 477, 479, 480, 485, 487
 Cendrowska, J., 229, 493, 495
 Cercone, N., 32, 217, 220, 225
 Cestnik, B., 277
 Chakravarthy, U., 411, 412, 413, 414
 Chan, A., 424
 Chan, K. C. C., 109, 111, 112, 113, 120, 121, 133, 225
 Chandrasekaran, B., 107, 251
 Charade, 177
 Charniak, E., 373
 Cheeseman, P., 15, 89, 166, 229, 485
 Chen, C. H., 249
 Chen, M. C., 309, 321
 Cheng, J., 142, 144, 146
 Chi-square test, 48, 109, 110, 119, 134, 148, 333, 480
 Chilausky, R., 17, 141, 277, 511
 Chimenti, D., 32
 Chiu, D. K. Y., 109, 114, 116, 125, 126, 127, 132, 133, 136
 Chomsky, N., 161
 Chow, C. K., 136, 475
 Christodoulakis, S., 312
 Chromosome analysis, 254
 Chu, P., 312
 Clark, P., 166, 229, 114, 223
 Classic, 496
 Classification ambiguity, 282, 286
 Classification methods, comparison, 119, 149, 152, 257, 303, 473, 474, 480, 495
 Classification tree, nonstrict, 255
 Cluster/2, 181
 Clustering, 15
 conceptual, 15, 178, 455, 457
 hierarchical, 180
 numeric, 15
 parallel, 180
 Clusters, labeling of, 188
 CN2, 165
 Cobble, 397, 402
 Cobweb, 15
 Code, 502
 Cognosys, 502
 Complexity analysis, 45, 51, 59, 120, 167, 182, 224, 236, 396, 487, 488
 Computer vision, surface reconstruction, 78
 Concave function, 314
 Conceptual analysis, 379
 Conceptual hierarchy, 11, 215, 216, 249, 252, 282, 283
 Confidence factors, 394
 Connell, C., 233, 312
 Conover, W., 233
 Constructive induction, 189, 272, 279, 456
 Contingency tables, 43, 47
 Cooper, G., 487
 Coper, 56, 66, 93, 456
 Cornell, M., 396
 Cover, T. M., 71, 72, 78, 87, 127
 Cramm, S., 456
 Credit assignment in learning, 439
 bucket brigade, 439, 440
 Cummins, H., 118
 Curve fitting, 37, 66, 78, 84
 d'Addario, L. R., 126
 Data, 151
 attributes, masking relevant, 151
 dependencies, 195, 200, 468
 functional, 245
 discrete, 160, 167, 195, 213
 dredging, 32
 explosion, 2
 “fishing,” 170
 homogeneity index, 313
 incomplete, 10, 185
 inconclusive, 141, 142
 inconsistent, 387
 missing values, 9, 42, 61, 109, 114, 189, 466, 479, 480, 485, 493, 494, 495
 mixed-mode, 114, 127, 236
 noisy vs. inconclusive, 155
 noisy, 9, 61, 62, 71, 89, 96, 103, 109, 126, 135, 142, 144, 185, 190, 207, 225, 226, 250, 279, 300, 332, 492, 493, 494, 495, 499, 513
 not-applicable values, 120, 292, 340
 precision, 10
 sparseness of, 33, 37
 summarization, 230, 309, 325
 Data sequence, generating functions, 75
 informativeness, 357, 358, 359, 360, 361, 362

- linguistic, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362
- of changes over time, 333
- redundancy filters, 335
- statement types, 327, 331, 343
 - verification methods, 332
- truth value, 351
- Data**, complex, 21, 289, 383
 - vs. attribute-value vector, 290
- Data**, content interpretation, 327
- Database security**, 507, 508, 509
 - disclosure, 514, 515
 - intrusion detection, 511, 515
 - multilevel, 510
- Database**, closed-world assumption, 215
- Databases vs. Machine learning**, 5
- DATAX**, 93
- Davies, R. G., 249
- Davis, J., 456
- Davis, R., 399, 412
- DBlearn**, 227
- Decision tables**, 205, 206
- Decision trees**, 143, 456
 - branching vs. termination, 108
 - classification accuracy, 108
 - combining heuristic and Bayesian approaches, 249
 - complexity, 108
 - estimating error rate, 108
 - for cardinality estimation, 310
 - for chromosome classification, 255
 - for value estimation, 310
 - function-based, 261, 268, 270, 271, 272, 273
 - information entropy measure, 143
 - information gain, of an object slot, 296, 298
 - overfitting, 108, 144, 145
 - pruning, 145, 493
 - pessimistic, 149
 - post (disadvantages), 155
 - post vs. pre, 151
 - post, 108
 - pre, 108, 119
 - windowing, 121
 - vs. Decision tables, 206
- DeJong, G., 399
- Delaune, C. I., 384
- Dempster-Shafer theory**, 481, 482
- Denning, D., 510, 511, 515
- DeWitt, D., 312
- Diagnostic systems**, 278
 - model-based, 383, 384
- Diday, E., 455
- Diederich, J., 502
- Dietterich, T., 224
- Dipmeter Advisor**, 399
- Discover**, 93
- Discovered knowledge**, 400
 - causal relationships, 467
 - chemical reactions, 380
 - classifiers, 272, 475
 - disjunctive concepts, 272
 - examples, 255, 332, 335, 406
- form**, 12
- operational control**, 431
- presentation**, 13, 229
- search space**, 334
- understandability**, 279, 286
 - examples, *see also* Data summarization statement types, 331
- Discovery methods**, overview, 15
- Discovery tasks**, 16
- Discretization**, 85, 86, 87, 116, 125, 207, 266, 340
 - adjustable buckets method, 233, 234
 - equi-density, 315
 - examples, 129
 - for MDL approach, 86
 - fuzzy, 479
 - hierarchical maximum entropy, 127, 128
 - into equal width intervals, 129
 - into two classes, 43, 114
 - legitimate, 315
 - maximizing entropy, 114
 - of a categorical attribute, 316
- Diversity function**, 128
- Dixon, J. K., 171
- Domain knowledge**, 21, 126, 168, 171, 180, 188, 189, 215, 229, 244, 245, 249, 252, 255, 256, 262, 263, 264, 271, 273, 279, 282, 289, 297, 300, 305, 325, 400, 401, 420, 433, 467
 - form of, 60, 66
 - not assumed, 120
 - parameter spaces, 437
 - usage tradeoffs, 11
 - use in translation, 391
- Domain theory**, 277
- Draper, N. R., 127
- Duda, R. O., 127
- Dunn, G., 15
- E***, 93, 101, 103
- Edaas, 514
- Elias, P., 87
- Elmasri, R., 422
- Empirical induction**, 502, 503
- Enigma**, 277
- Entail**, 166
- Entropy**, 125, 126, 127, 267

- Entropy, cross, 163, 164, 165
- Entropy, maximization, 128
- Epstein, G., 196
- ESCA, 470
- Eshelman, L., 502
- Estimation, 171, 172, 173
 - Bayesian, 172
 - improvement by using domain knowledge, 244, 245
 - in a small sample, 167
 - maximum entropy, 172
 - of a query size, 312
 - of attribute values, 309
 - of concept size, 233, 234, 309
 - of concept size, using a cardinality tree, 318
 - of data summary, using a regression tree, 321
 - of expected frequency, 131
 - of probabilities, 166, 170, 171
 - using classification trees, 309, 314
- Eta, 469
- Ethical issues, 19
- ETS, 502
- Euclidean space, 127
- Eurisko, 439, 446
- Event covering, 130
- Everitt, B., 15
- Evidence, sensitivity to missing values, 480
- Evidence, weight of, 112, 113, 478
- Expert systems, 277
 - construction by induction, 277
 - for classification, 107
 - for diagnosis, 282
 - for telecommunications, 168
 - medical, 468, 477
 - performance evaluation, 470, 472
 - refinement, 397
- Expertise transfer, 502, 503
 - vs. empirical induction, 492, 500
- Expertise, levels of, 492
- Explanation-based generalization, 16, 280, 397, 398, 399, 402, 405
- Explora, 325
- Extracting knowledge from text, 368
- Fahrenheit, 31, 36, 37, 38, 93, 446, 456
- Falkenhainer, B., 56, 66, 93, 456, 459
- Farewell, V., 480
- FBI, 261, 270
- Federal government, credit rating, 234
- Feigenbaum, E., 114, 223, 431
- Feigenbaum, J., 224
- Feinstein, J., 514
- Feller, W., 240
- Fermanian, T., 450
- Fienberg, S. E., 120
- Fingleton, B., 133
- Finkelstein, S., 424
- Fisher's exact test, 108, 148
- Fisher, D. H., 15
- Fishman, D., 411, 412, 413
- Forte, B., 127
- FORTY-NINER, 31, 39
- Fourier analysis, 278
- Frame representation, 371, 378
- Frame-based languages, 294
- Frame-based models, 384, 385
- Franklin, R., 478
- Frawley, W., 31, 367
- Freeman, P., 71
- Function finding, 456, 458
 - anecdotal evidence, 97
 - artificial environments for, 98
 - bias, 56, bias, 94
 - data segmentation, 64, 83
 - examples, 63, 80, 81, 83, 84, 93
 - from observational data, 55
 - partial correctness, 96
 - predictive power bias, 73
 - prototypes, 57, 62, 69
 - Reduction algorithm, 56
 - scientific goals of, 95
 - user guidance, 62
 - using MDL principle, 78
 - verification, 58
 - vs. statistical methods, 99
- Fuzzy logic, 160, 166, 347, 353, 354, 479
- Gaines, B. R., 7, 166, 229, 231, 491, 492, 493, 499, 502
- Gale, W., 329
- Gallager, R., 72, 79
- Gallaire, H., 219
- Gallant, S., 22
- Ganascia, J., 177
- Gebhardt, F., 332, 339, 340
- Geiger, D., 8
- Gelsema, E., 249
- Generalization trees, climbing, 218
- Generalization, 327, 338, 443
 - threshold, 218
 - overlapping, 339
- Genesereth, M., 214, 215, 217
- Genetic sequences, 135
- Geometric distance, 147
- Gini index, 313
- Giordana, A., 278, 279, 281
- Glauber, 36, 177
- Glymour, C., 8

- Gold rush, 32
 Gonzalez, A. J., 396
 Good, I. J., 111, 112, 172, 478
 Goodman, R. M., 160, 162, 163, 166, 167, 168, 169, 177, 231, 512
 Granum, E., 254
 Greene, G., 93, 450, 456, 459
 Grimson, W., 72
 Grinstein, G., 22, 239
 Grishman, R., 379
 Groen, F., 257
 Grosor, B., 223
 Grzymala-Busse, J., 196
 Gunderson, A., 262
- Gupta, D., 196
 Habermann, J., 249
 Haberman, S. J., 111, 133
 Hais, Y., 481
 Hajek, P., 330
 Halasz, F., 330
 Hamilton, H., 93
 Hammel, R. A., 395
 Hammer, M., 411, 412, 413, 414
 Han, J., 32, 217, 220, 225
 Hanna, F., 446
 Hannemann, J., 341
 Hart, A., 108, 109, 110
 Hart, P. E., 127
 Haussler, D., 5, 181, 237, 272, 336
 Havranek, T., 330
 Higgins, C., 168, 169
 Holland, J. H., 16, 161, 439
 Hong, J., 177, 178, 181, 182, 186, 188, 231
 Horn, B., 178, 193
 Hu, C. H., 118
 Huber, P. J., 8
- ID3, 2, 108, 119, 141, 142, 143, 144, 145, 165, 177, 289, 292, 435, 502
 ID3, problems with, 143, 291, 294
 ID4, 142
 ID5, 142
 IDS, 32, 66, 93, 99
 Iman, R., 233
 Imielinski, T., 230
 Incremental methods, 21, 170, 184, 186, 226
 Induct, 493, 495
 Inductive inference vs. Communication theory, 162
 Inductive systems superior to expert systems, 286, 303
 Inferule, 141, 145
 Information content, 160, 162, 164, 165, 168, 169
- Information Theory, 159
 Information, 125
 J-measure, 162, 163, 165
 mutual, 111, 63
 Ing, P., 254
 Inlen, 449
 Integrated inductive-deductive paradigm, 277
 Integrated learning systems, 22, 177, 431, 449
 Interactive systems, 21, 449
 Irani, E. A., 473
 Irani, K. B., 141
 Irule, 159, 166, 177
- James, M., 110
 Jamieson, J. R., 384
 Jankowski, A., 39
 Jarke, M., 411, 412, 413
 Jaynes, E. T., 126, 172
 Jensen difference, 128
 Johnson, R. A., 35
 Johnson, R. W., 163
 Johnson, S., 378
- Kads, 502
 Kalbfleisch, J. G., 132
 Kamel, N., 312
 Kanal, L., 251
 Kapur, J. N., 126
 KATE, 289, 296
 Katz, B., 450
 Kedar-Cabelli, S., 16, 280, 399
 Keller, R., 16, 280, 399
 Kepler, 55, 60, 93
 Kerschberg, L., 450
 KID3, 229, 234
 Kim, W., 7
 King, J., 411, 412, 414, 425
 King, R., 312
 Kitten, 502
 Kittredge, R., 379
 Kladke, R. R., 394
 Klinker, G., 502
 Klösgen, W., 338
 Knack, 502
 Knill-Jones, R., 480, 481
 Knowledge acquisition, 7, 107, 167, 277, 286, 491, 503, 507
 unauthorized, 508, 509, 513
 Knowledge discovery, 3
 definition, 3
 framework, 8
 overview, 1
 Knowledge extraction, 383

- Knowledge generation operators, 453, 454, 455, 456
- Knowledge management operators, 452
- Knowledge refinement, 184, 187, 192, 397, 477
- Knowledge representation, 451
 - frame-based, 289
- Knowledge, extraction vs. discovery, 384
- Knowledge, problem-solving, 399, 401, 422
 - method dependent, 400, 403, 404
 - task independent, 400, 402
- Knowledge/Data trade-off, 499
- Kodratoff, Y., 225, 300
- Koehn, B., 36, 56, 66, 93, 456
- Kolodner, J., 447
- Kolodziejczak, T., 136
- Kononenko, I., 108, 109, 110, 114, 277
- Kriton, 502
- KRS, 499
- KSS0, 492, 493, 502
- Kukich, K., 329
- Kulkarni, D., 226
- Laird, J., 402
- Landeweerd, G.. 249
- Langley, P., 32, 36, 37, 45, 56, 66, 93, 99, 177, 229, 431, 446, 456
- Laplace's law, 108
- Larson, J., 455, 456
- Lascurain, M. de, 127
- Latocha, P., 330
- Latocha, P., 336
- Layman, T., 456
- Lebowitz, M., 367
- Ledley, R., 254
- Ledwith, R., 368, 378
- Legal issues, 19
- Lehrberger, J., 379
- Lenat, D., 412, 431, 433, 446
- Leobs. 178
- Leung-Yan-Cheong, S., 87
- Levine, S., 262
- Lewenstam, A., 33
- Lex, 446
- Lindsay, R., 412
- Little, J. D. C., 21
- Liu, C. N., 136, 475
- Liu, T. S., 136
- Long, J., 465, 469, 470, 473
- Lopez-Suarez, A., 477, 480, 485, 487
- Lubs, H., 254
- Lundsteen, C., 254
- Malley, C., 230
- Manago, M., 225, 300, 303
- Mann, W., 341
- Mannino, M., 312
- Mao, C., 177, 231
- Marcus, S., 502
- Marek, W., 199
- Markov chains, 168, 169
- Marriott, F., 127
- Matessa, M., 15
- Matheus, C., 272
- Matthews, D., 480
- Maung, I., 487
- Maximum likelihood estimation, 111, 172
- Maximum weight spanning tree, 475
- May, M., 502
- McClelland, J., 16, 472
- McDermott, D., 373
- McDermott, J., 404
- McDonald, D., 329
- McLeish, M., 477, 479, 480, 485, 487
- McNamee, L., 309
- MDL principle, 162
 - application methodology, 78
 - compared with Bayesian inference, 83
 - convergence results, 77
- Melkanoff, M., 309
- Melniky, J., 254
- MEPS, 282
- Michalski, R. S., 6, 17, 56, 66, 93, 141, 165, 177, 181, 186, 188, 196, 216, 218, 224, 277, 279, 282, 330, 338, 412, 446, 450, 455, 456, 457, 458, 459, 511
- Michie, D., 2, 289
- Mingers, J., 231
- Minimal length encoding, 71
- Minimum Description Length principle—*see* MDL principle, 71
- Minker, J., 219, 411, 412, 413
- Minsky, M., 294, 478
- Mitchell, T. M., 6, 16, 17, 280, 332, 399, 402, 412, 446, 511
- ML-smart, 279
- Mole. 502
- Monarch, I., 502
- Mooney, R., 399
- Morik, K.. 36
- Mozetic, I., 177, 186, 188
- Mrozek, A., 196
- Muggleton, S., 279
- Muntz, R., 236
- Muralikrishna, M., 312
- MYCIN, 107
- Myers, J., 481
- Myler, H. R., 396

- Naqvi, S., 32
 Natural language processing, 368
 Natural language, 379
 conceptual analysis, 371, 372, 373, 379
 frame representation, 371, 378
 lexical analysis, 372
 semantic analysis, 373
 syntactic analysis, 373
 Nearest neighbour estimation, 127
 Nelder, J., 329
 Newell, A., 161
 Ng, C. T., 128
 Niblett, T., 108, 114, 166, 229
 Nicolas, J., 7, 219
 Nilsson, N., 214, 215, 217
 Nirenburg, S., 502
 Nishio, S., 7
 Nordhausen, B., 32, 66, 93, 99
 NP-hardness, 5, 181, 204, 237, 251, 487
 O'Connor, D., 397
 O'Leary, D., 19
 Object-oriented programming, 299
 Ontos, 502
 Oosterlinck, A., 249, 254, 255, 257
 Ortega, J., 58
 Osteyee, D., 111, 112
 Overfitting, 73
 Ozsoyoglu, M., 411, 412, 413, 414
 Pagallo, G., 272
 Pao, Y. H., 118
 Papadimitriou, C., 314
 Paris, J., 487
 Parsaye, K., 325
 Parzen window, 127
 Parzen, E., 127
 Pattern classification, 249
 Pattern classification, statistical, 249
 Patterson, A., 114
 Pawlak, Z., 196, 199, 207
 Paz, A., 8
 Pearl, J., 8, 233
 Pednault, E., 71, 72, 73, 77, 78
 Performance evaluation, 51, 62, 80, 103, 118,
 134, 257, 285, 303, 336, 396, 480
 Piatetsky-Shapiro, G., 15, 31, 163, 166, 233, 312,
 367
 Piper, J., 254, 257
 Planet, 502
 PLS1, 485
 POSCH, 465
 Prerau, D., 262
 Prior probability, 171, 172, 173
 Prism, 493, 496, 502
 Privacy concerns, 19
 Probabilistic inference, 109
 Probabilistic models, 71
 Projection pursuit, 8
 Prophet, 263
 Prospector, 107
 Quantizing—*see also* Discretization, 85
 Quantum mechanics, 76
 Query optimization, rule derivation, 415, 416,
 417, 418
 Query optimization, rules, 413, 415
 Query optimization, semantic, 411, 412, 413,
 414, 415, 423
 Quinlan, J. R., 16, 21, 108, 109, 110, 119, 120,
 121, 141, 142, 143, 144, 145, 146, 148, 149,
 162, 165, 177, 196, 206, 229, 231, 261, 263,
 277, 289, 292, 310, 485, 491, 492, 493, 95,
 511
 Radicchi, S., 278, 279, 281
 Radix, 466
 Rao, C. R., 128
 Ras, Z., 196
 Rasiowa, H., 196
 Regression tree, 319
 Regression, 319
 least squares, 319
 logistic, 480
 multiple linear, 469
 comparison with other techniques, 473, 474
 Regularities, 38
 boundaries of, 38
 expression of, 34
 multi-dimensional, 49
 probabilistic, 126
 strong, 203
 Reinke, R., 456, 215
 Relaxation labeling, 395
 Rendell, L., 485
 Repertory grid techniques, 502
 Rheinboldt, W., 58
 Riesbeck, C., 379
 Rissanen, J., 71, 87, 62, 164
 Ritchie, G., 446
 Rivest, R. L., 162
 Rose, D., 36
 Rosenberg, C. M., 167, 169
 Rosenbloom, P., 402
 Rosenfeld, A., 395
 Rough sets, 195
 applications, 196
 theory, 196

- Ruhmann, I., 502
 Rule discovery, 117, 145, 164, 169, 184, 185, 192, 193, 206, 219, 221, 238, 264, 285, 422, 436, 457, 497, 498
 asymptotic convergence, 434
 by experimentation, 431, 435
 comparison of methods, 165, 222, 223
 examples, 117, 145, 164, 169, 184, 185, 192, 193, 206, 219, 221, 238, 264, 285, 422, 436, 457, 497, 498
 for query optimization, 411
 limitations of, 511
 Rule justification, 398, 99, 401, 403
 Rule utility, 190, 206, 229, 232
 comparison of measures, 163, 231
 J-measure, 162
 principles, 231, 232
 probabilistic, 163
 weight of evidence, 112
 Rules, 111, 112, 180, 183, 213, 217, 230, 455, 458
 change over time, 326, 423, 424, 433
 characteristic, 111, 112, 180, 183, 213, 217, 230, 455, 458
 classification, 220, 110, 112, 156, 179, 180, 191, 205, 206, 213, 249, 280, 281, 455, 458
 classification, probabilistic, 142
 conjunctive, 5, 213
 deductive, 300
 disjunctive, 213
 estimation accuracy of, 229, 239, 240, 241, 242, 244
 exact, 229
 for concept inheritance, 188
 for control, 431
 in DNF, 181
 presentation, 238, 499
 probabilistic, 160, 161, 162, 165, 167, 168, 226, 229, 230
 strong, 229, 230, 326
 structuring sets of, 238
 visualization, 229, 239
 weak, 326
 Rumelhart, D., 16, 472
 Russell, S., 223, 224
 RX, 466, 469

Sacon, 107
 Sager, N., 378
 Sager, T., 312
 Sahoo, P. K., 126, 129
 Saitta, L., 279, 281
 Salt, 502
 Sampling, 14, 239
 Sastry, P. S., 395

 Scaling, non-uniform, 127
 Scarl, E. A., 384
 Schaffer, C., 93, 96, 97, 99, 101, 102
 Schank, R., 379
 Schkolnick, M., 424
 Schlimmer, J. C., 168
 Schmitz, J., 21
 Scientific Discovery vs. Discovery in Databases, 8, 33
 Sciore, E., 419
 Segen, J., 71
 Sejnowski, T. J., 167, 169
 Selfridge, O. G., 478
 Selvin, H. C., 170
 Semi-additive functions, 311
 Shafer, G., 481, 482
 Shannon coding, 72, 85
 Shannon, C., 125, 126, 162, 163, 267
 Shaw, M. L. G., 166, 229, 492, 493, 502
 Shenkang, W., 502
 Shenoy, S., 411, 412, 413, 414
 Shore, J. E., 163
 Shrager, J., 32, 447
 Shum, C., 236
 Siegel, M., 411, 412, 413, 414, 423, 425, 426
 Siems, J., 514
 Silberschatz, A., 2
 Silver, B., 22, 271
 Simon, H. A., 56, 161, 226, 431, 456
 Simpson, R., 447
 Simulators, 431
 Skuce, D., 502
 Slagle, J., 469
 Slowinski, K., 196, 207
 Slowinski, R., 196, 207
 Small sample theory, 173
 Smith, C. H., 77, 164
 Smith, H., 127
 Smith, R., 399
 Smith, S., 22
 Smyth, P., 160, 162, 163, 166, 167, 168, 169, 177, 231, 512
 Soloway, E., 397
 Sorkin, R., 71
 Spackman, K., 450
 Spiegelhalter, D., 478, 480, 481
 Stahl, 36
 Statistical methods, limitations of, 250
 Statistics, snappy quote, 233
 Stegun, I., 148
 Steiglitz, K., 314
 Stepp, R., 181, 455, 457
 Stonebraker, M., 2
 Stonier, T., 126

- Streitz, N., 341
 Stuart, A., 170
 Subramanian, D., 224
 Suetens, P., 249, 254, 255, 257
 Suppe, F., 95
 Swartout, W., 399
 Sycara-Cyranski, K., 447
 ten Kate, T., 257
 Tenenbaum, J., 72
 Tenor, W., 511
 Terzopoulos, D., 72
 Thathachar, A. L., 395
 Theo, 402
 Theory formation, 432
 Thought/KD1, 177
 Thüring, M., 341
 Tiberio, P., 424
 Towhidnejad, M., 396
 Truth maintenance, 398, 399, 402
 Tsur, S., 32
 Tufte, E., 13, 239
 Tukey, J., 73
 Uhrlik, C., 178, 182
 Ullman, J., 2, 230, 509
 Uncertainty measures, 14, 61, 161, 90, 225, 250, 282
 confidence factors, 395
 Universal relation, 230, 419
 User guidance, 41, 50, 262, 273, 274, 341
 Utgoff, P. E., 142
 Valiant, L., 5
 Verma, T., 233
 Version spaces, 223
 Vieth, J. O., 120
 Visualization of knowledge, 502
 Visualization, 13, 239
 Vogel, M., 118
 Walker, M., 446, 466
 Wallace, C., 71
 Wang, D. C. C., 111, 118, 136
 Wang, S., 93
 Wasilewska, A., 196
 Waterman, D., 412
 Waterman, M. S., 136
 Watkins, C., 108
 Weaver, W., 125, 126, 267
 Wernecke, S. J., 126
 Wielinga, B., 502
 Wiener, N., 267
 Wildavsky, B., 20
 Winston, P., 178, 193
 Wolstenholme, D., 329
 Wong, A. K. C., 109, 11, 114, 116, 18, 120, 125, 126, 127, 128, 129, 132, 133, 136, 225
 Wong, S. K. M., 196, 204, 207
 Woodward, B., 502
 Wrigley, N., 132
 Wu, Q., 249, 254, 255, 257
 Wu, Y.-H., 56, 58, 59, 60, 68, 93
 XCON, 397
 XPLAIN, 399
 Xu, D., 411, 412, 414
 Yager, R. R., 14, 347, 354, 479
 Zadeh, L. A., 161, 347, 349
 Zamora, E., 368
 Zarley, D., 481
 Zdonik, S., 230, 411, 412, 13, 414
 Zemankowa, M., 196
 Ziarko, W., 14, 196, 204, 207
 Zimmerman, S., 254
 Zucker, S. W., 395
 Żytkow, J., 8, 32, 33, 36, 39, 446, 456