Knowledge Systems Laboratory (Incorporating Heuristic Programming Project) Publications Since 1964

Instructions

In the following bibliography, there is a listing for each HPP/KSL report published as of the date of this writing. Each listing gives the following information:

- Report number(s)
- Author(s)
- Title
- · Month and year of publication

Reports that are NOT AVAILABLE include:

HPP 64-1 through HPP 75-16

Reports termed: Working Paper

Reports termed: Not Finished

All reports that are STAN-CS reports can only be ordered thru:

Kathryn A. Berg Publications Coordinator Stanford University Computer Science Department Margaret Jacks Hall, Bldg. 460 Stanford, CA 94305

THESES are only available on microfilm, and can be ordered through:

University Microfilm P.O. Box 1764 Ann Arbor, MI 48106 HPP 64-1

J. Lederberg; DENDRAL-64-A: System for Computer Construction, Enumeration and Notation of Organic Molecules as Three Structures and Cyclic Graphs, (technical reports to NASA, also available from the author and summarized in [12]).

Part I. Notational algorithm for tree structures, 1964, CR.57029

Part II. Topology of cyclic graphs, 1965, CR.68898

Part III. Complete chemical graphs; embedding rings in trees, 1969.

HPP 64-2

J.Lederberg; Computation of Molecular Formulas for Mass Spectrometry, published with San Francisco: Holden-Day, 1964.

- HPP 65-1

 J. Lederberg; Topological Mapping of Organic Molecules, in the Proceedings National Academy Sciences, 53, 1, p. 134 1965.
- J. Lederberg; Systematics of Organic Molecules, Graph Topology and Hamilton Circuits. A General Outline of the DENDRAL System, NASA CR-68899, 1965.
- HPP 65-3

 AIM-30, AD785056, Edward A. Feigenbaum, and Richard W. Watson; An Initial Problem Statement for a Machine Induction Research Project, April 1965.

- HPP 66-1 AIM-38, AD785066, Donald A. Waterman; A Filter for a Machine Induction System, January 1966.
- HPP 66-2 STAN-CS-66-50, AIM-46, PB176761, Steffan Persson; Some Sequence Extrapolating Programs: A Study of Representation and Modeling in Inquiring Systems, Ph.D. Thesis in Computer Science, (U.C. Berkely, September 1966).
- HPP 66-3

 Bruce G. Buchanan; Logics of Scientific Discovery, Ph.D. Thesis in Philosophy (Michigan State University, December 1966).

- HPP 67-1 AIM-49, Georgia Sutherland; DENDRAL: A Computer Program for Generating and Filtering Chemical Structures, February 1967.
- HPP 67-2

 J. Lederberg; Hamilton Circuits of Convex Trivalent Polyhedra (Up to 18 Vertices), in Am. Math. Monthly, 74, 5, 1967.
- HPP 67-3

 AIM-54, Joshua Lederberg, and Edward A. Feigenbaum; Mechanization of Inductive Inference in Organic Chemistry, in B. Kleinmuntz (ed.), Formal Representations for Human Judgment, New York: Wiley, 1968.

- HPP 68-1 Edward Feigenbaum, Georgia Sutherland, and Bruce Buchanan; Heuristic DENDRAL: A Program for Generating Explanatory Hypotheses in Organic Chemistry, in B.K. Kinariwala, and F.F. Kuo (eds.), Proceedings of the Hawaii International Conference on System Sciences, January 1968.
- HPP 68-2 J. Lederberg; Online Computation of Molecular Formulas From Mass Number, NASA CR-94977, 1968.
- HPP 68-3

 AIM-62, Bruce G. Buchanan, Georgia Sutherland, and Edward A. Feigenbaum; Heuristic DENDRAL: A Program for Generating Explanatory.
- HPP 68-4 AIM-67, AD680487, Edward A. Feigenbaum; Artificial Intelligence: Themes in the Second Decade, in Information Processing 68, Amsterdam: North-Holland Publishing Co., 1969.
- HPP 68-5 STAN-CS-68-118, AIM-74, AD681027, Donald Waterman; Machine Learning of Heuristics, Ph.D. Thesis in Computer Science, (Stanford University December 1968).

- HPP 69-1 AIM-80, AD685612, Georgia Sutherland; Heuristic DENDRAL: A Family of LISP Programs, March 1969.
- HPP 69-2

 AIM-99, Bruce G. Buchanan, G.L. Sutherland, and E.A. Feigenbaum; Toward an Understanding of Information Processes of Scientific Inference in the Context of Organic Chemistry, in B. Meltzer, and D. Michie (eds.), Machine Intelligence 5, Edinburgh: Edinburgh University Press, 1970.
- HPP 69-3 AIM-102, Donald A. Waterman; Generalization Learning Techniques for Automating the Learning of Heuristics, in Artificial Intelligence, 1, 121, July 1969.
- HPP 69-4

 AIM-104, Joshua Lederberg, Georgia Sutherland, Bruce G. Buchanan, and Edward A. Feigenbaum; A Heuristic Program for Solving A Scientific Inference Problem: Summary of Motivation and Implementation, in R. Banerji, and Mesarovic (eds.), Theoretical Approaches to Non-Numerical Problem Solving, New York: Springer-Verlag, 1970.
- HPP 69-5

 J. Lederberg; Topology of Molecules, in The Mathematical Sciences A Collection of Esays, edited by the National Research Council's Committee on Support of Research in the Mathematical Sciences (COSRIMS), Cambridge, Mass.: The M.I.T. Press, p. 37, 1969.
- J. Lederberg, G.L. Sutherland, B.G. Buchanan, E.A. Feigenbaum, A.V. Robertson, A.M. Duffield, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference I. The Number of Possible Organic Compounds: Acyclic Structures Containing C, H, O and N, in the Journal of the American Chemical Society, 91, 2973, 1969.
- HPP 69-7

 A.M. Duffield, A.V. Robertson, C. Djerassi, B.G. Buchanan, G.L. Sutherland, E.A. Feigenbaum, and J. Lederberg; Application of Artificial Intelligence for Chemical Inference II. Interpretation of Low Resolution Mass Spectra of Ketones, in the Journal of the American Chemical Society, 91, 2977, 1969.
- HPP 69-8

 C.W. Churchman, and B.G. Buchanan; On the Design of Inductive Systems: Some Philosophical Problems, in the British Journal for the Philosophy of Science, 20, 311, 1969.
- HPP 69-9

 G. Schroll, A.M. Duffield, C. Djerassi, B.G. Buchanan, G.L. Sutherland, E.A. Feigenbaum, and J. Lederberg; Application of Artificial Intelligence for Chemical Inference III. Aliphatic Ethers Diagnosed by Their Low Resolution Mass Spectra and NMR Data, in the Journal of the American Chemical Society, 91, 7440, 1969.

- A. Buchs, A.B. Delfino, C. Djerassi, A.M. Duffield, B.G. Buchanan, E.A. Feigenbaum, J. Lederberg, and G. Schroll; Application of Artificial Intelligence for Chemical Inference IV. Saturated Amines Diagnosed by Their Low Resolution Mass Spectra and Nuclear Magnetic Resonance Spectra, in the Journal of the American Chemical Society, 92, 6831, 1970.
- HPP 70-2

 AIM-123, Bruce G. Buchanan, and Thomas E. Headrick; Some Speculation About Artificial Intelligence and Legal Reasoning, in the Stanford Law Review, 23, 40, November 1970.
- Y.M. Sheikh, A. Buchs, A.B. Delfino, G. Schroll, A.M. Duffield, C. Djerassi, B.G. Buchanan, G.L. Sutherland, E.A. Feigenbaum, and J. Lederberg; Applications of Artificial Intelligence for Chemical Inference V. An Approach to the Computer Generation of Cyclic Structures. Differentiation Between All The Possible Isomeric Ketones of Composition C6H10O, in the Organic Mass Spectrometry, 4, 493, 1970.
- A. Buchs, A.B. Delfino, A.M. Duffield, C. Djerassi, B.G. Buchanan, E.A. Feigenbaum, and J. Lederberg; Applications of Artificial Intelligence for Chemical Inference VI. Approach to a General Method of Interpreting Low Resolution Mass Spectra with a Computer, in the Helvetica Chimica Acta, 53, 1394, 1970.
- HPP 70-5

 STAN-CS-70-176, AIM-131, AD715128, Edward A. Feigenbaum, Bruce G. Buchanan, and Joshua Lederberg; On Generality and Problem Solving: A Case Study Using the DENDRAL Program, in B. Meltzer, and D. Michie (eds.), Machine Intelligence 6, Edinburgh: Edinburgh University Press, 1971.

- HPP 71-1

 A. Buchs, A.B. Delfino, C. Djerassi, A.M. Duffield, B.G. Buchanan, E.A. Feigenbaum, J. Lederberg, G. Schroll, and G.L. Sutherland; Applications of Artificial Intelligence for Chemical Inference VII. The Application of Artificial Intelligence in the Interpretation of Low-Resolution Mass Spectra, in the Advances in Mass Spectrometry, 5, 314, 1971.
- HPP 71-2 STAN-CS-71-203, AIM-141, AD730506, Bruce G. Buchanan, and Joshua Lederberg; The Heuristic DENDRAL Program for Explaining Empirical Data, in Proceedings of the IFIP Congress 71, Ljubljana, Yugoslavia, February 1971.
- HPP 71-3 STAN-CS-71-216, AIM-147, AD732457, Robert E. Kling; Reasoning by Analogy with Applications to Heuristic Problem Solving: A Case Study, Ph.D. Thesis in Computer Science, August 1971.
- HPP 71-4

 AIM-145, B.G. Buchanan, E.A. Feigenbaum, and J. Lederberg; A Heuristic Programming Study of Theory Formation in Science, in Proceedings of the Second International Joint Conference on Artificial Intelligence, Imperial College, London, 1971.
- HPP 71-5

 B.G. Buchanan, A.M. Duffield, and A.V. Robertson; An Application of Artificial Intelligence to the Interpretation of Mass Spectra, in G.W.A. Milne (ed.), Mass Spectrometry Techniques and Applications, New York: Wiley, 1971.

- D.H. Smith, B.G. Buchanan, R.S. Engelmore, A.M. Duffield, A. Yeo, E.A. Feigenbaum, J. Lederberg, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference VIII. An Approach to the Computer Interpretation of the High Resolution Mass Spectra of Complex Molecules. Structure Elucidation of Estrogenic Steroids, in the Journal of the American Chemical Society, 94, 5962, 1972.
- HPP 72-2

 B.G. Buchanan, E.A. Feigenbaum, and N.S. Sridharan; Heuristic Theory Formation: Data Interpretation and Rule Formation, in B. Meltzer, and D. Michie (eds.), Machine Intelligence 7, Edinburgh: Edinburgh University Press, 1972.
- HPP 72-3 STAN-CS-72-325, AIM-181, Bruce G. Buchanan; Review of Hubert Dreyfus' 'What Computers Can't Do': A Critique of Artificial Reason, in Computing Reviews, January 1973.
- HPP 72-4

 J. Lederberg; Rapid Calculation of Molecular Formulas from Mass Values, in the Journal of Chemical Education, 49, 613, 1972.
- Joshua Lederberg; Use of a Computer to Identify Unknown Compounds: The Automation of Scientific Inference, in George R. Waller (ed.), Biochemical Applications of Mass Spectrometry, New York: Interscience, 1972.
- HPP 72-6 STAN-CS-72-318, H. Brown, L. Hjelmeland, and L. Masinter; Constructive Graph Labeling Using Double Cosets, in *Discrete Mathematics*, 7, 1, 1974.
- HPP 72-7 Sponsored by Mathematics and Computation Division; Mathematics and Computation, invited paper was presented to the American Nuclear Society International Conference, Washington, D.C., November 1972.

- HPP 73-1

 D.H. Smith, B.G. Buchanan, R.S. Engelmore, H. Aldercreutz, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference IX. Analysis of Mixtures Without Prior Separation as Illustrated for Estrogens, in the Journal of the American Chemical Society, 95, 6078, 1973.
- D.H. Smith, B.G. Buchanan, W.C. White, E.A. Feigenbaum, C. Djerassi, and J. Lederberg; Applications of Artificial Intelligence for Chemical Inference X. INTSUM. A Data Interpretation Program as Applied to the Collected Mass Spectra of Estrogenic Steroids, in *Tetrahedron*, 29, 3117, 1973.
- HPP 73-3 STAN-CS-73-361, Harold Brown, and Larry Masinter; An Algorithm for the Construction of the Graphs of Organic Molecules, in *Discrete Mathematics*, 8, 227, 1974.
- HPP 73-4 STAN-CS-73-370, AIM-205, AD764288, N.S. Sridharan, et al; A Heuristic Program to Discover Syntheses for Complex Organic Molecules, June 1973.
- HPP 73-5 STAN-CS-73-381, N.S. Sridharan; Computer Generation of Vertex Graphs, July 1973.
- R. Carhart, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference XI. The Analysis of C13 NMR Data for Structure Elucidation of Acyclic Amines, in the Journal of the American Chemical Society (Perkin II), 2, 1753, 1973.
- HPP 73-7

 STAN-CS-73-387, AIM-215, AD769380, B.G. Buchanan, and N.S. Sridharan; Analysis of Behavior of Chemical Molecules: Rule Formation on Non-Homogeneous Classes of Objects, in Proceedings of the Third International Joint Conference on Artificial Intelligence, Stanford, California, August 1973.
- D. Michie, and B.G. Buchanan; Current Status of the Heuristic DENDRAL Program for Applying Artificial Intelligence to the Interpretation of Mass Spectra, in R.A.G. Carrington (ed.), Computers for Spectroscopy, London: Adam Hilger, 1974.
- HPP 73-9 STAN-CS-73-391, AIM-217, AD770610, N.S. Sridaran; Search Strategies for the Task of Organic Chemical Synthesis, August 1973.
- HPP 73-10 E.H. Shortliffe, S.G. Axline, B.G. Buchanan, T.C. Merigan, and S.N. Cohen; An Artificial Intelligence Program to Advise Physicians Regarding Antimicrobial Therapy, in Computers and Biomedical Research, 6, 544, 1973.
- HPP 73-11 STAN-CS-73-389, AIM-216, AD71299, Larry Masinter, N.S. Sridharan, J. Lederberg, and D.H. Smith; Applications of Artificial Intelligence for Chemical Inference XII: Exhaustive Generation of Cyclic and Acyclic Isomers, in the Journal of the American Chemical Society, 96, 7702, 1974.

- HPP 74-1 E.H. Shortliffe, S. G. Axline, B.G. Buchanan, and S.N. Cohen; Design Considerations for a Program to Provide Consultations in Clinical Therapeutics, in Proceedings of San Diego Biomedical Symposium, February 1974.
- HPP 74-2

 STAN-CS-74-465, AIM-251, ADA001373, Edward H. Shortliffe; MYCIN: A Rule-Based Computer Program for Advising Physicians Regarding Antimicrobial Therapy Selection, Ph.D. Thesis in Medical Information Sciences, October 1974. Also in Computer-Based Medical Consultations: MYCIN, New York: American Elsevier, 1976.
- HPP 74-3

 B.G. Buchanan; Scientific Theory Formation by Computer, in J.C. Simon (ed.), Computer Aided Learning Processes, Nato Advanced Study Institutes Series, Series E: Applied Science, 14, 515, Leyden: Noordhoff, 1976.
- HPP 74-4 E.A. Feigenbaum; Computer Applications: Introductory Remarks, in Proceedings of Federation of American Societies for Experimental Biology, 33, 2331, 1974.
- L.M. Masinter, N.S. Sridharan, R.E. Carhart, and D.H. Smith; Applications of Artificial Intelligence for Chemical Inference XIII. Labeling of Objects Having Symmetry 1,2, in the Journal of the American Chemical Society, 96, 7714, 1974.
- HPP 74-6

 Dennis H. Smith, Larry M. Masinter, and Natesa S. Sridharan; Heuristic DENDRAL: Analysis of Molecular Structure, in W.T. Wipke, S Heler, R. Feldmann, and E. Hyde (eds), Computer Representation and Manipulation of Chemical Information, New York: Wiley, 1974.
- HPP 74-7 STAN-CS-74-469, Harold Brown; Molecular Structure Elucidation III, in SIAM Journal of Applied Math, 32, 3, p. 534, May 1977.
- HPP 74-8

 E.H. Shortliffe; MYCIN: A Rule-Based Computer Program for Advising Physicians Regarding Antimicrobial Therapy Selection, in Proceedings of the ACM National Congress (SIGBIO Session), p.739, November 1974. Also in Computing Reviews 16, 331, 1975.

- HPP 75-1 E.H. Shortliffe, and B.G. Buchanan; A Model of Inexact Reasoning in Medicine, in Mathematical Biosciences, 23, pp. 351-379, 1975.
- HPP 75-2

 E.H. Shortliffe, R. Davis, S.G. Axline, B.G. Buchanan, C.C. Green, and S.N. Cohen; Computer-Based Consultations in Clinical Therapeutics; Explanation and Rule Acquisition Capabilities of the MYCIN System, in Computers and Biomedical Research, 8, pp. 303-320, August 1975.
- HPP 75-3

 E.H. Shortliffe, F.S. Rhame, S.G. Axline, S.N. Cohen, B.G. Buchanan, R. Davis, A.C. Scott, R. Chavez-Pardo, and W.J. Van Melle; MYCIN: A Computer Program Providing Antimicrobial Therapy Recommendations, in Clinical Medicine, p. 34, August 1975.
- HPP 75-4 E.H. Shortliffe; Judgmental Knowledge as a Basis for Computer-Assisted Clinical Decision Making, in Proceedings of the 1975 International Conference on Cybernetics and Society, pp. 256-257, September 1975.
- HPP 75-5

 E.H. Shortliffe, S. Axline, B.G. Buchanan, R. Davis, and S. Cohen; A Computer-Based Approach to the Promotion of Rational Clinical Use of Antimicrobials, in William A. Gouveia, Gianni Tognoni, and Eppo van der Kleijn (eds), Clinical Pharmacy and Clinical Pharmacology, pp. 259-274, New York: Elsevier/North-Holland Biomedical Press, 1976.
- HPP 75-6 STAN-CS-75-519, AIM-266, ADA019641, Randall Davis, Bruce Buchanan, and Edward Shortliffe; Production Rules as a Representation of a Knowledge-Based Consultation Program, in Artificial Intelligence, 8, pp. 15-45, February 1977.
- HPP 75-7

 STAN-CS-75-524, AIM-271, ADA019702/OWC, Randall Davis, and Jonathan King; An Overview of Production Systems, in E.W. Elcock, and Donald Michie (eds.), Machine Intelligence 8; Machine Representations of Knowledge, Chichester, England: Ellis Horwood Ltd., 1977.
- R.G. Dromey, B.G. Buchanan, J. Lederberg, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference XIV. A General Method for Predicting Molecular Ions in Mass Spectra, in the Journal of Organic Chemistry, 40, 770, 1975.
- D.H. Smith; Applications of Artificial Intelligence for Chemical Inference XV. Constructive Graph Labelling Applied to Chemical Problems; Chlorinated Hydrocarbons, in Analytical Chemistry, 47, 1176, 1975.
- HPP 75-10

 R.E. Carhart, D.H. Smith, H. Brown, and N.S. Sridharan; Applications of Artificial Intelligence for Chemical Inference XVI. Computer Generation of Vertex Graphs and Ring Systems, in the Journal of Chemical Information and Computer Science, 15, 124, 1975.
- R.E. Carhart, D.H. Smith, H. Brown, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference XVII. An Approach to Computer-Assisted Elucidation of Molecular Structure, in the Journal of the American Chemical Society, 97, 5755, 1975.

- HPP 75-12 E.H. Shortliffe, S.G. Axline, B.G. Buchanan, R. Davis, and S.N. Cohen; Computer-Assisted Consultations Regarding the Antimicrobial Treatment of Bacteremia, May 1975.
- HPP 75-13

 B.G. Buchanan; Applications of Artificial Intelligence to Scientific Reasoning, in Proceedings of Second USA-Japan Computer Conference, American Federation of Information Processing Societies Press, August 1975.
- HPP 75-14

 R.E. Carhart, S.M. Johnson, D.H. Smith, B.G. Buchanan, R.G Dromey, and J. Lederberg; Networking and a Collaborative Research Community: A Case Study Using the DENDRAL Program, in P. Lykos (ed.), Computer Networking and Chemistry, Washington, D.C.: American Chemistry Society, 1975.
- HPP 75-15 D.H. Smith; The Scope of Structural Isomerism, in Artificial Intelligence for Chemical Inference XVIII. Journal of Chemical Information and Computer Sciences, 15, 203, 1975.
- HPP 75-16 E.H. Shortliffe, and R. Davis; Some Considerations for the Implementation of Knowledge-Based Expert Systems, in SIGART Newsletter, 55, pp. 9-12, December 1975.

- HPP 76-1

 D.H. Smith, J.P. Konopelski, and C. Djerassi; Applications of Artificial Intelligence for Chemical Inference XIX. Computer Generation of Ion Structures, in Organic Mass Spectrometry, 11, 86, 1976.
- HPP 76-2

 Raymond E. Carhart, and Dennis H. Smith; Applications of Artificial Intelligence for Chemical Inference XX. Intelligent Use of Constraints in Computer-Assisted Structure Elucidation, in Computers in Chemistry, 1, 79, 1976.
- C.J. Cheer, D.H. Smith, C. Djerassi, B. Tursch, J.C. Braekman, and D. Daloze; Applications of Artificial Intelligence for Chemical Inference XXI. Chemical Studies of Marine Interbrates XVII. The Computer-Assisted Identification of (+)-Palostrol in the Marine Organism Cespitularia sp., aff. Subviridis, in Tetrahedron, 32, 1807, 1976.
- HPP 76-4

 B.G. Buchanan, D.H. Smith, W.C. White, R.J. Gritter, E.A. Feigenbaum, J. Lederberg, and Carl Djerassi; Application of Artificial Intelligence for Chemical Inference XXII. Automatic Rule Formation in Mass Spectrometry by Means of the Meta-D, ENDRAL Program, in the Journal of the American Chemical Society, 98, 6168, 1976.
- T.H. Varkony, R.E. Carhart, and D.H. Smith; Applications of Artificial Intelligence for Chemical Inference XXIII. Computer-Assisted Structure Elucidation. Modelling Chemical Reaction Sequences Used in Molecular Structure Problems, in W.T. Wipke (ed.), Computer-Assisted Organic Synthesis, Washington, D.C.: American Chemical Society, 1977.
- HPP 76-6

 D.H. Smith, and R.E. Carhart; Applications of Artificial Intelligence for Chemical Inference XXIV. Structural Isomerism of Mono and Sesquiterpenoid Skeletons 1,2, in Tetrahedron, 32, 2513, May 1976.
- HPP 76-7 (Thesis) STAN-CS-76-564, AIM-283, Randall Davis; Applications of Meta Level Knowledge to the Construction, Maintenance and Use of Large Knowledge Bases, July 1976.
- HPP 76-8 STAN-CS-76-570, AIM-286, Douglas Lenat; AM: An Artificial Intelligence Approach to Discovery in Mathematics as Heuristic Search, Ph.D. Thesis in Computer Science, July 1976.
- HPP 76-9 STAN-CS-76-577, AIM-291, Bruce G. Buchanan, Joshua Lederberg, and John McCarthy; Three Reviews of J. Weizenbaum's Computer Power and Human Reason, November 1976.
- HPP 76-10

 Bruce G. Buchanan, and Dennis Smith; Computer Assisted Chemical Reasoning, in E.V. Ludena, N.H. Sabelli, and A.C. Wahl (eds.), Computers in Chemical Education and Research, New York: Plenum Press, 1977.
- HPP 76-11 Raymond E. Carhart; A Model-Based Approach to the Teletype Printing of Chemical Structures, in the Journal of Chemical Information and Computer Sciences, 16, 82, 1976.

- HPP 76-12 E.H. Shortliffe; Computer-Based Medical Consultations: MYCIN, in Elsevier/North Holland, New York, 1976. NOT AVAILABLE
- HPP 76-13 S.M. Wraith, J.S. Aikins, B.G. Buchanan, W.J. Clancey, R. Davis, L.M. Fagan, J.F. Hannigan, A.C. Scott, E.H. Shortliffe, W.J. Van Melle, V.L. Yu, S.G. Axline, and S.C. Cohen; Computerized Consultation System for Selection of Antimicrobial Therapy, in Amer. J. Hosp. Pharm., 33:1304-1308, 1976.
- HPP 76-14 E.H. Shortliffe; The MYCIN Project: A Computer-Based Consultation System in Clinical Therapeutics, in Computer Networking in the University: Success and Potential, Proceedings of the EDUCOM Fall Conference, pp. 183-185, November 1976.

- HPP 77-1 STAN-CS-77-593, A.C. Scott, W. Clancey, R. Davis, and E.H. Shortliffe; Explanation Capabilities of Knowledge-Based Production Systems, in American Journal of Computational Linguistics, Microfiche 62, Knowledge-Based Consultation Systems, 1977.
- HPP 77-2 STAN-CS-77-589, Robert S. Engelmore, and H. Penny Nii; A Knowledge-Based System for the Interpretation of Protein X-Ray Crystallographic Data, January 1977.
- HPP 77-3

 B.G. Buchanan, R. Davis, V. Yu, and S. Cohen; Rule Based Medical Decision Making by Computer, in *Proceedings of MEDINFO.77*, Toronto, 1977.
- HPP 77-4

 Tom M. Mitchell, and Gretchen M. Schwenzer; Applications of Artificial Intelligence for Chemical Inference XXV. A Computer Program for Automated Empirical 13C NMR Rule Formation, in Organic Magnetic Resonance, Vol. 11, No. 8, 378, 1978.
- HPP 77-5

 STAN-CS-77-596, Mark Stefik, and Nancy Martin; A Review of Knowledge-Based Systems as a Basis for a Genetics Experiment Designing System, February 1977.
- HPP 77-6 STAN-CS-77-597, Bruce G. Buchanan, and Tom Mitchell; Model-Directed Learning of Production Rules, in D.A. Waterman, and F. Hayes-Roth (eds.), Pattern-Directed Inference Systems, New York: Academic Press, 1978.
- HPP 77-7 STAN-CS-77-612, H. Penny Nii, and Edward A. Feigenbaum; Rule-based Understanding of Signals, in Proceedings of Pattern-Directed Inference Systems, May 1977.
- R. Davis; Knowledge Acquisition on Rule-Based Systems: Knowledge About Representations as a Basis for System Construction and Maintenance, in Proceedings of Pattern-Directed Inference, May 1977.
- HPP 77-9

 R. Davis; Interactive Transfer of Expertise I: Acquisition of New Inference Rules, in *Proceedings of Fifth IJCAI*, 1, 321, August 1977.
- R. Davis; A Decision Support System for Medical Diagnosis and Therapy Selection in Data Base, in SIGBDP Newsletter, 8, 58, Winter 1977.
- HPP 77-11

 Dennis H. Smith, and Raymond E. Carhart; Structure Elucidation Based on Computer Analysis of High and Low Resolution Mass Spectral Data, in M.L. Gross (ed.), Proceedings of the Symposium on Chemical Applications of High Performance Spectrometry, Washington, D.C.: American Chemical Society, in press, 1977.
- HPP 77-12 Reid G. Smith; The Contract Net: A Formalism for the Control of Distributed Problem Solving, in *Proceedings of the Fifth IJCAI*, 1, 472, August 1977.

- HPP 77-13 Tom M. Mitchell; Version Spaces: A Candidate Elimination Approach to Rule Learning, in *Proceedings of the Fifth IJCAI*, 1, 305, August 1977.
- HPP 77-14 STAN-CS-77-605, Reid G. Smith, Tom M. Mitchell, Richard A. Chestek, and Bruce G. Buchanan; A Model for Learning Systems, in *Proceedings of the Fifth IJCAI*, 1, 338, August 1977.
- HPP 77-15

 E.A. Feigenbaum, R.S. Engelmore, and C.K. Johnson; A Correlation Between Crystallographic Computing and Artificial Intelligence, in Acta Crystallographica, A33, 13, 1977.
- HPP 77-16 Randall Davis, and Bruce G. Buchanan; Meta-Level Knowledge: Overview and Applications, in *Proceedings of the Fifth IJCAI*, 1, 920, August 1977.
- HPP 77-17

 Bruce G. Buchanan; Heuristic DENDRAL: A Short Summary, (class notes for CS 224), Spring 1977.
- HPP 77-18

 Jerry Feitelson, and Mark Stefik; A Case Study of the Reasoning in a Genetics Experiment. April 1977.
- HPP 77-19

 N. Martin, P. Friedland, J. King, and M.J. Stefik; Knowledge Base Management for Experiment Planning, in Proceedings of the Fifth IJCAI, 1, 882, August 1977.
- HPP 77-20 Gretchen M. Schwenzer, and Tom M. Mitchell; Computer Assisted Structure Elucidation Using Automatically Acquired 13C NMR Rules, in D. Smith (ed.), Computer Assisted Structure Elucidation, ACS Symposium Series, Vol. 54:58, 1977.
- HPP 77-21 (Working Paper) Hector Garcia-Molina, and Gio Wiederhold; Application of the Contract Net Protocol to Distributed Data Bases, April 1977.
- HPP 77-22

 Gretchen M. Schwenzer; Applications of Artificial Intelligence for Chemical Inference XXVI. Analysis of C-13 NMR for Mono-Hydroxy Steroids Incorporating Geometric Distortions, in the Journal of Organic Chemistry, Vol. 43, No. 6, 1978.
- HPP 77-23 James G. Nourse; Generalized Stereoisomerization Modes, in the Journal of the American Chemical Society, 99, 2063, 1977.
- HPP 77-24 (Working Paper) Kent Morrill, Dennis H. Smith, and Carl Djerassi; Computer-Assisted Analysis of the High Resolution Mass Spectra of Macrolide Antibiotics", 1977.
- HPP 77-25 STAN-CS-77-621, Edward A. Feigenbaum; The Art of Artificial Intelligence: Themes and Case Studies of Knowledge Engineering, in *Proceedings of the Fifth IJCAI*, 1, 1014, 1977.

- HPP 77-26

 Tomas H. Varkony, Raymond E. Carhart, and Dennis H. Smith; Computer Assisted Structure Elucidation, Ranking of Candidate Structures, Based on Comparison Between Predicted and Observed Mass Spectra, in Proceedings of the Twenty-Fifth Annual Conference on Mass Spectrometry and Allied Topics, Washington, D. C., 1977.
- HPP 77-27 Hector Garcia-Molina; Overview and Bibliography of Distributed Data Bases, 1977.
- HPP 77-28 STAN-CS-77-618, Nils J. Nilsson; A Production System for Automatic Deduction, in Machine Intelligence 9, 1977.
- HPP 77-29 Edward H. Shortliffe; A Rule-Based Approach to the Generation of Advice and Explanation in Clinical Medicine, in Computational Linguistics in Medicine, pp. 101-108, North Holland, Amsterdam, 1977.
- HPP 77-30 Edward H. Shortliffe; A Clinical Decisions Based on Physician-Computer Interactions: A Symbolic Reasoning Approach, presented at the Symposium on Making and Using Medicial Decisions, Annual Meeting Society for Computer Medicine, November 1977.
- HPP 77-31 (Working Paper) Kjell G. Knutsen; Some Issues in the Design of Large Multi-Microprocessor Networks, 1977.
- HPP 77-32 Edward H. Shortliffe; MYCIN: A Knowldge-Based Computer Program Applied to Infectious Diseases, presented at the First Annual Symposium on Computer Application in Medical Care, pp. 66-69, Washington, D.C., October 1977.
- HPP 77-33

 Randall Davis; Generalized Procedure Calling and Content-Directed Invocation, in Proceedings of Artificial Intelligence and Programming Languages Conference, Published as SIGART/SIGPLAN Combined Issue, pp. 45-54, August 1977.
- HPP 77-34 Tomas Varkony, Dennis Smith, and Carl Djerassi; Computer-Assisted Structure Manipulation: Studies in the Biosynthesis of Natural Products, in Tetrahedron, 34, 841-852, 1978.
- R. G. Dromey, Mark J. Stefik, Thomas C. Rindfleisch, and Alan M. Duffield; Extraction of Mass Spectra Free of Background and Neighboring Component Contributions From Gas Chromatography/Mass Spectrometry Data, in Analytical Chemistry, 48, 1368, August 1976.
- HPP 77-36

 Bruce G. Buchanan; Issues of Representation in Conveying the Scope and Limitations of Intelligent Assistant Programs, in J.E. Hayes, D. Michie, and L.I. Mikulich (eds.), Machine Intelligence 9, Machine Expertise and Human Interface, Chichester: Ellis Horwood Ltd., and New York: John Wiley, June 1979.

- HPP 77-37 Avron Barr; Meta-Knowledge and Memory, November 1977.
- HPP 77-38 Annemarie Wegmann; Variations in Mass Spectral Fragmentation Produced by Active Sites in a Mass Spectrometer Source, in Analytical Chemistry, Vol. 50, No. 6, pp. 830-832, May 1978.
- HPP 77-39

 Bruce G. Buchanan, Tom M. Mitchell, Reid G. Smith, and C. Richard Johnson, Jr.; Models of Learning Systems, in J. Belzer (ed.), Encyclopedia of Computer Sciences and Technology, New York: Marcel Dekker, Inc., Vol. 11, 1978.
- HPP 77-40

 E. Feigenbaum, J. Lederberg, and B. Buchanan; Final Technical Report for Contract Period August 1, 1973 Through July 31, 1977, Contract DAHC-73-C-0435, submitted to ARPA October 1977. (NOT AVAILABLE)
- T.H. Varkony, R.E. Carhart, D.H. Smith, and C. Djerassi; Computer-Assisted Simulation of Chemical Reaction Sequences, in Applications to Problems of Structure Elucidation., Inl. of Chem. Inf. and Comp. Science, 18:168, 1978. (NOT AVAILABLE)
- HPP 77-42 Edward A. Feigenbaum; Panel: History of Artificial Intelligence Research, 1956-61, 1977. (NOT AVAILABLE)

- HPP 78-1 STAN-CS-78-649, Bruce G. Buchanan, and Edward A. Feigenbaum; DENDRAL and Meta-DENDRAL: Their Applications Dimension, in Artificial Intelligence, 11 (1,2) 5, 1978.
- HPP 78-2 (Needs Authors Permission) Reid G. Smith; Issues in Distributed Sensor Net Design, January 1978.
- HPP 78-3 Mark Stefik; Inferring DNA Structures From Segmentation Data: A Case Study, in *Artificial Intelligence*, 11 (1,2):85, 1978.
- HPP 78-4 Hector Garcia-Molina; Distributed Database Coupling, March 1978.
- HPP 78-5

 H. Penny Nii, and Nelleke Aiello; AGE (Attempt to Generalize): Notes on AGE-0 System, June 1978. (Revised to HPP 81-23)
- HPP 78-6 (Working Paper) Hector Garcia-Molina; Performance Comparison of Update Algorithms for Distributed Data Bases, 1978.
- HPP 78-7

 STAN-CS-78-667, Reid G. Smith, and Randall Davis; Distributed Problem Solving: The Contract Net Approach, in Proceedings of the Second National Conference of the Canadian Computational Studies of Intelligence, Toronto, Canada, July 1978.
- HPP 78-8 James G. Nourse; The Configuration Symmetry Group and its Application to Stereoisomer Generation, Specification and Enumeration, in the *Journal of the American Chemical Society*, 101, 1210, 1979.
- HPP 78-9 James G. Nourse, Raymond E. Carhart, Dennis H. Smith, and Carl Djerassi; Exhaustive Generation of Stereoisomers for Structure Elucidation, in the Journal of the American Chemical Society, 101, 1216, 1979.
- HPP 78-10 STAN-CS-78-668, Alain Bonnet; BAOBAB: A Parser for a Rule-Based System Using a Semantic Grammar, June 1978.
- HPP 78-11 Raymond E. Carhart; Erroneous Claims Concerning the Perception of Topological Symmetry, in the Journal of Chemical Information & Computer Sciences, 18, 197, 1978.
- HPP 78-12 (Working Papaer) Allan Terry, and Robert S. Engelmore; The Design and Evaluation of the First CRYSALIS System, July 1978.
- HPP 78-13 Mark Stefik; An Examination of a Frame-Structured Representation System, July 1979, presented at the Sixth International Joint Conference on Artificial Intelligence, August 1979.
- HPP 78-14 James G. Nourse; Applications of the Permutation Group in Dynamic

Stereochemistry, in Proceedings of the Conference on the Application of Permutation Groups to Chemistry and Physics, Bielefeld, Germany, July 3-12, 1978.

- HPP 78-15 James G. Nourse; Application of the Permutation Group to Stereoisomer Generation for Computer Assisted Structure Elucidation, in Proceedings of the Conference on the Application of Permutation Groups to Chemistry and Physics, Bielefeld, Germany, July 3-12, 1978.
- HPP 78-16 Lawrence Fagan; Ventilator Manager: A Program to Provide On-Line Consultative Advice in the Intensive Care Unit, September 1978.
- Wictor L. Yu, Bruce G. Buchanan, Edward H. Shortliffe, Sharon M. Wraith, Randall Davis, A. Carlisle Scott, and Stanley N. Cohen; Evaluating the Performance of a Computer-Based Consultant, in Computer Programs in Biomedicine 9, pp. 95-102, Amsterdam: Elsevier/ N.Holland Pub. Co., 1979.
- HPP 78-18 Edward A. Feigenbaum; MOLGEN: A Computer Science Application to Molecular Genetics, October 1977.
- J.C. Kunz, R.J. Fallat, D.H. McClung, J.J. Osborn, B. A. Votteri, H.P. Nii, J.S. Aikins, L.M. Fagan, and E.A. Feigenbaum; A Physiological Rule-Based System for Interpreting Pulmonary Function Test Results, in Pardon the Scribe. Also in Proceedings of Computers in Critical Care and Pulmonary Medicine, IEEE Press, 1979.
- N.A.B. Gray, D.H. Smith, T.H. Varkony, R.E. Carhart, and B.G. Buchanan; Use of a Computer to Identify Unknown Compounds: The Automation of Scientific Inference, revision of article by J. Lederberg, in G.R. Waller (ed.), Biochemical Appl. of Mass Spectrometry, October 1978.
- V.L. Yu, L.M. Fagan, S.M. Wraith, W.J. Clancey, A.C. Scott, J. Hannigan, R.L. Blum, B.G. Buchanan, S.N. Cohen, R. Davis, J. Aikins, W. VanMelle, E. Shortliffe, and S. Axline; Antimicrobial Selection for Meningitis by a Computerized Consultant A Blinded Evaluation by Infectious Disease Experts, in JAMA 242, pp. 1279-1282, 1979.
- HPP 78-22 STAN-CS-78-696, Reid G. Smith, and Tom M. Mitchell; Considerations for Microprocessor-Based Terminal Design, November 1978.
- HPP 78-23 STAN-CS-78-699, James Bennett, Lewis Creary, Robert Engelmore, and Robert Melosh; SACON: A Knowledge-Based Consultant for Structural Analysis, September 1978.
- HPP 78-24 (Working Paper) Reid G. Smith, and Randall Davis; Applications of the Contract Net Framework: Distributed Sensing, presented at the ARPA DSN Symposium, CMU, December 7-8, 1978.

- HPP 78-25 William J. Clancey; Tutoring Rules for Guiding a Case Method Dialogue, in The International Journal of Man-Machine Studies, 11, pp. 25-49, January 1979.
- HPP 78-26 William J. Clancey; An Antibiotic Therapy Selector Which Provides for Explanations, (Expansion of a Short Paper by the same name) presented at IJCAI 77, p. 858, 1977.
- HPP 78-27 Edward H. Shortliffe, Bruce G. Buchanan, and Edward A. Feigenbaum; Knowledge Engineering for Medical Decision Making: A Review of Computer Based Clinical Decisions, in *Proceedings of the IEEE*, 67, pp. 1207-1224, 1979.
- HPP 78-28 (Thesis) STAN-CS-78-700, Reid G. Smith; A Framework for Problem Solving in a Distributed Processing Environment, Ph.D. Thesis in Computer Science, December 1978.
- HPP 78-29 Edward H. Shortliffe; Medical Consultation Systems: Designing for Doctors, in Max Sime, and M.J. Combs (eds.), Designing for Human-Computer Communication, 8, pp. 209-238, Londons: Academic Press, 1983.
- (Working Paper) Joshua Lederberg; Digital Communications and the Conduct of Science: The New Literacy, To appear in: the *Proceedings of the IEEE*, Vol. 66, No. 11, November 1978.
- HPP 78-31 E.H. Shortliffe; Interactive Programs for Physicians: Benefits and Limitations of Artificial Intelligence Techniques, in Proceedings of the International Conference on Cybernetics and Society, p. 302, Tokyo, Japan, November 3-5, 1978.

- HPP 79-1 William van Melle; MYCIN: A Knowledge-Based Consultation Program for Infectious Disease Diagnosis, in Int. J. Man-Machine Studies, 10, pp. 313-322, Academic Press Inc., London Limited, 1978.
- HPP 79-2 STAN-CS-78-711, Tom Mitchell; Version Spaces: An Approach to Concept Learning, Ph.D. Thesis in Electrical Engineering, December 1978. +
- HPP 79-3

 Nelleke Aiello, and H. Penny Nii; Building a Knowledge-Based System With AGE, in *Proc. of the Sixth IJCAI* 79, February 1979.
- HPP 79-4

 H. Penny Nii, and Nelleke Aiello; AGE (Attempt to Generalize): A Knowledge-Based Program for Building Knowledge-Based Programs, in Proceedings of the Sixth IJCAI 79, pp. 645-655, August 1979.
- HPP 79-5

 L. Fagan, J. Kunz, E. Feigenbaum, (CSD, Stanford University) and J.J. Osborn (PMC, San Francisco); Knowledge Engineering for Dynamic Clinical Settings: Giving Advice in the Intensive Care Unit, in *Proceedings of the Sixth IJCAI* 79, pp. 260-262, August 1979.
- HPP 79-6 Avron Barr; Meta-Knowledge and Cognition, in Proceedings of the Sixth IJCAI 79, pp. 31-33, August 1979.
- HPP 79-7 William van Melle; A Domain-Independent Production-Rule System for Consultation Programs, in Proceedings of the Sixth IJCAI 79, pp. 923-925, August 1979.
- HPP 79-8

 Alain Bonnet; BAOBAB-2: Understanding Medical Jargon as if it Were a Natural Language, in *Proceedings of the Sixth IJCAI 79*, pp. 79-81, August 1979.
- HPP 79-9 William J. Clancey; Dialogue Management for Rule-Based Tutorials, in Proceedings of the Sixth IJCAI 79, pp. 155-161, August 1979.
- HPP 79-10 Jan S. Aikins; Prototypes: An Approach to Knowledge Representation for Hypothesis Formation, in *Proceedings of the Sixth IJCAI 79*, pp. 1-3, August 1979.
- HPP 79-11

 A. Barr, W. Clancey, and J. Bennett; Transfer of Expertise: A Theme of AI Research, April 1979.
- HPP 79-12 STAN-CS-79-742, Ann Gardner; Search, in A. Barr, and E. Feigenbaum (eds.), Handbook of Artificial Intelligence, Volume I, Los Altos, CA: Wm. Kaufmann, 1981.
- James S. Bennett, and Robert S. Engelmore; SACON: A Knowledge-Based Consultant for Structural Analysis, in *Proceedings of the Sixth IJCAI 79*, pp. 47-49, August 1979.

- HPP 79-14 STAN-CS-79-739, J.R. Quinlan; Induction Over Large Data Bases, May 1979.
- HPP 79-15 Douglas B. Lenat; Cognitive Economy, June 1979, in Proceedings of the Sixth IJCAI 79, pp.531-536, August 1979.
- HPP 79-16

 Robert S. Engelmore, and Allan Terry; Structure and Function of the Crysalis System, July 1979, in *Proceedings of the Sixth IJCAI* 79, pp. 250-256, August 1979.
- HPP 79-17 STAN-CS-79-749, William Clancey, James Bennett, and Paul Cohen; Applicaton-Oriented AI Research: Education, in A. Barr, and E. Feigenbaum (eds.), in Handbook of Artificial Intelligence, Volume I, Los Altos, CA: Wm. Kaufmann, Inc., 1981.
- HPP 79-18

 Larry M. Fagan, Edward H. Shortliffe, and Bruce G. Buchanan; Computer-Based Medical Decision Making: From MYCIN to VM, in Automedica, 3, pp. 97-106, 1980.
- HPP 79-19
 S. Jerrold Kaplan; Cooperative Responses From a Portable Natural Language Data Base Query System, Ph.D. dissertation, University of Pennsylvania, July 1979.
- HPP 79-20 Knowledge Engineering for Infectious Disease Therapy Selection, in *Proceedings of the IEEE*, Vol. 67, No. 9, September 1979.
- HPP 79-21 STAN-CS-79-754, Anne Gardner, James Davidson, and Terry Winograd; Natural Language Understanding, in Handbook of Artificial Intelligence, Volume I, Chapter 4, pp. 223-321, Los Altos, CA: Wm. Kaufmann, Inc., 1981.
- HPP 79-22 STAN-CS-79-756, James S. Bennett, Bruce G. Buchanan, and Paul R. Cohen; Applications-Oriented AI Research: Sciences and Mathematics, in A. Barr, and E. Feigenbaum (eds.), Handbook of Artificial Intelligence, Volume II, Los Altos, CA: Wm. Kaufmann, Inc., 1982.
- HPP 79-23 STAN-CS-79-757, Victor Ciesielski, James S. Bennett, and Paul R. Cohen; Applications-Oriented AI Research: Medicine, in A. Barr, and E. Feigenbaum (eds.), Handbook of Artificial Intelligence, Volume II, Los Altos, CA: Wm. Kaufmann, Inc., 1982.
- HPP 79-24 STAN-CS-79-758, Robert Elschlager, and Jorge Phillips; Automatic Programming, in A. Barr, and E. Feigenbaum (eds.), Handbook of Artificial Intelligence, Volume II, Los Altos, CA: Wm. Kaufmann, Inc., 1982.
- HPP 79-25 STAN-CS-79-759, Alain Bonnet; Schema-Shift Strategies to Understanding Structured Texts in Natural Language, submitted to American Journal of Computational Linguistics, August 1979.

- HPP 79-26 Edward H. Shortliffe, M.D., Ph.D.; Clinical Knowledge Engineering: The MYCIN Project, in Inference & Decision Making Processes in Medicine, also in Proceedings of First International Workshop on Methodologies for Disease Control, pp. 1-8, Tokyo, Japan, August 25, 1979.
- HPP 79-27 Ramez El-Masri, and Gio Wiederhold; Data Model Integration Using the Structural Model, in ACM-SIGMOD 1979, pp. 191-202, May 30-June 1, 1979.
- HPP 79-28 (Working Paper) Bruce G. Buchanan; Steps Toward Mechanizing Discovery, presented at the Pittsburgh University Conference on the Logic of Diagnosis, October 1978.
- HPP 79-29 STAN-CS-79-771, Peter E. Friedland; Knowledge-Based Experiment Design in Molecular Genetics, Ph.D. dissertation, Stanford University, October 1979.
- HPP 79-30 Jonathan King; Exploring the Use of Domain Knowledge for Query Processing, December 1979.
- HPP 79-31

 L.M. Fagan, J.C. Kunz, E.A. Feigenbaum, and J.J. Osborn; Representation of Dynamic Clinical Knowledge: Measurement Interpretation in the Intensive Care Unit, in Proceedings of the Sixth International Joint Conference on Artificial Intelligence, Tokyo, Japan, August 1979.
- HPP 79-32 L.M. Fagan, J.C. Kunz, and E.A. Feigenbaum; A Symbolic Processing Approach to Measurement Interpretation in the Intensive Care Unit, in Proceedings of the Third Annual Symposium on Computer Applications in Medical Care, Silver Spring, Maryland, October 1979.

- HPP 80-1 Avron Barr; The Representation Hypothesis, in Proceedings of the CSCSI Conference, Victoria, B.C., April 1980. 4 pages
- HPP 80-2 (Thesis) STAN-CS-80-784, Mark Jeffrey Stefik; Planning With Constraints, January 1980. 239 pages
- HPP 80-3 Avron Barr, and James Davidson; Representation of Knowledge, in Handbook of Artificial Intelligence, Vol. I, pp. 143-222, Los Altos, CA: Wm. Kaufmann, Inc. 1981. 80 pages
- HPP 80-4 STAN-CS-80-842, Michael Genesereth; The Role of Plans in Intelligent Teaching Systems, in Derek Sleeman (ed.), Intelligent Teaching Systems, Academic Press, April 1980. 19 pages
- HPP 80-5

 E.A. Feigenbaum, B.G. Buchanan, L.H. Kedes, and D. Brutlag; A Computer Science Application to Molecular Biology, submitted to National Science Foundation, April 1980. 114 pages
- HPP 80-6 Sharon W. Bennett, and A. Carlisle Scott; Computer-Assisted Customized Antimicrobial Dosages, in American Journal of Hospital Pharmacy, Vol. 37, pp. 523-530, April 1980. 8 pages
- HPP 80-7

 J.S. Bennett, and D. Goldman; CLOT: A Knowledge-Based Consultant for Diagnosis of Bleeding Disorders, April 1980. 8 pages
- HPP 80-8 David E. Smith; CORLL: A Demand Paging System for Units, April 1980. 11 pages
- HPP 80-9 Russell Greiner; RLL-1: A Representation Language Language, in AAAI-1, pp. 165-169, 1980. 44 pages
- W.J. Clancey, E.H. Shortliffe, and B. G. Buchanan; Intelligent Computer-Aided Instruction for Medical Diagnosis, in Third Computer Application in Medical Care, pp. 175-183, October 1979. 10 pages
- W. van Melle, A.C. Scott, J. S. Bennett, and M. Peairs; The EMYCIN Manual, October 1981. (Superceded by HPP 81-16)
- HPP 80-12 Mark Stefik; Planning With Constraints MOLGEN: Part 1, in Artificial Intelligence Journal, June 1980. 33 pages
- HPP 80-13 Mark Stefik; Planning and Meta-Planning MOLGEN: Part 2, in Artificial Intelligence Journal, 16:2, June 1980. Also in Webber & Nilsson's book Readings in Artificial Intelligence, 34 pages
- HPP 80-14 E.H. Shortliffe; The Computer as Clinical Consultant, in Archives of Internal Medicine, Vol. 140, pp. 313-314, March 1980. 2 pages

- HPP 80-15 (Working Paper) A. Carlisle Scott, M. Bischoff, and E.H. Shortliffe; Oncology Protocol Management Using the Oncocin System: A Preliminary Report, July 1980. 25 pages
- HPP 80-16 STAN-CS-80-815 E.H. Shortliffe; Medical Cybernetics: The Challenges of Clinical Computing, in S. Basheer Ahmed (ed.), Cybernetics, Technology, and Growth, Lexington Books, D.C. Heath & Co., August 1980. Also in Technology International Stability & Growth, 12, pp. 148-165, 1984. 55 pages
- HPP 80-17 STAN-CS-80-814 Janice Aikins; Prototypes and Production Rules: A Knowledge Representation for Computer Consultations, Ph.D. dissertation, Stanford University, August 1980. 208 pages +
- HPP 80-18 Michael Genesereth, and Douglas Lenat; Meta-Description and Modifiability in a Knowledge Representation System, submitted to Artificial Intelligence, August 1980. (NOT AVAILABLE)
- HPP 80-19 Michael Genesereth; Why, August 1980. (NOT AVAILABLE)
- HPP 80-20 Michael Genesereth; Metaphors and Models, in Proceedings of the First National Conference on Artificial Intelligence, Stanford, CA., August 1980. Also in AAAI-80. 9 pages
- HPP 80-21 STAN-CS-80-812 Edward A. Feigenbaum; Knowledge Engineering: The Applied Side of Artificial Intelligence, September 1980. 27 pages
- William van Melle; A Domain-Independent System That Aids in Constructing Knowledge-Based Consultation Programs, Ph.D. dissertation, Stanford University, June 1980. (NOT AVAILABLE) +
- HPP 80-23 Russell Greiner, and Douglas B. Lenat; Details of RLL-1, October 1980. 66 pages
- HPP 80-24 Michael R. Genesereth, Russel Greiner, and David Smith; MRS Dictionary, current version, October 1981. 49 pages
- HPP 80-25

 Edward H. Shortliffe, M.D., Ph.D.; Two Papers on Medical Computing: (1)

 Medical Cybernetics: The Challenges of Clinical Computing. (2) Consultation

 Systems of Physicians: The Role of Artificial Intelligence Techniques, July

 1980, in S. Basheer Ahmed (ed.), Cybernetics, Technology, and Growth,

 Lexington Books, D.C. Heath & Co., August 1980. Also in Technology

 International Stability & Growth, 12, pp. 148-165, 1984. 57 pages
- HPP 80-26 Douglas Lenat; Toward a Theory of Heuristics, to appear in Proceedings of the Bern. Conferences on Heuristics, 1981. Also submitted to Artificial Intelligence Journal, November 1980. (NOT AVAILABLE) (Revised to HPP 81-22)

- HPP 80-27 Douglas Lenat; The Plausible Mutation of DNA, November 1980. 34 pages
- HPP 80-28 Reid G. Smith, and Peter Friedland; Unit Package User's Guide, December 1980. 105 pages
- HPP 80-29

 H. Penny Nii; An Introduction to Knowledge Engineering, Blackboard Model and AGE, March 1980, 45 pages
- HPP 80-30 E.H. Shortliffe; Consultation Systems for Physicians, in Proceedings of the CSCSI/SCEIO Conference (Canadian Society for the Computer Simulation of Intelligence), University of Victoria, British Columbia, pp. 1-11, May 14-16, 1980. 12 pages
- HPP 80-31 L.M. Fagan; VM: Representing Time-Dependent Relations in a Clinical Setting, Ph.D. dissertation, Stanford University, 1980. (NOT AVAILABLE)
- HPP 80-32 E.H. Shortliffe; ONCOCIN Annual Report (1979-80): (a) Summary Progress Report. (b) Full Progress Report With Appendices, April 1980. (NOT AVAILABLE)
- HPP 80-33 E.H. Shortliffe; Medical Computing: Another Basic Science? In Proceedings of the 4th Symposium on Computer Applications in Medical Care, Washington, D.C., November 1980. 4 pages
- HPP 80-34 Edward H. Shortliffe; The Computer and Therapeutic Decision Making, 1980, to be presented at the Eighteenth Annual Meeting of the Drug Information Association, Kansas City, Missouri, June 16, 1982. 2 pages, ABSTRACT ONLY. (REPORT NOT AVAILABLE)
- HPP 80-35

 Andre Lavanchy, Tomas Varkony, Dennis H. Smith, Neil A.B. Gray, William C. White, Raymond E. Carhart, Bruce G. Buchanan and Carl Djerassi; Rule-Based Mass Spectrum Prediction and Ranking: Applications to Structure Elucidation of Novel Marine Sterols. Appears in: Organic Mass Spectrometry, Vol. 15, No. 7, 1980. 12 pages

- HPP 81-1 STAN-CS-81-837 Bruce G. Buchanan; Research on Expert Systems, in J. Hayes, D. Michie, and Y-H Pao (eds.), Machine Intelligence 10, pp. 269-299, Chichester: Ellis Horwood Ltd., 1982. 39 pages
- HPP 81-2 STAN-CS-82-908. William J. Clancey, and Reed Letsinger; NEOMYCIN: Reconfiguring a Rule-Based Expert System for Application to Teaching, February 1981, in Proceedings of the 7th International Joint Conference on A.I., Vancouver, British Columbia, August 1981. 14 pages
- HPP 81-3 Jan Clayton, Peter Friedland, Laurence Kedes, and Doug Brutlag; SEQ- Sequence Analysis System, April 1981. 20 pages
- HPP 81-4 David R. Barstow, and Bruce G. Buchanan; Maxims for Knowledge Engineering, May 1981, in R. Hayes-Roth, D. Waterman, and D. Lenat (eds.), Building Expert Systems, Addison-Wesley, 1983. 7 pages
- HPP 81-5 Motoi Suwa, A. Carlisle Scott, and Edward H. Shortliffe; An Approach to Verifying Completeness and Consistency in a Rule-Based Expert System, June 1981, in AI Magazine 3 (4), pp. 16-21, 1982. 23 pages
- HPP 81-6 Michael R. Genesereth, and David E. Smith; Meta-Level Architecture, current version, December 1982. (NOT AVAILABLE) (Replaced by H-1)
- HPP 81-7 Edward H. Shortliffe, A. Carlisle Scott, Miriam B. Bischoff, A. Bruce Campbell, William van Melle, and Charlotte D. Jacobs; ONCOCIN: An Expert System for Oncology Protocol Management, in Proceedings of the 7th IJCAI-81, pp. 876-881, August 1981. 9 pages
- HPP 81-8

 James S. Bennett, and Clifford R. Hollander; DART: An Expert System for Computer Fault Diagnosis, in *Proceedings of IJCAI-81*, pp. 843-845, August 1981. 8 pages
- HPP 81-9 Edward H. Shortliffe; Evaluating Expert Systems, July 1981, in R. Hayes-Roth, D.A. Waterman, and D.B. Lenat (eds.), Building Expert Systems, Chapter 8, Addison Wesley, Boston, MA., 1983. 22 pages
- Randy L. Teach, and Edward H. Shortliffe; An Analysis of Physician Attitudes Regarding Computer-Based Clinical Consultation Systems, in Computer Biomed. Res. 14, pp. 542-558, March 1981. 17 pages
- HPP 81-11 Michael R. Genesereth, Milton R. Grinberg, and Jay S. Lark; SUBTLE Manual. (NOT AVAILABLE) (Revised to HPP 84-37)
- HPP 81-12 Neil A. B. Gray; Applications of Artificial Intelligence for Organic Chemistry: Analysis of C-13 Spectra, October 1981. 112 pages

Thomas G. Dietterich, and Richard S. Michalski; Inductive Learning of Structural Description: Evaluation Criteria and Comparative Review of Selected HPP 81-13 Methods, in Artificial Intelligence 16, pp. 257-294, 1981. 37 pages STAN-CS-81-879. Larry M. Masinter; Interlisp VAX: A Report, December HPP 81-14 1981. 13 pages HPP 81-15 J.J. Finger; Planning in a Dangerous World, February 1982. 16 pages. (NOT AVAILABLE) HPP 81-16 STAN-CS-81-885, William van Melle, A. Carlisle Scott, James S. Bennett, and Mark A. S. Peairs; The EMYCIN Manual, 143 pages. (Replaces HPP 80-11)** HPP 81-17 STAN-CS-81-896. William J. Clancey; The Epistemology of a Rule-Based Expert Systems: A Framework of Explanation, December 1981, in Artificial Intelligence 20, pp. 215-251, 1983. [36 pages] HPP 81-18 STAN-CS-81-894. William J. Clancey; Methodology for Intelligent Tutoring System, December 1981, in Walter Kintsch, Ja?umes R. Miller, and Peter G. Polson (eds.), Method and Tactics in Cognitive Science, pp. 51-83, Hillsdale, N.J.,: Lawrence Erlbaum Associates, 1984. 32 pages HPP 81-19 STAN-CS-81-891. T.G. Dietterich, and B.G. Buchanan; The Role of the Critic in Learning Systems, December 1981. 26 pages HPP 81-20 Michael R. Genesereth; The Use of Design Descriptions in Automated Diagnosis, Dec. 1981, Revised Jan. 1984. 28 pages HPP 81-21 Douglas Lenat, Randal Davis, Jon Doyle, Michael Genesereth, Ira Goldstein. and Howard Schrobe; Meta-Cognition: Reasoning About Knowledge, December 1981. 23 pages HPP 81-22 Douglas Lenat; The Nature of Heuristics, December 1981, in Artificial Intelligence 19, pp. 189-249, 1982. 61 pages HPP 81-23 Nelleke Aiello, Conrad Bock, H. Penny Nii, and Wm. C. White: Joy of AGEing: An Introduction to the Age-1 System, October 1981, 106 pages HPP 81-24 Nelleke Aiello, Conrad Bock, H. Penny Nii, and Wm. C. White; AGE Reference Manual, October 1981. 125 pages HPP 81-25 Nelleke Aiello, and H. Penny Nii; AGEPUFF: A Simple Event-Drive Program. October 1981. 64 pages

Nelleke Aiello, and H. Penny Nii; BOWL: A Beginner's Program Using AGE,

HPP 81-26

October 1981, 50 pages

- W. van Melle, E.H. Shortliffe, and B.G. Buchanan; EMYCIN: A Domain-Independent System that Aids in Constructing Knowledge-Based Consultation Programs, in Pergamon-Infotech State of the Art Report on Machine Intelligence, August 1981. 24 pages
- HPP 81-28 E.H. Shortliffe; ONCOCIN Annual Report (1980-81): (a) Summary Progress Report. (b) Full Progress Report with Appendices, April 1981. (NOT AVAILABLE)
- HPP 81-29 E.H. Shortliffe, A.B. Campbell, P. Chang, J. Cho, D. Hickam, and R. Teach; Proposal for the Evaluation of the ONCOCIN System, June 1981. (NOT AVAILABLE)
- HPP 81-30 E.H. Shortliffe, and B.G. Buchanan; MYCIN Project Annual Report, May 1981. (NOT AVAILABLE)
- HPP 81-31

 E.H. Shortliffe; Expert Systems Research: Adapting Technical Knowledge for Computer-Based Consultation Systems, in Proceedings of the Sixth Symposium on Legal Data Processing, Sponsored by the Council of Europe, Thessaloniki, Greece, July 1981. 24 pages
- HPP 81-32 E.H. Shortliffe; ONCOCIN: An Aid for the Outpatient Management of Cancer Patients, in Proceedings of the Society for Computer Medicine, pp 57-58, Washington, D.C., October 1981. 3 pages
- HPP 81-33 E.H. Shortliffe; Clinical Consultation Systems: Designing for the Physician as Computer User, in Proceedings of the Fifth Symposium on Computer Applications in Medical Care, pp 235-236, Washington, D.C., November 1981. 3 pages

- HPP 82-1 STAN-CS-82-895. Gordon S. Novak, Jr.; GLISP User's Manual, January 1982, 39 pages.
- HPP 82-2 Mark Stefik, Daniel Bobrow, Alan Bell, Harold Brown, Lynn Conway, and Christopher Tong; The Partitioning of Concerns in Digital System Design, January 1982, 12 pages.
- HPP 82-3 Edward H. Shortliffe, and Larry M. Fagan; Expert Systems Research: Modelling the Medical Decision Making Process, February 1982, in An Integrated Approach to Monitoring, pp. 183-200, 1983, 24 pages.
- HPP 82-4 (Working Paper) Jay S. Lark; OMEN User's Manual, February 1982. 15 pages.
- HPP 82-5
 Harold Brown, and Mark Stefik; PALLADIO: An Expert Assistant for Integrated Circuit Design, April 1982, 7 pages. (Superceded by HPP 83-31)
- HPP 82-6

 H. Penny Nii, E.A. Feigenbaum, J. Anton, and A.J. Rockmore; Signal-to-Symbol Transformation: HASP/SIAP Case Study, in AI Magazine, Spring 1982, pp. 23-35, April 1982, 12 pages.
- HPP 82-7 STAN-CS-82-909. Bob London, and William J. Clancey; Plan Recognition Strategies in Student Modeling: Prediction and Description, May 1982, 12 pages.
- HPP 82-8 STAN-CS-82-910. William J. Clancey, and Bruce G. Buchanan; Exploration of Teaching and Problem-Solving Strategies, 1970-1980, May 1982, 18 pages.
- HPP 82-9 David E. Smith, and Michael R. Genesereth; Ordering Conjunctive Queries, to appear in Artificial Intelligence, October 5, 1984, 46 pages.
- HPP 82-10 Thomas G. Dietterich, Bob London, Kenneth Clarkson, and Geoff Dromey; Learning and Inductive Inference, in Handbook of Artificial Intelligence, Vol. 3, May 1982, 187 pages.
- HPP 82-11 Christopher Tong; Framework for Design, June 1982, 8 pages.
- HPP 82-12 J.J. Finger; Sensory Planning, April 1982, 9 pages.
- HPP 82-13 STAN-CS-82-931. J.Aikins, J. Kunz, E.H. Shortliffe, and R.J. Fallat; PUFF: An Expert System for Interpretation of Pulmonary Function Data, July 1982, in Computer Biomed. Res., 16, pp. 199-208, 1983, 22 pages.
- HPP 82-14

 B.G.Buchanan, and R. Duda; Principles of Rule-Based Expert Systems, in M. Yovits (ed.), in Advances in Computers, Vol.22, pp. 163-216, New York: Academic Press, August 1982, 57 pages.

- HPP 82-15 Eric Schoen; The Dolphin Site Manager's Guide, June 1982. 24 pages
- HPP 82-16 STAN-CS-82-934. A.Barr, P.Cohen, and L. Fagan; Understanding Spoken Language, in Handbook of Artificial Intelligence, Vol. I, Chap. 5, July 1982, 50 pages.
- HPP 82-17 STAN-CS-82-935. S.Tappel, S. Westfold, and A. Barr; Programming Languages for AI Research, in *Handbook of Artificial Intelligence*, Vol. II, Chap. 6, July 1982, 90 pages.
- HPP 82-18 STAN-CS-82-936. P. Cohen; Models of Cognition, in Handbook of Artificial Intelligence, Vol. III, Chap. 11, July 1982, 87 pages.
- HPP 82-19 STAN-CS-82-937. M.Ballantyne, W.W. Bledsoe, J. Doyle, R.C.Moore, R. Pattis, and S.Rosenschein; Automatic Deduction, in Handbook of Artificial Intelligence, Vol. III, Chap. 12, July 1982, 39 pages.
- HPP 82-20 STAN-CS-82-938. T. Kanade; Vision, in Handbook of Artificial Intelligence, Vol. III, Chap. 13, July 1982, 219 pages.
- HPP 82-21 STAN-CS-82-939. P. Cohen; Planning and Problem Solving, in Handbook of Artificial Intelligence, Vol. III, Chap. 15, July 1982, 59 pages.
- HPP 82-22 Y. Iwasaki; SPEX: Skeletal Planner of Experiments, September 1982, 60 pages.
- HPP 82-23 Richard O. Duda, and E. Shortliffe; Expert Systems Research, October 1982, in Science 220, pp. 261-268, 1983, 26 pages.
- HPP 82-24 H.Penny Nii; Advanced Architecture: Notes, October 1982. (NOT AVAILABLE)
- HPP 82-25 Douglas Lenat; Nature of Heuristics II, in Artificial Intelligence Journal, Vol. 21, 1:2, March 1983, 23 pages.
- HPP 82-26 Douglas Lenat; EURISKO: A Program that Learns New Heuristics and Domain Concepts, in Artificial Intelligence Journal, Vol. 21, 1:2, March 1983, 28 pages.
- HPP 82-27 Michael R. Genesereth; An Overview of MRS for AI Experts, January 1984, 10 pages. (Formerly, "A Brief Introduction to MRS," October 1982)
- HPP 82-28 Bruce G. Buchanan; Mechanizing the Search for Explanatory Hypotheses, in PSA-II, pp. 129-146, December 1982, 17 pages.
- HPP 82-29 STAN-CS-82-956. Avron Barr; Artificial Intelligence: Cognition as Computation, November 1982, 29 pages.

- HPP 82-30 STAN-CS-82-953. Bruce G. Buchanan; Partial Bibliography of Work on Expert Systems, in Sigart Newsletter, No. 84, ACM Publication, April 1983, 15 pages.
- HPP 82-31 Conrad Bock, and Wm. J. Clancey; MRS/NEOMYCIN: Representing Metacontrol in Predicate Calculus, November 1982, 28 pages. (Revised January 1983)
- HPP 82-32 Gordon Novak; The GEV Display Inspector/Editor, November 1982, 7 pages.
- HPP 82-33 Jan Clayton; Welcome to the MRS TUTOR!!!, November 1982, 21 pages.
- HPP 82-34 Gordon Novak; Data Abstraction in GLISP, December 1982, to appear in Proceedings of SIGPLAN '83, Symposium on Programming, 1983, 9 pages.
- HPP 82-35 Gordon Novak; GLISP: A High-Level Language for A.I. Programming, in Proceedings of the Second National Conference on Artificial Intelligence, Pittsburgh, PA., August 1982, 5 pages.
- J.W. Wallis, and E.H. Shortliffe; Explanatory Power for Medical Expert Systems: Studies in the Representation of Causal Relationships for Clinical Consultations, in *Meth. Info. Med.*, 21:127-136, 1982, 10 pages.
- HPP 82-37 E.H. Shortliffe; Computer-Based Clinical Decision Aids: Some Practical Considerations, in Proceedings of the AMIA Congress 82, pp. 295-298, San Francisco, CA., May 2-5, 1982, 7 pages.
- HPP 82-38 E.H. Shortliffe; The Computer and Medical Decision Making: Good Advice is Not Enough (Guest Editorial), in IEEE Engineering in Medicine and Biology Magazine, 1(2):16-18, 1982, 11 pages.
- P.E. Gerring, E.H. Shortliffe, and W. van Melle; The Interviewer/Reasoner Model: An Approach to Improving System Responsiveness in Interactive AI Systems, in AI Magazine, 3(4):24-27, 1982, 5 pages.
- HPP 82-40

 E.H. Shortliffe; ONCOCIN Annual Report (1981-82): (a) Summary Progress Report. (b) Full Progress Report with Appendices, April 1982. (NOT AVAILABLE)
- HPP 82-41 E.H. Shortliffe, and B. Buchanan; MYCIN Projects Annual Report (1981-82), May 1982. (NOT AVAILABLE)
- HPP 82-42 E.H. Shortliffe, and M.R. Genesereth; EXPEX Project Annual Report, May 1982. (NOT AVAILABLE)
- HPP 82-43 A.C. Scott, M.B. Bischoff, C.D. Jacobs, and E.H. Shortliffe; ONCOCIN: A

Cancer Protocol Consultant, in Proceedings of the Workshop on the Role of Computers in Cancer Clinical Trials, pp. 81-89, National Cancer Institute, Bethesda, MD., July 1982, 14 pages. (NIH Publication No. 83-2627)

HPP 82-44

C.P. Langlotz; An Explanation System to Critique Therapy Plans Offered to ONCOCIN by Physicians, project internal memo, June 1982. (NOT AVAILABLE)

- HPP 83-1 E.H. Shortliffe; Hypothesis Generation in Medical Consultations Systems: Artificial Intelligence Approaches, in *Medinfo '83*, pp. 480-483, 1983. 16 pages
- HPP 83-2 Langlotz, Curtis, and E.H. Shortliffe; Adapting a Consultation System to Critique User's Plans, in *International Journal of Man-Machine Studies 19*, pp. 479-496, 1983. 21 pages
- Wm. J. Clancey; Communication, Simulation & Intelligent Agents: Implications of Personal Intelligent Machines for Medical Education, to appear in Proceedings of the American Association for Medical Systems & Informatics, 1983. 6 pages
- HPP 83-4 Paul Cohen, and Mark D. Lieberman; A Report on FOLIO: An Expert Assistant for Portfolio Managers, in IJCAI-83, May 1983. 10 pages
- HPP 83-5 STAN-CS-83-986. Paul Cohen, and Milton R. Grinberg; A Theory of Heuristic Reasoning About Uncertainty, in AI Magazine, Summer/Fall, May 1983. 9 pages
- HPP 83-6 Shoko Tsuji, and Edward H. Shortliffe; Graphical Access to the Knowledge Base of a Medical Consultation System, in *Proceedings of AAMSI Congress* '83, pp. 551-555, May 1983. 10 pages
- R.L. Blum; Discovery, Confirmation, & Incorporation of Causal Relationships From a Large Time-Oriented Clinical Database: The RX Project, in Computers and Biomedical Research 15, pp. 164-187, 1982. 23 pages
- HPP 83-8

 R.L. Blum; Representation of Empirically Derived Causal Relationships, submitted to IJCAI-83, January 1983. 11 pages
- HPP 83-9 Derek H. Sleeman; Basic Algebra Revisited: A Study With 14 Year Olds, to appear in International Journal of Man-Machine Studies, 1983. 36 pages
- HPP 83-10 Does not Exist
- HPP 83-11 Derek H. Sleeman; An Attempt to Understand Pupils' Understanding of Basic Algebra, February 1983. 49 pages
- HPP 83-12 Scott Meyers; A Simulator for Regulatory Genetics and its Application to Bacteriophage Lambda, March 1983, in Nucleic Acids Research 12, No. 1, pp. 1-9, 1984. 10 pages
- HPP 83-13 E.H. Shortliffe; The Science of Bio-Medical Computing, in Meeting The Challenge: Informatics & Medical Education, pp. 1-10, Amsterdam, North Holland, 1983. 12 pages

- 39 M. Bischoff, E.H. Shortliffe, A.C.Scott, R.W. Carlson, and Charlotte D. Jacobs; HPP 83-14 Integration of a Computer-Based Consultant into the Clinical Setting, March 1983, in Proceedings of the 7th Annual Symposium on Computer Applications in Medical Care, pp. 149-152, October 1983. 15 pages Gordon S. Novak, Jr.; Knowledge-Based Programming Using Abstract Data **HPP 83-15** Types, March 1983, in Proceedings of the AAAI, pp. 288-291, August 1983. 5 pages Gordon Foyster; Behavioral Specialization and Verification Within a VLSI **HPP 83-16** Design System, April 1983. 23 pages STAN-CS-83-995. Wm. J. Clancey; The Advantages of Abstract Control HPP 83-17 Knowledge in Expert System Design, submitted to AAAI-83, 1983. 14 pages Diane Warner Hasling; Abstract Explanations of Strategy in a Diagnostic HPP 83-18 Consultation System, in AAAI Proceedings, pp. 157-161, 1983. 6 pages Allan Terry; The CRYSALIS Project: Hierarchical Control of Production HPP 83-19 Systems, April 1983, 127 pages Jeffrey S. Rosenschein, and Vineet Singh; The Utility of Meta-Level Effort, HPP 83-20 April 1983. 16 pages David E. Smith, and Michael R. Genesereth; Finding All of the Solutions to a HPP 83-21 Problem: Serious Applications of Meta-Level Reasoning II, April 1983. 19 pages Thomas G. Dietterich, and Bruce G. Buchanan; The Role of Experimentation HPP 83-22 in Theory Formation, in Proceedings of the International Workshop on Machine Learning, Univ. of Illinois at Urbana-Champaign, pp. 147-155, June 1983. 26 pages John Kunz, E.H. Shortliffe, Bruce G. Buchanan, and E.A. Feigenbaum; HPP 83-23 Computer-Assisted Decision Making in Medicine, April 1983, in the Journal of Philosophy and Medicine 9, pp. 135-160, 1984. 32 pages
 - HPP 83-24 James Bennett; Roget: A Knowledge-Based System for Acquiring the Conceptual Structure of an Expert System, October 1983. 46 pages
 - HPP 83-25

 Bruce G. Buchanan; Introduction to the Memo Series of the Stanford Artificial Intelligence Laboratory, New York: Comtex Scientific Corp., in The AI Magazine, pp. 37-42, Winter 1983. 7 pages
 - HPP 83-26 Michael R. Genesereth; MRS Casebook, May 1983. 25 pages

HPP 83-27 Thomas D. Dietterich, and Ryszard S. Michalski; Discovering Patterns in Sequences of Objects, in Proceedings of the International Workshop on Machine Learning, pp. 41-75, June 1983. 48 pages HPP 83-28 Michael R. Genesereth; A Meta-Level Representation System, May 1983. 115 pages (This Report Consists of Four: HPP 80-24, HPP 82-27, HPP 83-26 and HPP 84-1) HPP 83-29 M. Grinberg; MRS Installation Instructions, May 1983. (This Report is Available Only to Those Who Have Purchased the MRS Software System) HPP 83-30 Barbara Hayes-Roth; The Blackboard Architecture: A General Framework for Problem Solving, May 1983. 31 pages STAN-CS-83-984. Harold Brown, Christopher Tong, and Gordon Foyster; Palladio: An Exploratory Environment for IC Design, June 1983, in IEEE HPP 83-31 Computer-83, pp. 41-56, (0018-9162/83/1200-0041), 17 pages HPP 83-32 John Kunz, E.A.Feigenbaum, Bruce G. Buchanan, and E.H. Shortliffe: Comparison of Techniques of Computer-Assisted Decision Making in Medicine, in Modeling and Analysis in Biomedicine, World Press, Singapore, June 1984. 44 pages HPP 83-33 Nelleke Aiello; A Comparative Study of Control Strategies for Expert Systems: AGE Implementation of Three Variations of PUFF, in AAAI, p. 1, 1983. 18 pages HPP 83-34 Jock Mackinlay; Intelligent Presentation: The Generation Problem for User Interfaces, March 1983 33 pages HPP 83-35 Armin Haken; Interactive Plan Debugger, Practium Project Report, June 1983. 47 pages HPP 83-36 Russell Greiner, and Michael R. Genesereth; What's New? A Semantic Definition of Novelty, in Proceedings of the IJCAI-83, June 1983. 15 pages Robert Joyce; Reasoning About Time-Dependent Behavior in a System for HPP 83-37 Diagnosing Digital Hardware Faults, August 1983. 64 pages HPP 83-38 Barbara Hayes-Roth; The Blackboard Model of Control, August 1983. 85 pages HPP 83-39 (Working Paper) Jerry Yan, Gordon Foyster, and Harold Brown; An Expert System for Assigning Mask Levels to Interconnect in Integrated Circuits, October 1983. 6 pages + HPP 83-40 STAN-CS-83-998. Benoit Mulsant, and David Servan-Schreiber: Knowledge

Engineering: A Daily Activity on a Hospital Ward, October 1983, in Computers & Biomedical Research 17, pp. 71-91, 1984. 42 pages

- HPP 83-41 STAN-CS-83-996. Diane Warner Hasling, William Clancey, and Glenn Rennels; Strategic Explanations for a Diagnostic Consultation System, in AAAI Proceedings 1983, pp. 157-161. Also in International Journal of Man-Machine Studies 20, pp. 3-19, 1984. 32 pages
- HPP 83-42 STAN-CS-83-997. Wm. J. Clancey; GUIDON, in the Journal of Computer-Based Instruction, Summer 1983, Vol. 10, No. 1 & 2, pp. 8-15, 1983. 8 pages
- HPP 83-43 Narinder Singh; MARS: A Multiple Abstraction Rule-Based System, December 1983. 44 pages
- H. Penny Nii; Signal-to-Symbol Transformation: Reasoning in the HASP/SIAP Program, December 1983, in Al Magazine 8. Also in IEEE Acoustics, Speech & Signal Processing, Spring, 1984. 18 pages
- HPP 83-45 Christopher Tong; A Framework for Circuit Design, December 1983. 18 pages
- HPP 83-46

 J.J. Finger, and Michael Genesereth; RESIDUE A Deductive Approach to Design, December 1983. 11 pages
- HPP 83-47 E.H. Shortliffe; Problems in Implementing the Computer for Continuing Education, in *Mobius*, 3:52-55, 1983. 8 pages
- HPP 83-48

 J.S. Aikins; Prototypical Knowledge for Expert Systems, in Artificial Intelligence, 20(2), pp. 163-210, 1983. 49 pages
- HPP 83-49 E.H. Shortliffe; ONCOCIN Annual Report (1982-1983), May 1983. (NOT AVAILABLE)
- HPP 83-50 Stanford University, Heuristic Programming Project: Artificial Intelligence Research in the Heuristic Programming Project, in AI Magazine, IV-3, pp. 81-92, Fall, 1983. 12 pages
- HPP 83-51 Peter E. Friedland, Paul Armstrong, and Thomas Kehler; The Role of Computers in Biotechnology, in Bio/Technology, September 1983. 16 pages

- HPP 84-1 Michael R. Genesereth Partial Programs, January 1984. 31 pages (Replaces HPP 81-6)
- Wm. J. Clancey; Acquiring, Representing, and Evaluating a Competence Model of Diagnostic Strategy, February 1984. To appear in: Chi, Glaser, and Farr (eds.), The Nature of Expertise, 1985. 79 pages
- HPP 84-3 Gordon Foyster; A Knowledge-Based Approach to Transistor Sizing, March 1984. 14 pages
- HPP 84-4 STAN-CS-85-1037. Jock Mackinlay, and Michael R. Genesereth; Expressiveness and Language Choice, March 1984. This report appeared in AAAI-84 under the title "Expressiveness of Language," 18 pages
- HPP 84-5 Jeffrey Rosenschein, and Michael R. Genesereth; Communication and Cooperation, March 1984. 23 pages
- HPP 84-6 STAN-CS-85-1063. D.E. Smith, Michael R. Genesereth and Matthew L. Ginsberg; Controlling Recursive Inferences, June 1985.
- HPP 84-7 William J. Clancey; Classification Problem Solving, July 1984. To appear in: AAAI-84, 24 pages
- HPP 84-8 (Not Finished) R. Griener, and M. Genesereth; The Role of Abstractions in Understanding Analogy, April 1984.
- (Working Paper) David H. Hickam, Edward H. Shortliffe, Miriam B. Bischoff, A.Carlisle Scott, and Charlotte D. Jacobs; Evaluation of the ONCOCIN System: A Computer-Based Treatment Consultant for Clinical Oncology, (1) The Quality of Computer-Generated Advice and (2) Improvements in the Quality of Data Management, May 1984.
- HPP 84-10 Thomas G. Dietterich; Learning About Systems That Contain State Variables, June 1984, to be published in *Proceedings of AAAI-84*, August 1984. 16 pages
- HPP 84-11 (Not Finished) M. Genesereth, and D.E. Smith; Procedural Hints in the Control of Reasoning, May 1984.
- HPP 84-12 Derek H. Sleeman; UMFE: A User Modelling Front End Subsystem, April 1984. 25 pages
- HPP 84-13 Eric J. Horvitz, David E. Heckerman, Bharat N. Nathwani, and Lawrence M. Fagan; Diagnostic Strategies in the Hypothesis-Directed PATHFINDER System, June 1984, submitted to the First Conference on Artificial Intelligence Applications, Denver, CO., December 5-7, 1984. 8 pages

- Wineet Singh, and M. Genesereth; A Variable Supply Model for Distributing Deductions, November 1985, shorter version in *Proceedings of IJCAI-85*, August 1985. 41 pages
- HPP 84-15 Bruce G. Buchanan; Expert Systems, July 1984, to be published in the Journal of Automated Reasoning, Vol. 1, No. 1, Fall, 1984. 12 pages
- HPP 84-16 STAN-CS-84-1034. Barbara Hayes-Roth; BB-1: An Architecture for Blackboard Systems That Control, Explain, and Learn About Their Own Behavior, December 1984. 23 pages
- HPP 84-17 M.L. Ginsberg; Analyzing Incomplete Information, 1984. 33 pages
- HPP 84-18 William J. Clancey; Knowledge Acquisition for Classification Expert Systems, July 1984. To appear in: *Proceedings of ACM-84*, 1984. 11 pages
- HPP 84-19 E.H. Shortliffe; Coming to Terms With the Computer. To appear in: S.R. Reiser, and M. Anbar (eds.), The Machine at the Bedside: Strategies for Using Technology in Patient Care, Cambridge University Press, 1984. 11 pages
- HPP 84-20 E.H. Shortliffe; Artificial Intelligence and the Future of Medical Computing, in Proceedings of a Symposium on Computers in Medicine, annual meeting of the California Medical Association, Anaheim, CA., February 1984. 6 pages
- HPP 84-21 E.H. Shortliffe; Reasoning Methods in Medical Consultation Systems: Artificial Intelligence Approaches (Tutorial), in Computer Programs in Biomedicine (in press), January 1984. 9 pages
- HPP 84-22 ONCOCIN Project: Studies to Evaluate the ONCOCIN System; 6 Abstracts, February 1984. 7 pages
- HPP 84-23 Edward H. Shortliffe; Feature Interview: On the MYCIN Expert System, in Computer Compacts, 1:283-289, December 1983/January 1984. 9 pages
- HPP 84-24

 B.G. Buchanan, and E.H. Shortliffe; Rule-Based Expert Systems: The MYCIN Experiments of the Stanford Heuristic Programming Project, published with Addison-Wesley, Reading, MA., 1984. (BOOK NOT AVAILABLE AT KSL)
- W.J. Clancey, and E.H. Shortliffe; Readings in Medical Artificial Intelligence: The First Decade, published with Addison-Wesley, Reading, MA., 1984. (BOOK NOT AVAILABLE AT KSL)
- HPP 84-26 E.H. Shortliffe; ONCOCIN Annual Report (1983-1984), April 1984. (NOT AVAILABLE)

Edward H. Shortliffe; Explanation Capabilities for Medical Consultation HPP 84-27 Systems (Tutorial), May 1984. Appears in: D. Lindberg, and M. Collen (eds.), Proceedings of AAMSI Congress 84, pp. 193-197. San Francisco. May 21-23, 1984, 7 pages HPP 84-28 E.H. Shortliffe, and L.M. Fagan; Artificial Intelligence: The Expert Systems Approach to Medical Consultation, June 1984. Appears in: Proceedings of the 6th Annual International Symposium on Computers in Critical Care and Pulmonary Medicine. Heidelberg, Germany. June 4-7, 1984. 14 pages David C. Wilkins, Bruce G. Buchanan, and William J. Clancey; Inferring an HPP 84-29 Expert's Reasoning by Watching, June 1984. To appear in: Proceedings of the 1984 Conference on Intelligent Systems and Machines. 9 pages HPP 84-30 M.L. Ginsberg; Non-Monotonic Reasoning Using Dempster's Rule, June 1984. 12 pages HPP 84-31 M.L. Ginsberg; Implementing Probabilistic Reasoning, June 1984. 9 pages HPP 84-32 Bruce G. Buchanan; Artificial Intelligence: Toward Machines That Think, July 1984, in Yearbook of Science and the Future, pp. 96-112, Encyclopedia Britannica, Inc., Chicago, 1985. 17 pages Rene Bach, Yumi Iwasaki, and Peter Friedland; Intelligent Computational HPP 84-33 Assistance for Experiment Design, January 1984. Appears in Nuclear Acids Research. 22 pages HPP 84-34 Gordon Foyster: Helios: User's Manual, August 1984. 18 pages Jean Gordon, and Edward Shortliffe: A Method for Managing Evidential HPP 84-35 Reasoning in a Hierarchical Hypothesis Space, September 1984, 34 pages HPP 84-36 Michael R. Genesereth, Matt Ginsberg, and Jeff S. Rosenschein; Cooperation Without Communication, September 1984. 22 pages HPP 84-37 Narinder Singh: Corona: A Language for Describing Designs, September 1984. 75 pages HPP 84-38 Li-Min Fu, and Bruce G. Buchanan; Enhancing Performance of Expert Systems by Automated Discovery of Meta-Rules, September 1984. 21 pages

Paul S. Rosenbloom, John E. Laird, John McDermott, Allen Newell, and HPP 84-39 Orciuch: R1-Soar: An Experiment in Knowledge-Intensive Programming in a Problem-Solving Architecture, October 1984. To appear in the Proceedings of the IEEE Workshop on Principles of Knowledge-Based Systems, 17 pages (PLEASE SEND ALL REQUESTS FOR THIS REPORT DIRECTLY TO: Carnegie-Mellon University, Computer Science Department, Pittsburgh, PA 15213) (Not Finished) H. Penny Nii; Advanced Architectures Project: HPP 84-40 Scope & Approach HPP 84-41 STAN-CS-84-1032. Michael R. Genesereth, Matthew L. Ginsberg, and Jeffrey S. Rosenschein; Solving the Prisoner's Dilemma, December 1984. 13 pages HPP 84-42 Matthew L. Ginsberg; Does Probability Have a Place in Non-Monotonic Reasoning? submitted to the IJCAI-85, December 1984, 14 pages HPP 84-43 STAN-CS-84-1029. Matthew L. Ginsberg: Counterfactuals, November 1985. Submitted to the IJCAI-85, 57 pages HPP 84-44 Jeffrey S. Rosenschein, and Michael R. Genesereth; Deals Among Rational Agents, December 1984. Submitted to the IJCAI-85 26 pages HPP 84-45 [(Not Finished) Devika Subramanian, and Michael R. Genesereth; Experiment Generation with Version Spaces. **HPP 84-46** (Thesis) Thomas G. Dietterich; Constraint Propagation Techniques for Theory-Driven Data Interpretation, December 1984. To be published as a book by Kluwer. 179 pages HPP 84-47 (Not Finished) J. J. Finger, and Michael R. Genesereth; RESIDUE: A Deductive Approach to Sysnthesis of Designs, HPP 84-48 (Thesis) STAN-CS-84-1031. Gregory F. Cooper; NESTOR: A Computer-Based Medical Diagnostic Aid That Integrates Causal and Probabilistic Knowledge, December 1984. 255 pages

John Haggerty; REFEREE and RULECRITIC: Two Prototypes for Assessing

the Quality of a Medical Paper, June 1984. 51 pages

HPP 84-49

KSL 85-1 STAN-CS-85-1035. J.J. Finger, and Michael R. Genesereth; RESIDUE: A Deductive Approach to Design Synthesis. Submitted to the: IJCAI-85, January 2, 1985. 20 pages KSL 85-2 STAN-CS-85-1036. Barbara Hayes-Roth, and Micheal Hewett; Learning Control Heuristics in BB1. Submitted to the: IJCAI-85, January 1985. 13 pages (Working Paper) Reid G. Smith, Howard A. Winston, Tom M. Mitchell, and KSL 85-3 Bruce G. Buchanan; Representation and Use of Explicit Justifications for Knowledge Base Refinement, January 1985. Submitted to the: Conference Proceedings for 1985. 18 pages KSL 85-4 (Working Paper) Li-Min Fu, and Bruce G. Buchanan; Learning Intermediate Concepts in Constructing a Hierarchical Knowledge Base, January 1985. Submitted to the: IJCAI Conference Proceedings for 1985. 22 pages KSL 85-5 STAN-CS-85-1066. William J. Clancey; Heuristic Classification, March 1985. To appear in: Journal of Artificial Intelligence. 64 pages KSL 85-6 Peter E. Friedland, and Yumi Iwasaki; The Concept and Implementation of Skeletal Plans. Published in the: Journal of Automated Reasoning, 1985. 57 pages KSL 85-7 Rene Bach, Yumi Iwasaki, and Peter Friedland; Intelligent Computational Assistance for Experiment Design. Published in: Nucleic Acids Research, 1985. 23 pages KSL 85-8 (Working Paper) M.G. Kahn, J. Ferguson, E.H. Shortliffe, and L. Fagan; Representation and Use of Temporal Information in ONCOCIN, March 1985. Appears in: Proceedings of the 9th SCAMC, pages 172-176, 1985. 9 pages KSL 85-9 (Not Finished) Peter Friedland, and Bruce Buchanan; ARPA Final Report KSL 85-10 Curtis Langlotz, Lawrence Fagan, Samson Tu, John Williams, and Branimir Sikic; ONYX: An Architecture for Planning in Uncertain Environments, May 1985. 7 pages KSL 85-11 Shoko Tsuji, Edward H. Shortliffe; Graphics for Knowledge Engineers: Window on Knowledge Base Management, April 1985. 23 pages STAN-CS-85-1080. Stuart J. Russell; The Compleat Guide to MRS, June 1985. KSL 85-12 121 pages

KSL 85-13

Does Not Exist

- KSL 85-14 Mathew L. Ginsberg; Implementing Probabilistic Reasoning, April 1985. 12 pages
- KSL 85-15 Lane, Differding, and Shortliffe; Graphical Access to Medical Expert Systems: II. Design of an Interface for Physicians, July 1985. 22 pages
- KSL 85-16 (Working Paper) William J. Clancey and Conrad Bock; Representing Control Knowledge as Abstract Tasks and Metarules, August 1986. To appear in: Computer Expert Systems, M.Coombs and L. Bolc (eds.), Springer Verlag. 81 pages
- KSL 85-17 Mark Musen, Curtis Langlotz, Lawrence Fagan, and Edward Shortliffe; Rationale for Knowledge Base Redesign in a Medical Advice System, April 1985. 6 pages
- Vineet Singh, and Michael Genesereth; PM: A Parallel Execution Model for Backward-Chaining Deductions, June 1986. To appear in: Future Computing Systems, 1985. 34 pages
- Mark H. Richer; An Evaluation of Expert System Development Tools, June 1986. To appear in: Expert Systems, 1986. 27 pages
- KSL 85-20 STAN-CS-85-1068. Mark H. Richer and William J. Clancey; GUIDON-WATCH: A Graphic Interface for Browsing and Viewing a Knowledge Based System, September 1985. To appear in: IEEE Computer Graphics and Applications, November 1985. 33 pages
- D.H. Hickam, E.H. Shortliffe, M.B. Bischoff, A.C. Scott, C.D. Jacobs; A Study of the Treatment Advice of a Computer-Based Cancer Chemotherapy Protocol Advisor, July 1985. To appear in the: Annals of Internal Medicine, 1985. 34 pages
- KSL 85-22 D.L. Kent, E.H. Shortliffe, R.W. Carlson, M.B. Bischoff, C.D. Jacobs; Improvements in Data Collection Through Physician Use of a Computer-Based Chemotherapy Treatment Consultant, May 1985. 20 pages
- KSL 85-23 (Working Paper) David Heckerman; Probabilistic Interpretations for MYCIN's Certainty Factors, May 1985. 28 pages
- KSL 85-24 Penny Nii; Research on Blackboard Architectures at the Heuristic Programming Project, May 1985. 11 pages
- KSL 85-25 STAN-CS-85-1064. Mathew L. Ginsberg; Decision Procedures, September 1985. 22 pages
- KSL 85-26 David C. Wilkins, William J. Clancey, & Bruce G. Buchanan; An Overview of the Odysseus Learning Apprentice, August 1985. Machine Learning: A Guide to Current Research, Acedemic Press, 1986. 4 pages

- KSL 85-27 (Working Paper) G.D. Rennels, E.H. Shortliffe; Medical Advice Systems. May 1985. To appear in: Encyclopedia of Artificial Intelligence, published by John Wiley & Sons. 16 pages
- KSL 85-28 (Working Paper) E.H. Shortliffe; The State of the Art of the Science. To appear in: Proceedings of the Conference on Medical Information Sciences, U. of Texas Health Science Center at San Antonio, July 1985. 10 pages
- KSL 85-29 Michael G. Walker, Robert Blum, and Lawrence M. Fagan; MINIMYCIN: A Miniature Rule-Based System. Published in: Clinical Computing, Vol. 2, No. 4, 1985. 8 pages
- KSL 85-30 Differing, Combs, Musen, Lane, Fagan, & Shortliffe; Graphical Access to Medical Expert Systems: III Design of a Knowledge Aquisition Environment, August 1985.
- KSL 85-31 William J. Clancey; Review of Sowa's "Conceptual Structures", August 1985. To appear in the: Journal of Artificial Intelligence, 1985. 12 pages
- KSL 85-32 Timothy F. Thompson and William J. Clancey; A Qualitative Modeling Shell For Process Diagnosis, March 1986. To appear in: IEEE Software, March 1986. 12 pages
- KSL 85-33 James F. Brinkley; Knowledge Driven Ultrasonic Three-Dimensional Organ Modelling, August 1985. Published in: IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. PAMI-7, No. 4, pp 431-441. July 1985. 11 pages
- John Laird, Paul Rosenbloom, & Allen Newell; Chunking in SOAR: The Anatomy of a General Learning Mechanism, September 1985. To Appear in: Machine Learning, Vol. 1, No. 1. Also appears as Xerox PARC ISL-13 and CMU-CS-85-154. 34 pages
- KSL 85-35

 Barbara Hayes-Roth, Bruce Buchanan, Olivier Lichtarge, Micheal Hewett, Russ Altman, James Brinkley, Craig Cornelius, Bruce Duncan, and Oleg Jardetzky; Elucidating Protein Structure from Constraints in PROTEAN, October 1985. Submitted for publication to: Insight Series in Applied AI. 29 pages
- KSL 85-36 (Working Paper) Peter Karp; Thesis Proposal: Qualitative Simulation and Discovery in Molecular Biology, September 1985. 31 pages
- KSL 85-37 STAN-CS-86-1094. Bruce G. Buchanan; EXPERT SYSTEMS: Working Systems and the Research Literature, December 1985. Appears in: Expert Systems. 55 pages
- KSL 85-38 STAN-CS-85-1076. Bruce G. Buchanan; Some Approaches to Knowledge Acquisition, October 1985. Appears in: Proceedings of the Third Int. Workshop on Machine Learning. 5 pages

- KSL 85-39 (Working Paper) Glenn D. Rennels, Edward H. Shortliffe and Perry L. Miller; A Model of Choice and Explanation in Medical Management, October 1985. Appears in: Computers and Biomedical Research. 17 pages
- KSL 85-40 (Thesis) STAN-CS-85-1081. Jeffrey S. Rosenschein; Rational Interaction: Cooperation Among Intelligent Agents, October 1985. 133 pages
- KSL 85-41 STAN-CS-86-1115. Bruce Buchanan, Russ Altman, James Brinkley, Craig Cornelius, Bruce Duncan, Barbara Hayes-Roth, Micheal Hewett, Olivier Lichtarge, Oleg Jardetzky; The Heuristic Refinement Method for Deriving Solution Structures of Proteins, March 1986. 10 pages
- KSL 85-42 STAN-CS-86-1116. Li-Min Fu and Bruce G. Buchanan; Inductive Knowledge Acquisition for Rule-Based Expert Systems, October 1985. Submitted for publication: Artificial Intelligence. 34 pages
- KSL 85-43 (Working Paper) Robert L. Blum; Two Stage Regression: Application to a Time-Oriented Clinical Database, October 1985. To appear in: Statistics in Medicine. 27 pages
- KSL 85-44 (Thesis) STAN-CS-86-1091. Li-Min Fu; Learning Object-Level and Meta-Level Knowledge in Expert Systems, November 1985. 229 pages
- KSL 85-46 (Working Paper) Richard Treitel and Michael R. Genesereth; Choosing Directions for Rules, March 1986. Submitted for publication to: Journal of Automated Reasoning. 36 pages
- KSL 85-49 (Working Paper) Jean-Luc Brouillet; The BASS Report: An Expert System for Budget Management, June 1985. 46 pages
- KSL 85-50 (Journal Memo) G.D. Rennels, E.H. Shortliffe, F.E. Stockdale and P.L. Miller; Reasoning from the Clinical Literature: a "Distance" Metric, November 1985. To appear in: *Proceedings of AAMSI Congress* 86, Anaheim, CA, May 1986. 6 pages
- KSL 85-51 (Journal Memo) M.A. Musen, J.A. Rohn, L.M. Fagan and E.H. Shortliffe; Knowledge Engineering for a Clinical Trial Advice System: Uncovering Errors in Protocol Specification, November 1985. To appear in: Proceedings of AAMSI Congress 86, Anaheim, CA, May 7-10, 1985. 5 pages
- KSL 85-52 (Journal Memo) C.P. Langlotz, L.M. Fagan and E.H. Shortliffe; Overcoming Limitations of Artificial Intelligence Planning Techniques, November 1985. To appear in: *Proceedings of AAMSI Congress* 86, Anaheim, CA, May 8-10, 1986. 5 pages
- KSL 85-53 (Journal Memo) M.A. Musen, L.M. Fagan and E.H. Shortliffe; Graphical Specification of Procedural Knowledge for an Expert System, December 1985. To: 2nd IEEE Computer Society Workshop on Visual Languages, Dallas, TX, June 1986. 18 pages

STAN-CS-86-1093. Devika Subramanian and Bruce G. Buchanan; A General KSL 85-54 Reading List for Artificial Intelligence, December 1985. 63 pages C.P. Langlotz, L.M. Fagan, S.W. Tu and B.I. Sikic; A Therapy Planning KSL 85-55 Architecture that Combines Decision Theory and Artificial Intelligence Techniques, November 1986. 31 pages (Journal Memo) D.M. Combs, M.A. Musen, L.M. Fagan and E.H. Shortliffe; KSL 85-56 Graphical Entry of Procedural and Inferential Knowledge, December 1985. To appear in: AAMSI 86 5 pages (Journal Memo) E. Horvitz and D. Heckerman; The Inconsistent Use of KSL 85-57 Measures of Certainty in Artificial Intelligence Research, August 1985. To appear in: Uncertainty in Artificial Intelligence 15 pages KSL 85-58 (Journal Memo) C.D. Lane, M.E. Frisse, L.M. Fagan, and E.H. Object-Oriented Graphics in Medical Interface Design, December 1985. To appear in: AAMSI-86 5 pages (Working Paper) Allan Terry; Using Explicit Strategic Knowledge to Control KSL 85-59 Expert Systems, December 1985. Submitted for publication in: Artificial Intelligence 51 pages KSL 85-60 (Working Paper) Jean-Luc Bonnetain; FLOWER: A First Cut at Designing a

Budget Proposal, September 1985. 28 pages

- KSL 86-1 (Journal Memo) M.A. Musen, L.M. Fagan, D.M. Combs and E.H. Shortliffe; Facilitating Knowledge Entry for an Oncology Therapy Advisor Using a Model of the Application Area, January 1986. Submitted for publication to: Proceedings, MEDINFO 86. 9 pages
- KSL 86-2 (Journal Memo) E. Horvitz, D. Heckerman, B. Nathwani and L. Fagan; The Use of a Heuristic Problem-Solving Hierarchy to Facilitate the Explanation of Hypothesis-Directed Reasoning, January 1986. Submitted for publication to: Proceedings, MEDINFO 86. 5 pages
- KSL 86-3 (Journal Memo) C.P. Langlotz, L.M. Fagan, S.W. Tu, B.I. Sikic and E.H. Shortliffe; Combining Artificial Intelligence and Decision Analysis for Automated Therapy Planning Assistance, January 1986. Submitted for publication to: Proceedings, MEDINFO 86. 5 pages
- KSL 86-4 (Journal Memo) M.G. Kahn, L.M. Fagan and E.H. Shortliffe; Context-Specific Interpretation of Patient Records for a Therapy Advice System, January 1986. Submitted for publication to: *Proceedings*, MEDINFO 86. 5 pages
- KSL 86-5 (Journal Memo) G.D. Rennels, E.H. Shortliffe, F.E. Stockdale and P.L. Miller; Reasoning from the Clinical Literature: The Roundsman System, January 1986. Submitted for publication to: *Proceedings*, *MEDINFO* 86. 5 pages
- KSL 86-6 (Journal Memo) S.M. Downs, M.G. Walker and R.L. Blum; Automated Summarization of On-Line Medical Records, January 1986. Submitted for publication to: *Proceedings*, MEDINFO 86. 5 pages
- KSL 86-7 (Journal Memo) M.G. Walker and R.L. Blum; Towards Automated Discovery from Clinical Databases: the RADIX Project, January 1986. Submitted for publication to: MEDINFO 86 5 pages
- KSL 86-8 (Journal Memo) D. Heckerman and R.A. Miller; Towards a Better Understanding of the INTERNIST-1 Knowledge Base, January 1986. To appear in: MEDINFO 86 5 pages
- KSL 86-9 (Journal Memo) Gregory F. Cooper; A Diagnostic Method That Uses Casual Knowledge and Linear Programming in the Application of Bayes' Formula, January 1986. Submitted for publication to: Computer Methods and Programs in Biomedicine. 24 pages
- KSL 86-10 (Working Paper) James Rice; The Poligon User's Manual, February 1986. 68 pages
- William J. Clancey; From Guidon to Neomycin and Heracles in Twenty Short Lessons, February 1986. 48 pages
- KSL 86-14 STAN-CS-86-1126. Byron Davies; CAREL: A Visible Distributed Lisp, March 1986. 15 pages

KSL 86-15 William J. Clancey; Qualitative Student Models, February 1986. Submitted for publication to: First Annual Review of Computer Science. 88 pages KSL 86-16 (Working Paper) David Heckerman; An Axiomatic Framework for Belief Updates, February 1986. 6 pages KSL 86-17 Robert S. Engelmore & Craig W. Cornelius; Heuristic Programming Project. October 1982 - September 1985, Final Report, February 1986, 16 pages KSL 86-18 STAN-CS-86-1123. H. Penny Nii; Blackboard Systems, June 1986. To appear in: AI Magazine Vols. 7-2 and 7-3, 86 pages KSL 86-19 (Working Paper) J.P. Rice; Poligon, A System for Parallel Problem Solving, April 1986. To appear in: DARPA proceedings, Asilomar 1986. 16 pages KSL 86-20 J.R. Delaney; Multi-System Report Integration Using Blackboards, March 1986. Submitted for publication to: 1986 American Control Conference. 12 pages KSL 86-22 STAN-CS-86-1125. Eric Schoen; The CAOS System, March 1986. 69 pages KSL 86-24 (Journal Memo) M.A. Musen, L.M. Fagan, D.M. Combs, and E.H. Shortliffe: Using a Domain Model to Drive An Interactive Knowledge Editing Tool, September 1986. To appear in: Proceedings of AAAI Workshop on Knowledge Acquisition, 1986 12 pages KSL 86-25 (Journal Memo) E.J. Horvitz, D.E. Heckerman, and C.P. Langlotz: A Framework for Comparing Alternative Formalisms for Plausible Reasoning, May 1986. 5 pages (Working Paper) C.P. Langlotz, E.H. Shortliffe and L.M. Fagan; Using Decision Theory to Justify Heuristics, March 1986. Submitted for publication KSL 86-26 to: AAAI-86 15 pages KSL 86-27 (Working Paper) William J. Clancey; The Science and Engineering of Qualitative Models, March 1986. Submitted for publication to: AAAI-86, Science Track: Applications, Philosophical and Scientific Foundations. 20 pages (Working Paper) James Brinkley, Craig Cornelius, Russ Altman, Barbara Hayes-Roth, Olivier Lichtarge, Bruce Duncan, Bruce Buchanan, Oleg KSL 86-28 Jardetzky; Application of Constraint Satisfaction Techniques to the Determination of Protein Tertiary Structure, March 1986. 14 pages KSL 86-29 (Working Paper) Matthew L. Ginsberg; Multi-valued logics, April 1986. To

appear in: AAAI - 86 13 pages

- KSL 86-30 (Working Paper) David C. Wilkins & Bruce G. Buchanan; On Debugging Rule Sets When Reasoning Under Uncertainty, April 1986. Submitted for publication to: AAAI-86. 14 pages
- KSL 86-31 (Working Paper) Nelleke Aiello; User-Directed Control of Parallelism; The CAGE System, April 1986. To appear in: DARPA Proceedings of April 1986. 12 pages
- KSL 86-32 (Working Paper) Peter D. Karp & David C. Wilkins; An Analysis of the Deep/Shallow Distinction for Expert Systems, April 1986. Submitted for publication to: AAAI-86. 18 pages
- KSL 86-33 (Journal Memo) David E. Heckerman and Eric J. Horvitz; The Myth of Modularity in Rule-Based Systems, May 1986. 7 pages
- KSL 86-34 (Working Paper) William J. Clancey, Mark Richer, David C. Wilkins, Steve Barnhouse, Curt Kapsner, David Leserman, John Macias, Arif Merchant and Naomi Rodolitz; Guidon-Debug: The student as knowledge engineer, April 1986. 17 pages
- KSL 86-35 (Working Paper) Michael G. Walker; How Feasible is Automated Discovery? April 1986. Submitted for publication to: IEEE Expert. 24 pages
- KSL 86-36 STAN-CS-. Bruce A. Delagi, Nakul Saraiya, Sayuri Nishimura, and Greg Byrd; An Instrumented Architectural Simulation System, January 1987. 21 pages
- KSL 86-37 (Working Paper) Matthew L. Ginsberg; Possible Worlds Planning, April 1986. Submitted for publication to: 1986 Planning Workshop 13 pages
- KSL 86-38 STAN-CS- Barbara Hayes-Roth, M. Vaughan Johnson Jr., Alan Garvey, and Micheal Hewett; A Layered Environment for Reasoning about Action, November 1986. To appear in: the Journal of Artificial Intelligence in Engineering, Special Issue on Blackboard Systems, October 1986. 78 pages
- KSL 86-39 (Journal Memo) E.H. Shortliffe; Artificial Intelligence in Management Decisions: ONCOCIN, April 1986. To appear in: Proceedings of a Conference on Medical Infromation Sciences, University of Texas Health Sciences Center at San Antonio, July 1985. Also in Frontiers of Medical Information Sciences, Praeger Publishing, 1986. 14 pages
- KSL 86-40 (Journal Memo) Christopher Lane; The Ozone Manual, July 1986. 34 pages
- KSL 86-41 (Working Paper) H. Penny Nii; CAGE and POLIGON: Two Frameworks for Blackboard-based Concurrent Problem Solving, April 1986. To appear in: DARPA Proceedings, Asilomar 1986 8 pages

(Working Paper) Oleg Jardetzky, Andrew Lane, Jean-Francois Lefevre, Olivier KSL 86-42 Lichtarge, Barbara Hayes-Roth, Russ Altman, Bruce Buchanan; A New Method for the Determination of Protein Structures in Solution from NMR, May 1986. Submitted for publication in: Proc. XXIII Congress Ampere, Rome, Italy, Sept. 1986 6 pages KSL 86-43 (Journal Memo) Edward H. Shortliffe; Update on Oncocin: A Chemotherapy Advisor for Clincal Oncology, August 1986. Submitted for publication in: Medical Informatics 4 pages KSL 86-44 (Thesis) Stephen M. Downs; A Program for Automated Summarization of On-Line Medical Records, June 1986. 27 pages KSL 86-46 STAN-CS-86-1111. Paul Rosenbloom and John Laird; Mapping Explanation-Based Generalization onto Soar, June 1986. To appear in: AAAI-86 18 pages KSL 86-47 STAN-CS-86-1124. Daniel J. Scales; Efficient Matching Algorithms for the SOAR/OPS5 Production System, June 1986. 50 pages KSL 86-48 (Working Paper) William J. Clancey; Review of Winograd and Flores' "Understanding Computers and Cognition: A New Foundation for Design", July 1986. 13 pages KSL 86-49 (Journal Memo) M.A. Musen, D.M. Combs, J.D. Walton, E.H. Shortliffe, L.M. Toward the Computer-Aided Design of Oncology Advice Systems, July 1986. Submitted for publication to: Proceedings of the Tenth Annual Symposium on Computer Applications in Medical Care, 10 pages KSL 86-50 (Working Paper) Ross D. Shacter and David E. Heckerman: A Backwards View for Assessment, July 1986. 6 pages KSL 86-51 Barbara Hayes-Roth, Bruce Buchanan, Olivier Lichtarge, Micheal Hewett, Russ Altman, James Brinkley, Craig Cornelius, Bruce Duncan, and Oleg Jardetzky; PROTEAN: Deriving protein structure from constraints, March 1986. To appear in: Proceedings of AAAI 1986 21 pages (Working Paper) Edward H. Shortliffe, M.D., Ph.D; Medical Expert Systems: KSL 86-52 Knowledge Tools for Physicians, September 1986. 24 pages KSL 86-53 (Working Paper) Edward H. Shortliffe, M.D., Ph.D; Medical Expert Systems Research at Stanford University, September 1986, 13 pages KSL 86-56 (Working Paper) Nakul P. Saraiya; AIDE: A Distributed Environment for Design and Simulation June 1986. 25 pages (Working Paper) Curtis P. Langlotz, Edward H. Shortliffe, and Lawrence KSL 86-57 M. Fagan; A Methodology for Computer-Based Explanation of Decision

Analysis, November 1986. 21 pages

William J. Clancey; Intelligent Tutoring Systems: KSL 86-58 A Tutorial Survey, Submitted for publication in: Collected papers of the September 1986. International Professorship in Computer Science (Expert Systems) Universite de L'Etat, Belgium 43 pages KSL 86-60 (Working Paper) Alan Garvey, Micheal Hewett, M. Vaughan Johnson, Robert Schulman, Barbara Hayes-Roth; BB1 User Manual - Interlisp Version, October 1986. **68 pages** KSL 86-61 (Working Paper) Alan Garvey, Micheal Hewett, M. Vaughan Johnson, Robert Schulman, Barbara Hayes-Roth; BB1 User Manual - Common Lisp Version. October 1986. 72 pages KSL 86-62 (Working Paper) David C. Wilkins; On the Limits of Debugging via Differential Modeling, October 1986. 15 pages KSL 86-63 (Working Paper) David C. Wilkins; Knowledge Base Debugging Using Apprenticeship Learning Techniques, October 1986. 15 pages KSL 86-64 (Working Paper) Donald E. Henager; Window-Driven Object-Oriented Calculator, March 1986. 56 pages STAN-CS-. Harold Brown, Eric Schoen, and Bruce Delagi; An Experiment in KSL 86-69 Knowledge-Base Signal Understanding Using Parallel Architectures, October 1986. To appear in: Parallel Computation and Computers for AI, J.S. Kowalik Editor, Kluwer Publishers, 39 pages STAN-CS-86-1140. John E. Laird, Allen Newell, and Paul S. Rosenbloom; Soar: An Architecture for General Intelligence, December 1986. To appear KSL 86-70 in: Artificial Intelligence. 66 pages KSL 86-74 (Thesis) Glenn Douglas Rennels; A Computational Model of Reasoning from the Clinical Literature, June 1986. 244 pages KSL 86-75 (Journal Memo) Eric J. Horvitz; Toward a Science of Expert Systems, March 1986. 8 pages KSL 86-76 M. Vaughan Johnson Jr. and Barbara Hayes-Roth; Integrating Diverse Reasoning Methods in the BB1 Blackboard Control Architecture, December

1986. 17 pages

(Working Paper) David C. Wilkins, William J. Clancey, and Bruce KSL 87-01 G. Buchanan; Knowledge Base Refinement Using Abstract Control Knowledge, January 1987. 9 pages STAN-CS- . Gregory T. Byrd, Russell Nakano, and Bruce A. Delagi; A Point-KSL 87-02 to-Point Multicast Communications Protocol, January 1987. 30 pages Bruce G. Buchanan; Artificial Intelligence As An Experimental Science, KSL 87-03 January 1987. To appear in: Synthese 41 pages STAN-CS-, James F. Brinkley, Bruce G. Buchanan, Russ B. Altman, Bruce KSL 87-05 S. Duncan, Craig W. Cornelius; A Heuristic Refinement Method for Spatial Constraint Satisfaction Problems, January 1987. 15 pages (Journal Memo) Glenn D. Rennels; A Computational Model of Reasoning from KSL 87-06 the Clinical Literature, January 1987. To appear in: SCAMC Proceedings. Washington D.C. 1986 8 pages STAN-CS-87-1144. Gregory T. Byrd and Bruce A. Delagi; Considerations for KSL 87-07 Multiprocessor Topologies, January 1987. 6 pages Robert Schulman and Barbara Hayes-Roth; ExAct: A Module for Explaining KSL 87-08 Actions, January 1987. 15 pages (Working Paper) Peter D. Karp and Peter Friedland; Coordinating the Use of KSL 87-09 Qualitative and Quantitative Knowledge in Declarative Device Modeling. January 1987. 20 pages Alan Garvey, Craig Cornelius, and Barbara Hayes-Roth; Computational Costs KSL 87-11 versus Benefits of Control Reasoning, February 1987. 13 pages (Working Paper) William J. Clancey; The Knowledge Engineer as Student: KSL 87-12 Metacognitive bases for asking good questions, January 1987. To appear in Learning Issues for Intelligent Tutoring Systems, Heinz Mandl and Alan Lesgold, editors. Springer-Verlag: New York 30 pages **Does Not Exist** KSL 87-13 (Journal Memo Eric J. Horvitz; Inference under Varying Resource Limitations, KSL 87-16 February 1987. 16 pages Isabelle de Zegher-Geets, Andy Freeman, Mike Walker, Bob Blum, Gio KSL 87-18 Wiederhold: Computer-Aided Summarization of a Time-Oriented Medical Database, February 1987. 6 pages