

**CURRICULUM VITAE:****David Lorge Parnas, P.Eng.**

Software Quality Research Laboratory, CSISs  
 Faculty of Informatics and Electronics  
 University of Limerick  
 Limerick, Ireland

**PERSONAL:**

Born: 10 February 1941  
 Married; Two Children  
 Citizen of Canada

**AREAS OF INTEREST:**

Software: Design, Documentation, Quality Assurance

The term "software engineering" was coined to suggest that those who design and build software should work with the professional knowledge and discipline that is expected of engineers in other fields. Engineers have been taught a well developed set of problem-solving skills, analytical methods, mathematics, and scientific knowledge that allows them to apply sound methods to the design of trustworthy useful devices. They need not rely exclusively on intuition and natural ability. Software development is now supported by a similar body of knowledge but not by an appropriate educational and licensing system. Expanding the body of knowledge, and assisting in the development of appropriate educational and licensing systems, are my professional goals.

I have been studying the problems of software development since 1965. By combining system construction, consultation, and academic research I have been able to develop principles and methods that are both of academic interest and applicable to real-world problems. My work, much of which is listed below, has received wide recognition. It includes a number of papers on modularity, specifications, documentation and concurrency that are considered fundamental contributions.

It is my intent to continue confronting the problems of software development, taking time to identify the fundamental causes of those problems, experimenting with better methods and ideas, writing papers, and teaching what I have learned. In designing systems, developing theories, and writing papers, I am challenged by Albert Einstein's, "Everything should be as simple as possible, but not simpler".

**EDUCATION:**

1954-1957 Bronx High School of Science, New York, New York  
1957-1961 B.S. Electrical Engineering (honours), Carnegie Institute of Technology, Pittsburgh, Pa.  
Fall 1961 Graduate student at University of Michigan, Ann Arbor, MI; "A" average.  
1964 M.S. Electrical Engineering Carnegie Institute of Technology  
1965 Ph.D. Electrical Engineering-Systems & Communications Sciences, Carnegie Mellon University

**LICENSE:**

Professional Engineer in the Province of Ontario

**PROFESSIONAL EXPERIENCE:**

- 1960-1965 Teaching, Electrical Engineering, Carnegie Institute of Technology.
- 1965-1966 Assistant Professor, Computer Science, Univ. of Maryland, College Park, Md.
- 1965-1969 Assistant Professor of Computer Science and Electrical Engineering, Carnegie-Mellon University, Pittsburgh, Pa.
- 1969-1970 Advisor to Philips-Electrologica, Apeldoorn, The Netherlands
- Summer 1970 Visiting Scientist and Lecturer, MBLE (Philips) Research Laboratory Brussels, Belgium.
- 1970-1973 Associate Professor of Computer Science, Carnegie Mellon Univ., Pittsburgh, PA.
- 1972-1979 Consultant to the Naval Research Laboratory.
- 1973-1976 Professor and Head of the Research Group on Operating Systems at the Technical University of Darmstadt, Germany.
- 1976-1982 Professor of Computer Science at University of North Carolina at Chapel Hill.
- 1979-1982 Visiting Scientist at IBM, Federal Systems Division (half-time), Bethesda MD.
- 1979-1982 Half-time employee, Head of the Software Engineering Research Section, US Naval Research Laboratory, Washington D.C
- 1982-1986 Professor of Computer Science at University of Victoria, British Columbia, Canada.
- 1982-1986 Investigator, Software Cost Reduction Project, US Naval Research Laboratory, Washington D.C.
- 1986-1991 Professor of Computer Science at Queen's, Kingston, Canada.
- 1991- 1997 Professor of Electrical and Computer Engineering, McMaster University, Canada
- 1995 - 2000 NSERC/Bell Industrial Research Chair in Software Engineering at McMaster
- 1998- 2006 Professor of Computing and Software at McMaster University (now Professor Emeritus)
- 1998- 2002 Director of the Software Engineering Programme at McMaster University,
- 2001 Acting Chair, Department of Computing and Software (1 October - 30 December)
- 2002- Director of Software Quality Research Laboratory, Professor of Software Engineering  
SFI Fellow, University of Limerick, Ireland

**OTHER OFFICES HELD:**

- President, Science for Peace. (1990 - 1993)
- Deputy Chairman, Canadian Pugwash Group. (1991 - 1993)

**HONOURS:**

- 1979: “Best Paper” award of the Association for Computing Machinery (for 60).
- 1986: “Eminent Lecturer” Institution of Engineers, Australia
- 1986: Honorary Doctor of Technical Science, (“Doktors der technischen Wissenschaften - ehrenhalber”), granted by the Federal Institute of Technology (ETH) in Zurich Switzerland,
- 1987: Norbert Wiener Award for Professional and Social Responsibility from Computing Professionals for Social Responsibility
- 1991: “Most Influential Paper from ICSE 3” - awarded at ICSE 13 (13<sup>th</sup> International Conference on Software Engineering), (for 60)
- 1992: Elected a Fellow of the Royal Society of Canada
- 1994: Elected a Fellow of the Association for Computing Machinery
- 1995: “Best Paper from ICSE 7” (with David Weiss and Paul Clements) - awarded at the 17<sup>th</sup> International Conference on Software Engineering.(for 79)
- 1996: Doctorate Honoris Causa, granted by Catholic University of Louvain (Belgium)
- 1998: “Outstanding Research Award” of the Association for Computing Machinery Special Interest Group on Software Engineering
- 1998: Merit Award, Carnegie Mellon University - Alumni Association.
- 1999: “Practical Visionary Award” presented at a symposium in honour of the late Dr. Harlan Mills at the International Conference on Software Engineering in Los Angeles Ca.
- 1999: “Component and Object Technology Award” “TOOLS 99” Santa Barbara Ca.
- 2001: Elected a Fellow of the Canadian Academy of Engineering
- 2001: Winner of the Fiff (Forum Informatiker für Frieden und Verantwortung) Prize

**PUBLICATIONS:**

1. Parnas, D.L., "Kirchhoff's Laws", Programmed Text, Electrical Engineering Department, Carnegie Institute of Technology, Pittsburgh PA., 1960, 43 pgs.
2. Parnas, D.L., "Elementary Calculus: Programmed Study Material", Computation Center, Carnegie-Mellon University, Pittsburgh PA., 1962.
3. Strauss, J.C., Parnas, D.L., Snelsire, R., Wallach, Y., "A Design-Emphasis Problem Solving Experience", Electrical Engineering Department, Carnegie Institute of Technology, Pittsburgh PA., 1963, 129 pgs.
4. Parnas, D.L., "System Function Description-Algol", (Ph.D. Thesis), Computation Center, Carnegie-Mellon University, Pittsburgh PA., February 1965, 100 pgs.
5. Parnas, D.L., "A Language for Describing the Functions of Synchronous Systems", *Communications of the ACM*, 9, 2, February 1966, pp. 72-75.
6. Parnas, D.L., "On the Use of the Computer in Engineering Education without a Programming Prerequisite", *Journal of Engineering Education*, April 1966, pp. 313-315.
7. Parnas, D.L., "On the Preliminary Report of C<sup>3</sup>S", (Letter to the Editor), *Communications of the ACM*, 9, 4, April 1966, pp. 242-243.
8. Parnas, D.L., "On Facilitating Parallel and Multi-Processing in Algol", (Letter to the Editor), *Communications of the ACM*, 9, 4, April 1966, p. 257.
9. Parnas, D.L., Richardson, L.C., Kohl, W.H., "Preliminary Version--An Introduction to Boole-66", Computation Center, Carnegie -Mellon University, Pittsburgh PA., September 1966, 23 pgs.
10. Parnas, D.L., "State Table Analysis of Programs in an Algol-Like Language", *Proceedings of the 1966 National ACM Conference*, Thompson Book Co., Washington, D.C., pp. 391-400.
11. Parnas, D.L., "Sequential Equivalent of Parallel Processes", Carnegie Institute of Technology, Pittsburgh PA., February 1967, 38 pgs.
12. Parnas, D.L., Darringer, J.A., "SODAS and a Methodology for System Design", *Proceedings of AFIPS 1967 Fall Joint Computing Conference*, pp. 449-474.
13. Parnas, D.L., "On Improving the Quality of Our Technical Meetings", (Letter to the Editor), *Communications of the ACM*, 11, 8, September 1968, pp. 537.
14. Parnas, D.L., "On Operating Computer Systems and Simulation Systems", *Computer Science Research Review* 3, Carnegie-Mellon University, December 1968, pp. 23-27.
15. Parnas, D.L., "More on Simulation Languages and Design Methodology for Computer Systems", *Proceedings of SJCC*, 1969, pp. 739-743.
16. Parnas, D.L., "On the Use of Transition Diagrams in the Design of a User Interface for an Interactive Computer System", *Proceedings of the 1969 National ACM Conference*, pp. 379-386.

17. Parnas, D.L., "On Simulating Networks of Parallel Processes in which Simultaneous Events May Occur", *Communications of the ACM*, 12, 9, September 1969, pp. 519-531.
18. Parnas, D.L., "The Application of Modelling to System Development and Design", *International Computing Symposium, ACM European Chapters, Vol. IV, May 1970*, pp. 137-147.
19. Parnas, D.L., "Research Problems in the Area of Operating Systems", M.B.L.E. Laboratoire de Recherches, Brussels, September 1970, 4 pgs.
20. Parnas, D.L., review of "Dynamic Protection Structures", (B. W. Lampson, *Proceedings AFIPS 1969 FJCC*), *Computing Reviews*, 12, 1, January 1971, pp. 29-30.
21. Parnas, D.L., "Review of Productivity of Multiprogramming Computers--Progress in Developing an Analytic Prediction Method", (D. J. Lesser, *Computing Reviews*, 12, 1, January 1971, pp. 30.
22. Courtois, P.J., Heymans, F., Parnas, D.L., "Concurrent Control with Readers and Writers", *Communications of the ACM*, 14, 10, October 1971, pp. 667-668.
  - Reprinted as Chapter 20 in item 222
23. Parnas, D.L., "Information Distributions Aspects of Design Methodology", *Proceedings of IFIP Congress '71, 1971, Booklet TA-3*, pp. 26-30.
24. Parnas, D.L., "A Technique for Software Module Specification with Examples", *Communications of the ACM*, 15, 5, May 1972, pp. 330-336.
  - Republished in *Writings of the Revolution*, edited by Edward Nash Yourdon, Yourdon Press, 1982, pp. 5-18.
  - Also in *Software Specification Techniques* edited by N. Gehani & A.D. McGettrick, AT&T Bell Telephone Laboratories, 1985, pp. 75-88 (QA 76.7 S6437).
  - Translated into Russian - book "*Danniye v yazikach programmirovania*" Moscow, Mir (Publishing House), 1984, pp. 9-24.
25. Parnas, D.L., Habermann, A.N., "Comment on Deadlock Prevention Method", *Communications of the ACM*, 15, 9, September 1972, pp. 840-841.
26. Parnas, D.L., "On the Criteria to be Used in Decomposing Systems into Modules", *Communications of the ACM*, 15, 12, December 1972, pp. 1053-1058.
  - Translated into Japanese - *BIT*, vol. 14, no. 3, 1982, pp. 54-60.
  - Republished in *Classics in Software Engineering*, edited by Edward Nash Yourdon, Yourdon Press, 1979, pp. 141-150.
  - Republished in *Great Papers in Computer Science*, edited by Phillip Laplante, West Publishing Co, Minneapolis/St. Paul 1996, pp. 433-441.
  - Reprinted as Chapter 7 in item 222
  - Reprinted in *Software Pioneers: Contributions to Software Engineering*, Manfred Broy and Ernst Denert (Eds.), Springer Verlag, Berlin - Heidelberg, 2002, pp. 481 - 498, ISBN 3-540-43081-4.

27. Parnas, D.L., "Sample Man Machine Interface Specification--A Graphics Based Line Editor", In *Display Use for Man-Machine Dialog* (eds. W. Handler, J. Weizembaum), Carl Hanser Verlag, Munchen, 1972, pp. 33-52.
28. Parnas, D.L., "A Course on Software Engineering Techniques", in *Proceedings of the ACM SIGCSE, Second Technical Symposium, 24-25 March 1972*, pp. 1-6.
29. Courtois, P.J., Heymans, F., Parnas, D.L., "Comments on a Comparison of Two Synchronizing Concepts", *Acta Informatica*, 1, 1972, pp. 375-376.
30. Parnas, D.L., "Some Conclusions from an Experiment in Software Engineering Techniques", *Proceedings of the 1972 FJCC*, 41, Part I, pp. 325-330.
31. Parnas, D.L., Price, W.R., "The Design of the Virtual Memory Aspects of a Virtual Machine", *Proceedings of the ACM SIGARCH-SIGOPS Workshop on Virtual Computer Systems*, March 1973, 7 pgs.
32. Parnas, D.L., Gerhardt, D., "Window: A Formally-Specified Graphics-Based Text Editor" Carnegie-Mellon University, June 1973, 34 pgs.
33. Parnas, D.L., Robinson, L., "A Program Holder Module", Carnegie-Mellon Univ., June 1973, 48 pgs.
34. Parnas, D.L., "Review of Protection Systems and Protection Implementations", (Needham, R. M. *Proceedings AFIPS 1972 Fall Joint Computer Conference, Vol. 41, Part I*), *Computing Reviews*, 14, 12, December 1973, pp. 582.
35. Parnas, D.L., Price, W.R., "Design of a Non-Random Access Virtual Memory Machine", *Proceedings of the International Workshop On Protection in Operating Systems*, Paris, August 1974, 14 pgs.
36. Parnas, D.L., "On a 'Buzzword': Hierarchical Structure", *IFIP Congress '74*, North Holland Publishing Company, 1974, pp. 336-339.
  - Reprinted as Chapter 8 in item 222
  - Reprinted in *Software Pioneers: Contributions to Software Engineering*, Manfred Broy and Ernst Denert (Eds.), Springer Verlag, Berlin - Heidelberg, 2002, pp. 501 - 513, ISBN 3-540-43081-4.
37. Parnas, D.L., "Review of A Comparison of Two Synchronizing Concepts", (Brinch Hansen, Per., *Acta Informatica* 1, 3), *Computing Reviews*, 15, 6, June 1974, pp. 203-204.
38. Coopriker, L.W., Courtois, P.J., Heymans, F., Parnas, D.L., "Information Streams Sharing a Finite Buffer: Other Solutions", *Information Processing Letters*, 3, 1, July 1974, pp. 16-21.
39. Parnas, D.L., "On a Solution to the Cigarette Smokers' Problem (Without Conditional Statements)", *Communications of the ACM*, 18, 3, March 1975, pp. 181-183.
  - Reprinted as Chapter 21 in item 222.
40. Babich, A., Grason, J., Parnas, D.L., "Significant Event Simulation", *Communications of the ACM*, 18, 6, June 1975, pp. 323-329.

41. Parnas, D.L., Siewiorek, D.L., "Use of the Concept of Transparency in the Design of Hierarchically Structured Systems", *Communications of the ACM*, 18, 7, July 1975, pp. 401-408.
  - Reprinted as Chapter 9 in item 222.
42. Parnas, D.L., Shore, J.E., Elliott, W.D., "On the Need for Fewer Restrictions in Changing Compile-Time Environments", *Proceedings of the International Computing Symposium 1975*, North Holland Publishing Company, pp. 45-48.
43. Parnas, D.L., "Software Engineering or Methods for the Multi-Person Construction of Multi-Version Programs", in *Programming Methodology*, (eds. G. Goos, J. Hartmanis), Lecture Notes in Computer Science 23, Springer Verlag, Berlin, 1975, pp. 1-11.
44. Parnas, D.L., "The Influence of Software Structure on Reliability", *Proceedings International Conference on Reliable Software*, April 1975, Los Angeles, Ca., pp. 358-362.
  - Reprinted with improvements in Yeh, R., *Current Trends in Programming Methodology (I)*, Prentice Hall, 1977.
45. Parnas, D.L., Handzel, G., "More on Specification Techniques for Software Modules", Report BS I 75/1, Fachbereich Informatik, Technische Hochschule Darmstadt, April 1975, 16 pgs.
46. Parnas, D.L., "Evaluation Criteria for Abstract Machines with Unknown Applications", *ACM Computer Architecture News*, 4, 3, September 1975, pp. 2-9.
47. Parnas, D.L., "On the Design and Development of Program Families", *IEEE Transactions on Software Engineering*, Vol. SE-2, No. 1, March 1976, pp. 1-9.
  - Reprinted as Chapter 10 in item 222
48. Parnas, D.L., "Some Hypotheses about the 'Uses Hierarchy' for Operating Systems", Technical Report, Technische Hochschule Darmstadt, Darmstadt Germany, March 1976, 26 pgs.
49. Parnas, D.L., Shore, J.E., Weiss, D., "Abstract Types Defined as Classes of Variables", *Proceedings Conference on Data: Abstraction, Definition, and Structure*, Salt Lake City, March 1976, pp. 22-24. Reprinted in NRL Memorandum Report 7998, April 22, 1976, pp. 1-10.
  - Reprinted as Chapter 11 in item 222.
50. Parnas, D.L., Würges, H., "Response to Undesired Events in Software Systems", *Proceedings of Second International Conference on Software Engineering*, October 1976, pp. 437-447.
  - Reprinted as Chapter 12 in item 222
51. Parnas, D.L., Handzel, G., Würges, H., "Design and Specification of the Minimal Subset of an Operating System Family", *Presented at 2nd International Conference on Software Engineering*, October 1976.
  - Also in *IEEE Transactions on Software Engineering*, SE-2, 4, Dec. 1976, pp. 301-307.

52. Parnas, D.L., Bartussek, W., Handzel, G., Würiges, H., "Using Predicate Transformers to Verify the Effects of 'Real' Programs", UNC Report No. TR-76-101, October 1976, 36 pgs.
53. Encarnacao, J., Fink, B., Horbst, E., Konkart, R., Nees, G., Parnas, D.L., Schlechtendahl, E.G., "A Recommendation on Methodology in Computer Graphics", Kernforschungszentrum Karlsruhe 2394, February 1977, 49 pgs.
54. Parnas, D.L., "Building Reliable Software in Blowhard", *ACM Software Engineering Notes*, 2, 3, April 1977, pp. 5-6.
  - Reprinted as Chapter 24 in item 222
55. Parnas, D.L., "The Use of Precise Specifications in the Development of Software", *Proceedings of the IFIP Congress '77*, 1977, North Holland Publishing Company, pp. 861-867.
56. Parnas, D.L., "Further Excerpts from the ACM SIGTRANS Notices", *ACM Software Engineering Notes*, 2, 5, October 1977, pp. 6-7.
57. Bartussek, W., Parnas, D.L., "Using Assertions About Traces to Write Abstract Specifications for Software Modules", UNC Report No. TR77-012, December 1977, 26 pgs.
  - Also in Lecture Notes in Computer Science (65), *Information Systems Methodology, Proceedings ICS*, Venice, 1978, Springer Verlag, pp. 211-236.
  - Also in *Software Specification Techniques* edited by N. Gehani & A.D. McGettrick, AT&T Bell Telephone Laboratories, 1985, pp. 111-130 (QA 76.6 S6437).
  - Reprinted as Chapter 1 in item 222.
58. Parnas, D.L., "Use of Abstract Interfaces in the Development of Software for Embedded Computer Systems", NRL Report No. 8047, June 1977, 30 pgs.
  - Reprinted in Infotech State of the Art Report, Structured System Development, Infotech International, 1979.
59. Parnas D.L., "Some Software Engineering Principles", Infotech State of the Art Report on Structured Analysis and Design, *Infotech International*, 1978, 10 pgs.
  - Reprinted as Chapter 13 in item 222.
60. Parnas D.L., "Designing Software for Ease of Extension and Contraction", *IEEE Transactions on Software Engineering*, March 1979, pp. 128-138.
  - Also in *Proceedings of the Third International Conference on Software Engineering*, May 1978, pp. 264-277.
  - Reprinted as Chapter 14 in item 222
61. Parnas, D.L. et al., "Software Engineering Principles", NRL Course Notes, 1976, 7, 8, 9, 80, 1, 3 (available from NTIS)
62. Parnas, D.L., "The Non-Problem of Nested Monitor Calls", *ACM Operating Systems Review*, 12, 1, January 1978, pp. 12-14.

63. Parnas, D.L., "Another View of the Dijkstra-DMLP Controversy", *ACM Software Engineering Notes*, 3, 4, October 1978, pp. 20-21.
64. Heninger, K., Kallander, J., Parnas, D.L., Shore, J., "Software Requirements for the A-7E Aircraft", NRL Report 3876, November 1978, 523 pgs.
65. Parnas, D.L., Review of "Measuring Improvements in Program Clarity" by R.D. Gordon, (*IEEE Transactions Software Engineering*, SE-5, 2, March 1979, pp. 79-90) in *Computing Reviews*, 21, 1, January 1980, p. 31.
66. Parnas, D.L., "Research Problems in Programming Methodology, In Research Directions in Software Technology", Peter Wegner (Ed.), The MIT Press, 1979, pp. 352-385.
67. Parnas, D.L., "The Role of Program Specifications", in *Research Directions in Software Technology*, Peter Wegner (Ed.), The MIT Press, 1979, pp. 364-370.
68. Parker, R.A., Heninger, K.L., Parnas, D.L., Shore, J.E., "Abstract Interface Specifications for the A-7E Device Interface Modules", NRL Report 4385, November 1980, 176 pgs.
69. Britton, K.H., Parker, R.A., Parnas, D.L., "A Procedure for Designing Abstract Interfaces for Device Interface Modules", *Proceedings of the 5<sup>th</sup> International Conference on Software Engineering*, March 1981, pp. 195-204.  
  - Reprinted as Chapter 15 in item 222
70. Parnas D.L., "An Alternative Control Structure and Its Formal Definition", IBM Technical Report TR FSD-81-0012, August 1981, 41 pgs. (later revised as item 77)
71. Hester, S.D., Parnas, D.L., Utter, D.F., "Using Documentation as a Software Design Medium", *Bell System Technical Journal*, 60, 8, October 1981, pp. 1941-1977.
72. Britton, K.H., Parnas, D.L., "A-7E Software Module Guide", NRL Report 4702, Dec. 1981, 35 pgs.
73. Britton, K.H., Clements, P., Parnas, D.L., "Interface Specifications for the SCR (A-7E) Extended Computer Module", NRL Report 4843, Jan. 1983. (revised as item 86).
74. Parnas D.L., "Software Engineering Principles", University of Victoria Report No. DCS-29-IR, February 1983, 14 pgs.
75. Clements P.C., Parnas, D.L., Weiss, D.M., "Enhancing Reusability with Information Hiding", *Proceedings of the Workshop on Reusability in Programming*, September 1983, pp. 240-247. (revised as item 103)
76. Clements, P.C., Faulk, S.R., Parnas, D.L., "Interface Specifications for the SCR (A-7E) Application Data Types Module", NRL Report 8734, August 1983, 31 pgs.
77. Parnas D.L., "A Generalized Control Structure and its Formal Definition", *Communications of the ACM*, 26, 8, August 1983, pp. 572-581. (modification of item 70).
78. Faulk, S.R., Parnas, D.L., "On the Uses of Synchronization in Hard-Real-Time Systems", *Proceedings of Real-Time Systems Symposium*, Arlington, Virginia, 6-8 December 1983, pp. 101-109, IEEE Cat. No. 83CH1941-4.

79. Parnas, D.L., Clements, P.C., Weiss, D.M., "The Modular Structure of Complex Systems", *IEEE Transactions on Software Engineering*, March 1985, Vol. SE-11 No. 3, pp. 259-266 (special issue on the 7<sup>th</sup> International Conference on Software Engineering).
- Also published in *Proceedings of 7<sup>th</sup> International Conference on Software Engineering*, March 1984, pp. 408-417.
  - Reprinted in IEEE Tutorial: "Object-Oriented Computing", Vol. 2: *Implementations* edited by Gerald E. Peterson, IEEE Computer Society Press, IEEE Catalog Number EH0264-2, ISBN 0-8186-4822-8, 1987, pp. 162-169.
  - Reprinted as Chapter 16 in item 222.
80. Clements, P.C., Parnas, D.L., "Experience with a Module Interface Specification Technique", *Proceedings of International Workshop on Models and Languages for Software Specification and Design*, 30 March 1984, Orlando, Florida, pp. 70-73.
81. Parnas, D.L., "Author's Response Regarding An Alternative Control Structure and its Formal Definition", (Technical Correspondence), *Comm. of the ACM*, 27, 5, May 1984, pp. 498-499.
82. Parnas, D.L., Wadge, W., "A Final Comment Regarding - An Alternative Control Structure and its Formal Definition", (Technical Correspondence), *Comm. of the ACM*, 27, 5, May 1984, pp. 499, 522.
83. Clements, P.C., Parker, R.A., Parnas, D.L., Shore, J., "A Standard Organization for Specifying Abstract Interfaces", NRL Report 8815, June 1984, 19 pgs.
84. Parnas, D.L., "Is ADA Too Big?", (Technical Correspondence), *Communications of the ACM*, 27, 11, November 1984, p. 1155.
85. Parnas, D.L., "Software Engineering Principles", *INFOR, Canadian Journal of Operations Research and Information Processing*, Vol. 22, no. 4, November 1984, pp. 303-316. (revised version of 74)
86. Parnas D.L., Weiss, D.M., Clements, P.C., Britton, K.H., "Interface Specifications for the SCR (A-7E) Extended Computer Module", NRL Memorandum Report 5502, December 1984, 129 pgs. (major revision of item 73)
87. Parnas, D.L., Woolsey, J.R., "An Introduction to the Extended Computer", University of Victoria/IBM Technical Report No. 2, February 1985, 7 pgs.
88. Parnas D.L., Clements, P.C., "A Rational Design Process: How and Why to Fake It", Presented at the *TAPSOFT Joint Conference on Theory and Practice of Software Development*, Berlin, 25-29 March, 1985.
- Also published as University of Victoria/IBM Technical Report No. 3, Feb. 1985, 18 pgs.
89. Parnas, D.L., Weiss, D.M., "Active Design Reviews: Principles and Practices", *Proceedings of the 8th International Conference on Software Engineering*, London, August 1985.
- Also published in *Journal of Systems and Software*, December 1987.
  - Reprinted as Chapter 17 in item 222.

11/25

90. Parnas, D.L., "Predicative Programming", Technical Correspondence (refereed), *Communications of the ACM*, 28, 5, May 1985, pp. 534-536.
91. Parnas, D.L., "The Impact of Money-Free Computer Assisted Barter Systems", University of Victoria Report No. DCS-48-IR, July 1985, 9 pgs.
  - Reprinted as Chapter 25 in item 222
92. Parnas, D.L., "More on Is ADA Too Big?", (Technical Correspondence), *Communications of the ACM*, 28, 7, July 1985, pp. 753.
93. Parnas, D.L., "Software Aspects of Strategic Defense Systems", *American Scientist*, Vol. 73, No. 5, Sept.-Oct. 1985, pp. 432-440. (revised version of University of Victoria Report No. DCS-47-IR).
  - Also published in *Communications of the ACM*, 28, 12, December 1985, pp. 1326-1335.
  - Translated into Dutch - *Informatie*, jaargang 28, 3, March 1986, pp. 175-186.
  - Translated into Japanese - *SEKAI*, no. 6, 1986, pp. 298-319.
  - Translated into German - *Software Wars*, in *Kursbuch 83, Krieg und Frieden - Streit um SDI*. Published by Kursbuch/Rotbuch Verlag, March, 1986. Also a partial translation "Wie Kunstliche Blumen", in *Frontal*, May/June 1986, p. 46.
    - Translated into Hebrew - *Explaining Preparation of Military Strategic Software*, Maaseh Hoshev, April 1986, pp.3 by Information Processing Association of Israel.
    - Translated into Swedish - *Programvaruaspekter pa strategiska for svarssystem*, *Zenit*, Issue No. 94, Winter 1986/87, pp. 66-82.
    - Reprinted in *Computerization & Controversy: Value Conflicts & Social Choices*, edited by Charles Dunlop & Rob Kling, Academic Press, Boston, March, 1991.
    - Reprinted as Chapter 26 in item 222
94. Parnas, D.L., Clements, P.C., "A Rational Design Process: How and Why to Fake It", *IEEE Transactions on Software Engineering*, Vol. SE-12, No. 2, February 1986, pp. 251-257. (Revised version of item 88).
  - Republished in *Great Papers in Computer Science*, edited by Phillip Laplante, West Publishing Co, Minneapolis/St. Paul 1996, pp. 442-451.
  - Reprinted as Chapter 18 in item 222
95. Parnas, D.L. (with the help of Dieter Brehde), "Warum SDI Betrug ist" im *Stern* Nr. 15, 3 April 1986.
96. Parnas, D.L., "Star Wars and the Scientific Community", *Alternatives*, April 1986, pp. 27-31.
97. Parnas, D.L., "The Star Wars Nightmare", *South*, July 1986, p. 117.
98. Parnas, D.L., letter- "Star Wars Software", *Science*, 25 July 1986, p. 403.
99. Parnas, D.L., "Why I Won't Work on Software for SDI", *The World & I*, no.6, 1986, pp. 573-575.
100. Parnas, D.L., Wadge, W., "Less Restrictive Constructs For Structured Programs", Technical Report No. 86-186, Queen's, Kingston, Ontario, September 1986, 16 pgs.
  - Reprinted as Chapter 2 in item 222.

101. Parnas, D.L., "SDI: A Violation of Professional Responsibility", *ABACUS*, vol. 4, no. 2, Winter, 1987, pp. 46-52.
- Reprinted in "The Name of the Chamber was Peace", *Science for Peace*, Samuel Stevens and Co. Toronto and Fort Meyers, 1988.
  - Reprinted in *A Computer Science Reader - Selections from ABACUS*, edited by Eric A. Weiss, Springer-Verlag, 1987, pp. 46-52. (QA 76.24 C658).
  - Reprinted in *COMPUTER STUDIES: Computers in Society*, edited by Kathryn Schellenberg, Dushkin Publishing Group, 1988. (ISBN 0-87967-727-9)
  - Reprinted in *Ethical Issues in Engineering*, by Deborah G. Johnson, Prentice Hall, 1991, pp. 15-25. (ISBN 0-13-290578-7)
  - Reprinted as Chapter 27 in item 222.
102. Parnas, D.L., "SDI: "Red Herrings" Miss the Boat", *Computer IEEE*, (Letter to the Editor) vol. 20, no. 2, February 1987, pp. 6-7.
103. Clements, P.C., Parnas, D.L., Weiss, D.M., "Enhancing Reusability with Information Hiding", IEEE Tutorial "Software Reusability" edited by Peter Freeman, IEEE Computer Society Press, IEEE Catalog #EH0256-8, ISBN 0-8186-0750-5, 1987, pp. 83-90. (revised version of item 75).
- Reprinted in *Software Reusability*, edited by Ted J. Biggerstaff and Alan J. Perlis, Volume I, pp. 141-157, Addison-Wesley, 1989.
104. Parnas, D.L., "Warum ich an SDI nicht mitarbeite: Eine Auffassung beruflicher Verantwortung", *Informatik-Spektrum*, Band 10, Heft 1, Februar 1987, pp. 3-10.
- Extracted in *Tagesanzeiger Magazin*, Zurich, 27 June 1987 Warum ich nicht mehr mitmache.
105. Parnas, D.L., "STAR WARS: Lesson for Canada", published in *The Whig Standard Magazine*, Kingston, Ontario, Canada, 3 October 1987, pp. 5-9.
106. Parnas, D.L., "Computers in Weapons: The Limits of Confidence", seventh chapter in *Computers in Battle: Will They Work*, David Bellin and Gary Chapman (editors) published by Harcourt Brace Jovanovich Inc., N.Y. 1987, 362 pgs., (ISBN 0-15-121232-5).
107. Parnas, D.L., "U.S. military planners view Canada the way boxers view their gloves", in *If You Love This Country*, facts and feelings on free trade assembled by Laurier LaPierre, McClelland and Stewart, Toronto, 1987, pp. 169-176 (ISBN 0-7710-4697-9 soft cover).
108. Parnas, D.L., "Star Wars: Dream or Nightmare", *Proceedings of the 37<sup>th</sup> Pugwash Conference on Science and World Affairs* in Gmunden am Traunsee, Austria, 1-6 September 1987, pp. 388-394
- Japanese translation, in *SEKAI*, no. 12, 1987, pp. 201-211.
  - Chinese translation by M.S. Ng *Ming Pao Monthly*, Hong Kong, #284, Vol. 24, Issue 8, August 1989, pp. 91-95.
109. Parnas, D.L., van Schouwen, J., Kwan, P., Fougere, S., "Evaluation of the Shutdown Software for Darlington (SDS-1)", Interim Report for the Atomic Energy Control Board, 16 Nov. 1987, 69 pgs.

110. Faulk, S.R., Parnas, D.L., "On Synchronization in Hard-Real-Time Systems", *Communications of the ACM*, 31, 3, March 1988, pp. 274-287.
- Reprinted in *Real-Time Systems: Abstractions, Languages, and Design Methodologies*, Chapter 6, pgs. 621-634. Krishna M. Kavi (editor), published by IEEE Computer Society Press, Los Alamitos, CA, 1992, 660 pgs., (ISBN 0-8186-3152-X).
  - Reprinted as Chapter 22 in item 222.
111. Parnas D.L., Kwan, S.P., van Schouwen, J., "Evaluation Standards for Safety Critical Software", Technical Report No. 88-220, Queen's-Kingston, Ont. Dept. of CIS, May 1988, 34 pgs.
- Published in the *Proceedings of the International Working Group on Nuclear Power Plant Control and Instrumentation*, IAEA NPPCS Specialists' Meeting on Microprocessors in Systems Important to the Safety of Nuclear Power Plants, by the International Atomic Energy Agency, London, United Kingdom, 10-12 May 1988.
  - Published in *Software Development: Tips and Techniques*, Papers from Information Management Conference, U.S. Professional Development Institute, Silver Spring, MD, 1989, pp. 311-350.
  - Published in the *Proceeding of the Seventh International Conference on Testing Computer Software*, San Francisco, June 18-21, 1990, pp. 89-117.
  - Published in *Ethics and Computing - Living Responsibly in a Computerized World*, edited by K.W. Bower, IEEE Press, 2001, pp. 187 - 199.
112. Parnas, D.L., Smith, D.G., Pearce, T., "Making Software Documentation More Practical", study carried out for Bell-Northern Research (BNR). Technical Report No. 88-236, Queen's University, Dept. of Computing & Information Science, Nov. 1988, 53 pgs.
113. Parnas, D.L., "Why Engineers Should Not Use Artificial Intelligence", *Proceedings of the CIPS Edmonton '87 Conference*, Edmonton, Alberta, November 16-19, 1987. Published in *Intelligence Integration*, J. Schaeffer & L. Stewart (editors), Dept. of Computing Science, University of Alberta, pp. 39-42. (ISBN 0-88864-858-8)
- Substantial revision published in *INFOR*, vol. 26, no. 4, 1988, pp. 234-246.
114. Xu, J., Parnas, D.L., "Scheduling Processes with Release Times, Deadlines, Precedence and Exclusion Relations", *IEEE Transactions on Software Engineering*, vol. 16, no. 3, March 1990, pp. 360-369.
- Also Technical. Report CS-88-11, Dept. of Computer Science, York University, Sep.1988, 26 pgs.
  - Also in *Advances in Real-Time Systems*, John A. Stankovic and Krithi Ramamritham (editors), IEEE Computer Society Press, 1993 pp. 140-149, (ISBN 0-8186-3792-7).
  - Reprinted as Chapter 23 in item 222
115. Parnas, D.L., "Can We Tolerate Software Errors?", *Proceedings of the IFIP 11th World Computer Congress*, San Francisco, 28 August - 1 September 1989.
- Also in *Information Processing '89*, G.X. Ritter (editor), North Holland 1989, p. 502. (ISBN 0-444-88015-1)

116. Parnas, D.L., "On Artificial Intelligence and Expert Systems - Myths, Legends, and Facts", *Proceedings of the IFIP 11th World Computer Congress*, San Francisco, 28 August - 1 September 1989.
- Published in *Information Processing '89*, G.X. Ritter (editor), North Holland, 1989, pp. 1145-1146. (ISBN 0-444-88015-1)
117. Parnas, D.L., "Education for Computing Professionals", *IEEE Computer*, vol. 23, no. 1, January 1990, pp. 17-22.
- Also published in "Teaching and Learning Formal Methods", eds. C. Neville Dean and Michael G. Hinchey, Academic Press, 1996, pp. 31 - 42.
  - Also published as Technical Report 89-247, Queen's, Kingston, Dept. of Computing & Information Science, March 1989.
118. Parnas, D.L., "On the Cruelty of Really Teaching Computer Science - Response to E.W. Dijkstra", *Communications of the ACM*, vol. 32, no. 12, December 1989, pp. 1405-1406.
119. Parnas, D.L., Wang, Y., "The Trace Assertion Method of Module Interface Specification", Technical Report 89-261, Queen's, Kingston, TRIO, October 1989, 39 pgs.
- Also accepted (subject to reorganisation) by *IEEE Transactions on Software Engineering*.
120. Parnas, D.L., "Inspection Will Not Be Enough", *Proceedings of the 38th Pugwash Conference on Science and World Affairs* in Dagomys, USSR, 29 August - 3 September 1988, pp. 211-212 (published 1989).
121. Parnas, D.L., "Documentation of Communications Services and Protocols", Formal Description Techniques II, S.T. Vuong (editor), North-Holland Publishing Co., 1989, pp. 277-280 (ISBN 0-444-88544-7), Proceedings of IFIP TC/WG 6.1 Second International Conference on Formal Description Techniques for Distributed Systems and Communications Protocols, FORTE '89, Vancouver, 5-8 December 1989.
- Also Technical Report 90-272, Queen's University, TRIO (Telecommunications Research Institute of Ontario), February 1990, 4 pgs.
122. Parnas, D.L., "On Iterative Constructs", *ACM Transactions on Programming Languages and Systems*, (Technical Correspondence), vol. 12, no. 1, January 1990, pp. 139-141.
123. Parnas, D.L., "Herr Parnas, möchten sie die Welt retten", *Wissenschaft und Frieden*, vol. 5, no. 1, February 1987, pp. 17-20.
124. Parnas, D.L., "Computing Science vs. Engineering Education", *EDUCATIONews (IEEE)*, vol. 3, no. 1, April 1990, pp. 3-5.
125. Parnas, D.L., "Education for Computing Professionals", *Proceedings of International Conference on Computing and Information, ICCI'90*, Niagara Falls, Ontario, May 1990.
- Published in *Advances in Computing and Information*, S.G. Akl, F. Fiala, W. Koczkodaj (editors), Canadian Scholars' Press Inc, 1990, pp. xi. (ISBN 0-921627-70-X)
  - Published in "Software Engineering: Volume 2: The Supporting Processes", Dorfman and Richard Thayer (eds.), March 2002.
126. Parnas, D.L., Asmis, G.J.K., Kendall, J.D., "Reviewable Development of Safety Critical Software", *The Institution of Nuclear Engineers*, International Conference on Control &

Instrumentation in Nuclear Installations, 8<sup>th</sup> - 10<sup>th</sup> May 1990, Glasgow, United Kingdom, paper no. 4:2, 17 pgs.

127. Parnas, D.L., van Schouwen, A.J., Kwan, S.P., "Evaluation of Safety-Critical Software", *Communications of the ACM*, vol. 33, no. 6, June 1990, pp. 636-648. (Substantially revised version of item 111).
  - Published in *Advances in Real-Time Systems*, John A. Stankovic and Krithi Ramamritham (editors), IEEE Computer Society Press, 1993 pp. 34-46. (ISBN 0-8186-3792-7).
  - Published in *Ethics and Computing: Living Responsibly in a Computerized World*, Kevin W. Bowyer (editor), IEEE Press, 2000, pp. 187 - 199. (ISBN 0-7803-6019-2)
128. Parnas D.L., Madey, J., "Functional Documentation for Computer Systems Engineering", Technical Report 90-287, Queen's University, TRIO (Telecommunications Research Institute of Ontario), September 1990, 14 pgs.
  - Reproduced in CANDU Computer Conference, sponsored by the CANDU Owner's Group, November 11-13, 1990.
129. Parnas, D.L., "Functional Specifications for Old (and New) Software", *Proceedings of the 20<sup>th</sup> GI Jahrestagung*, Stuttgart, Germany, 10 October 1990, edited by Prof. A. Reuter, Informatik Fachberichte 257, Springer-Verlag, Berlin, 12 pgs.
130. Parnas, D.L., Madey, J., "Functional Documentation for Computer Systems", "*Colloque sur l'ingénierie de la qualité*", Le Centre, Montreal, 4-5 October 1990, 7 pages.
131. Parnas, D.L., Asmis, G.J.K., "Quality Assurance for Safety-Critical Software", *CIPS '90 Information Technology Conference*, Edmonton, Alberta, 24 October 1990, 12 pgs.
132. Parnas D.L., Asmis, G.J.K., Madey, J., "Managing Complexity in Safety-Critical Software", *ACM Conference on Critical Issues*, McLean, VA, 6 November 1990, 10 pgs.
133. Parnas, D.L., "Stellungnahme: Wissenschaft im Krieg - Krieg in der Wissenschaft", *Wissenschaft im Krieg - Krieg in der Wissenschaft*, Schriftenreihe des Arbeitskreises Marburger Wissenschaftler für Frieden, (ed. Martina Tschimrt, Heinz-Werner Goebel), Marburg, Germany 1990.
134. Parnas D.L., Asmis, G.J.K., Madey, J., "Assessment of Safety-Critical Software", *Proceedings of the 9th Annual Software Reliability Symposium*, by the IEEE Reliability Society, Denver Chapter, Colorado Springs, Colorado May 2-3 1991 (modified version of item 132).
  - Also Technical Report 90-295, Queen's, Kingston, TRIO (Telecommunications Research Institute of Ontario), December 1990, 13 pgs
135. Parnas, D.L., "Who Assesses the Assessors?", (comments on the Comm ACM "Self-Assessment on Concurrency"), *Comm ACM*, vol. 34, no. 2, Feb. 1991, pp. 19-20.
  - Translated into Spanish - "Quien evalua a los evaluadores?" *Novatica* vol. XVIII., num. 97, 1992, pp. 58 - 60.
136. Parnas, D.L., Asmis, G.J.K., Madey, J., "Assessment of Safety-Critical Software in Nuclear Power Plants", *Nuclear Safety*, vol. 32, no. 2, April-June 1991, pp. 189-198. (modified version of item 134).

137. Xu, J., Parnas, D.L., "On Satisfying Timing Constraints in Hard-Real-Time Systems", *IEEE Transactions on Software Engineering*, Vol. 19, No. 11, January 1993, pp. 70-84
- Previously published in the Proceedings of *ACM SIGSOFT '91 Conference on Software for Critical Systems*, New Orleans, 4-6 December, 1991, pp. 132-146.
138. Xu, J., Parnas, D.L., "Pre-Run-Time Scheduling of Processes with Exclusion Relations on Nested or Overlapping Critical Sections", *The Eleventh Annual IEEE International Phoenix Conference on Computers and Communications (IPCCC-11)* April 1-3, 1992, Scottsdale, AZ.
139. Parnas, D.L., "Responsibilities of Scientists in a Complex Society", *Proceedings of the 40th Pugwash Conference on Science and World Affairs* in Egham, UK, 15 - 20 Sept. 1990, pp. 627-637
- Also published in *Towards a Secure World in the 21<sup>st</sup> Century. Annals of Pugwash 1990*, Edited by Joseph Rotblat and Frank Blackaby. Taylor & Francis 1991, U.K., pp. 337-348.
140. Parnas, D.L., Madey, J., "Functional Documentation for Computer Systems Engineering" published in *Science of Computer Programming* (Elsevier) vol. 25, number 1, October 1995, pp 41-61 (Substantially revised version of item 128).
- also CRL Report 309, McMaster University, TRIO, September 1991, 14 pgs.
141. Parnas, D.L., Korsman, J.A., "The Systematic Construction of Precise Software Documents", "Colloque sur l'ingénierie de la qualité", Ottawa, 16-17 October 1991, pgs. 17.1 - 17.11.
142. Parnas D.L., "Predicate Logic for Software Engineering", CRL Report 241, McMaster University, TRIO (Telecommunications Research Institute of Ontario), Feb. 1992, 8 pgs.
143. Parnas, D.L., "Never Again: Reflections on the war against Iraq", *Peace Magazine*, vol. VIII, issue II, March 1992.
144. Parnas, D.L., "Getting Serious about Computer System Documentation", *Proceedings of Tenth Annual Software Reliability Symposium*, Denver, Colorado, June 25-26, 1992, pp. 1-8.
145. Parnas D.L., Luo, Z.-Q., "On the Computational Complexity of the Maximum Trade Problem", CRL Report 254, McMaster University, CRL (Communications Research Laboratory) July 1992, 8 pgs. (for revised version see item 176)
146. Parnas, D.L., "The Responsibilities of Scientists in a Changing World", published in *Erdsicht - Global Change*, Kunst-und Ausstellungshalle der Bundesrepublik Deutschland, Verlag Gerd Hatje, June 1992, pp. 155-168.
- Also "Die Verantwortung der Wissenschaftler in einer sich verändernden Welt" in *Erdsicht - Global Change*. Kunst-und Ausstellungshalle der Bundesrepublik Deutschland, Verlag Gerd Hatje, June 1992,
  - Also "Die Verantwortung der Wissenschaftler in einer sich verändernden Welt" in *Erdsicht - Global Change*. Reprinted "FIFK Kommunikation", Mai 1993.
  - Also in Spanish "La responsabilidad de los científicos en un mundo cambiante" in *Erdsicht - Global Change*, 1995, pp. 147 - 160.

147. Courtois P.-J., Parnas D.L., "Documentation for Safety Critical Software", presented at the IAEA Specialists' Meeting on "Software Engineering in Nuclear Power Plants", Chalk River, Ontario, Canada, 9-11 September, 1992.
- Published in IAEA Specialist's Meeting Software Engineering in Nuclear Power Plants: Experience, Issues and Directions, February 1993, pgs. 11-29. (Revised as item 148)
148. Courtois P.-J., Parnas D.L., "Documentation for Safety Critical Software", Proceedings of the 15th International Conference on Software Engineering, Baltimore, MD, 17 - 21 May, 1993, 315 - 323. (Revised version of item 147)
149. Parnas D.L., "Evaluation Procedure for Safety Critical Software", De Ingeneuze Informatika, op weg naar 2001, Proceedings of the meeting on 10 years of Computer Engineering in Holland.
150. Parnas D.L., Madey, J., Iglewski, M., "Formal Documentation of Well-Structured Programs", CRL Report 259, McMaster University, Communications Research Laboratory, TRIO (Telecommunications Research Institute of Ontario), September 1992, 37 pgs.
151. Parnas, D.L., "Tabular Representation of Relations", CRL Report 260, McMaster University, Communications Research Laboratory, TRIO (Telecommunications Research Institute of Ontario), October 1992, 17 pgs.
152. Parnas, D.L., Wang, Y., "Trace Rewriting Systems", CRL Report 247, McMaster University, Communications Research Laboratory, TRIO (Telecommunications Research Institute of Ontario), October 1992, 16 pgs.
153. Parnas, D.L., Madey, J., "Documentation of Real-Time Requirements", in *Real-Time Systems: Abstractions, Languages, and Design Methodologies*, pgs. 48-56. Krishna M. Kavi (editor), IEEE Computer Society Press, Los Alamitos, CA, 1992, 660 pgs., (ISBN 0-8186-3152-X).
154. van Schouwen, A.J., Parnas, D.L., Madey, J., "Documentation of Requirements for Computer Systems", Proceedings of '93 *IEEE International Symposium on Requirements Engineering*, San Diego, CA, 4 - 6 January, 1993, pp. 198 - 207.
155. Parnas D.L., Wang, Y., "Simulating the Behaviour of Software Modules by Trace Rewriting Systems", *Proceeding of the 15th International Conference on Software Engineering*, Baltimore, MD, 17 - 21 May, 1993, pgs 14 - 23. (revised version see item 174)
156. Parnas, D.L., "On Software Engineering Programmes", *Proceedings of the National Workshop on Software Engineering Education*, Toronto, ON, 31 May, 1993, pgs 115 - 119.
157. Parnas, D.L., Wang, Y., "Trace Rewriting Systems", *Proceedings of the Third International Workshop, CTRS-92*, Pont-a-Mousson, France, July 1992.
- Also published in *Conditional Term Rewriting Systems*, M. Rusinowitch, J.L. Remy (eds.), Springer-Verlag, 1993, pp. 343-356. (ISBN 3-540-56393-8).

158. Parnas, D.L., "Mathematics of Computation for (Software and Other) Engineers", *Bulletin of the European Association for Theoretical Computer Science*, No. 51, October 1993, pgs. 249-259.
- Also in *Proceedings of the Third International Conference on Algebraic Methodology and Software Technology*, University of Twente, Netherlands, June 21 - 25, 1993.
  - Also in *Proceedings of the First IMA Conference on Mathematics of Dependable Systems*, University of London, England, September 1993.
  - Also in *Mathematics of Dependable Systems*, edited by Chris Mitchell and Victoria Stavridou, Clarendon Press, Oxford, 1995, pp. 209 - 224. (small revisions)
159. Parnas, D.L., "Some Theorems We Should Prove", *Proceedings of 1993 International Meeting on Higher Order Logic Theorem Proving and Its Applications*, The University of British Columbia, Vancouver, BC, August 10 - 13, 1993, pgs 156 - 163.
160. Courtois, F., Parnas, D.L., "Formally Specifying A Communications Protocol Using the Trace Assertion Method", CRL Report 269, McMaster University, CRL (Communications Research Laboratory), TRIO (Telecommunications Research Institute of Ontario), July 1993, 19 pgs.
161. Iglewski, M., Madey, J., Parnas, D.L., Kelly, P. "Documentation Paradigms (A Progress Report)", CRL Report 270, McMaster University, CRL (Communications Research Laboratory), TRIO (Telecommunications Research Institute of Ontario), July 1993, 45 pgs.
162. Parnas, D.L., "Forward" in "*Digital Woes: Why We Should Not Depend on Software*", by Lauren Ruth Wiener, published by Addison Wesley, pp. ix - xiii, ISBN 0-201-62609-8. September 1993.
163. Engel, M., Kubica, M., Madey, J., Parnas, D.L., Ravn, A.P., van Schouwen, A.J., "A Formal Approach to Computer Systems Requirements Documentation", in *Hybrid Systems*, Grossman R.L., Nerode A., Ravn A.P., Rischel H. (eds.), Lecture Notes in Computer Science 736, Springer-Verlag, 1993, pp. 452-474.
164. Parnas, D.L., "Predicate Logic for Software Engineering", *IEEE Transactions on Software Engineering*, Vol. 19, No. 9, September 1993, pp. 856 - 862 (substantively enhanced version of item 142.).
- Reprinted as Chapter 3 in item 222
165. Parnas, D.L., "Can We Make Software More Trustworthy", in "*Na 30 jaar informatie*" Proceedings of a symposium held in Apeldoorn, Holland on 22 June 1989, Informatie - Maandblad voor Gegevensverwerking.
166. Parnas, D.L., "Software Aging", in *Proceedings of the 16<sup>th</sup> International Conference on Software Engineering*, Sorento Italy, May 16 - 21 1994, IEEE Press, pp. 279 - 287
- Reprinted as Chapter 29 in item 222.
167. Parnas, D.L. "Mathematical Descriptions and Specification of Software", *Proceedings of IFIP World Congress 1994, Volume I* August 1994, pp. 354 - 359.

168. Parnas, D.L. "Professional Responsibilities of Software Engineers", *Proceedings of IFIP World Congress 1994, Volume II* August 1994, pp. 332 - 339.
- Reprinted in "Softwaretechnik Trends" Band 14, Heft 3, pp 3 - 10, November 1994, Gesellschaft für Informatik.
  - Reprinted as Chapter 28 in item 222.
169. Parnas, D.L. "Inspection of Safety Critical Software using Function Tables", *Proceedings of IFIP World Congress 1994, Volume III* August 1994, pp. 270 - 277.
- Reprinted as Chapter 19 in item 222
170. Parnas, D.L. "Teaching Programming as if it were Engineering", *Proceedings of the 1994 Annual Meeting of the American Society for Engineering Education., Edmonton AB.*
171. Peters, D., Parnas, D.L. "Generating a Test Oracle from Program Documentation", *Proceedings of the 1994 International Symposium on Software Testing and Analysis (ISSTA)*, August 17-19, 1994, pp. 58 - 65.
172. Parnas, D.L. "Creating Insecurity!", in "World Security, the New Challenge" by Canadian Pugwash Group, pp. 74- 95, published by Dundern Press Ltd., 1994, ISBN 0-88866-952-6.
173. Bauer, B., Parnas, D.L., "Experience with the Use of Precise Documentation", CRL Report 293, McMaster University, CRL, TRIO, August 1994, 12 pgs.
174. Parnas D.L., Wang, Y., "Simulating the Behaviour of Software Modules by Trace Rewriting Systems", *IEEE Transactions of Software Engineering*, Vol. 19, No. 10, October 1994, pp. 750 - 759. (revised version of item 155).
175. Parnas, D.L., Madey, J., Iglewski, M., "Precise Documentation of Well-Structured Programs", *IEEE Transactions on Software Engineering*, Vol. 20, No.12, December 1994, pp. 948 - 976 (substantively enhanced version of item 150).
176. Parnas D.L., Luo, Z.-Q., "On the Computational Complexity of the Maximum Trade Problem", *Acta Mathematicae Applicatae Sinicae* (English Series) Volume 10, No.4, 1994, pp. 434-440. (Revised version of item 145)
177. Bauer, B., Parnas, D.L., "Applying Mathematical Software Documentation - An Experience Report", in *Proceedings of the Tenth Annual Conference on Computer Assurance*, National Institute of Standards and Technology, Gaithersburg, Maryland, June 25 - 29, 1995, pp. 273 - 285.(substantively enhanced version of item 173)
178. Parnas, D.L., "On ICSE's "Most Influential Papers"", *ACM Software Engineering Notes*, vol. 20, no 3, July 1995, pp. 29-32.
- Reprinted as Chapter 30 in item 222
179. Parnas, D.L., "Language-Free Mathematical Methods for Software Design - Extended Abstract", in *ZUM 95: The Z Formal Specification Notation*, 9th International Conference of Z Users, Limerick Ireland, September 1995, Bowen J.P., Hinchey M.G. (eds.), Lecture Notes in Computer Science 967, Springer-Verlag, 1995, pp. 3-4.

180. Parnas, D.L., "The Future of Formal Methods in Industry - Position Statement", in *ZUM 95: The Z Formal Specification Notation*, 9th International Conference of Z Users, Limerick Ireland, September 1995, Bowen J.P., Hinchey M.G. (eds.), Lecture Notes in Computer Science 967, Springer-Verlag, 1995, pp. 238.
181. Parnas, D.L., "Teaching Programming as Engineering", in *ZUM 95: The Z Formal Specification Notation*, 9th International Conference of Z Users, Limerick Ireland, September 1995, Bowen J.P., Hinchey M.G. (eds.), Lecture Notes in Computer Science 967, Springer-Verlag, 1995, pp. 471-481.
- Reprinted as Chapter 31 in item 222.
182. Parnas, D.L., "Using Mathematical Models in the Inspection of Critical Software", in *Applications of Formal Methods*, Hinchey M.G., Bowen J.P. (eds.), Prentice Hall International Series in Computer Science, 1995, pp. 17-31.
183. Parnas, D.L., "Geleitwort", in Baber, R.L., *Praktische Anwendbarkeit mathematisch rigoroser Methoden zum Sicherstellen der Programmkorrektheit*, Walter de Gruyter, 1995, pp. v-vi.
184. Parnas, D.L., "A Logic for Describing, not Verifying, Software", *Erkenntnis (Kluwer)*, volume 43, No. 3, November 1995, pp. 321-338.
185. Janicki, R., Parnas, D.L., Zucker, J., "Tabular Representations in Relational Documents", in *Relational Methods in Computer Science*, Chapter 12, Ed. C. Brink and G. Schmidt. Springer Verlag, pp. 184 - 196, 1997, ISBN 3-211-82971-7.
- Also published as CRL Report 313, McMaster University, CRL TRIO, November 1995.
  - Reprinted as Chapter 4 in item 222.
186. Parnas, D.L., "Why Software Jewels are Rare", in *IEEE Computer*, Vol. 29, No. 2, February 1996, pp. 57-60.
187. Pakula, A., Parnas, D.L., "The Dayton Accord - Pro and Con and Pro and Con" *Peace Magazine*, March/April 1996, pp. 16 -22.
188. Shen H., Zucker J.I., Parnas, D.L., "Table Transformation Tools: Why and How", *Proceedings of the Eleventh Annual Conference on Computer Assurance (COMPASS 96)*, published by IEEE and NIST, Gaithersburg, MD., June 1996, pp. 3-11.
189. Parnas, D.L., "Mathematical Methods: What We Need And Don't Need", in *IEEE Computer*, Vol. 29, No. 4, April 1996, pp. 28-29. (In roundtable "An Invitation to Formal Methods").
190. Parnas, D.L. "Teaching Programming as if it were Engineering", published in *Teaching and Learning Formal Methods*, eds. C. Neville Dean and Michael G. Hinchey, Academic Press, 1996, pp. 43 - 55. (Substantively modified version of item 170)
191. McMaster University Software Engineering Research Group, "Table Tool System Developer's Guide" CRL Report 339, McMaster University, CRL (Communications Research Laboratory), TRIO (Telecommunications Research Institute of Ontario), January 1997.
192. McMaster University Software Engineering Research Group, "Appendices to the Table Tool System Developer's Guide" CRL Report 340, McMaster University, CRL

(Communications Research Laboratory), TRIO (Telecommunications Research Institute of Ontario), January 1997.

193. Singh, B., Viveros, R., Parnas, D.L., "Software Reliability Using Inverse Sampling", CRL Report 351, McMaster University, CRL (Communications Research Laboratory), TRIO (Telecommunications Research Institute of Ontario), August 1997, 23 pgs.
194. Parnas, D.L., "Software Engineering: An Unconsummated Marriage", *Communications of the ACM*, 40, 9, September 1997, pg. 128.
  - Reprinted as Chapter 32 in item 222.
195. Parnas, D.L., "Software Engineering: An Unconsummated Marriage (Extended Abstract)", in *Software Engineering - ESEC/FSE 97*, Zürich, Switzerland, September 1997, Jazayeri, M., Schauer, H., (eds.), Lecture Notes in Computer Science 1301, Springer-Verlag, 1997, pp. 1 - 3. Simultaneously published as Volume 22, Number 6 of *Software Engineering Notes*, Nov. 1997
196. Parnas, D.L. "Precise Description and Specification of Software", in *Mathematics of Dependable Systems II*, edited by V. Stavridou, Clarendon Press, 1997, pp. 1 - 14.
  - Reprinted as Chapter 5 in item 222
197. Aspray, W., Keil-Slawik, R., Parnas, D. L. (editors) "*The History of Software Engineering*" Dagstuhl-Seminar-Report 153, Schloss Dagstuhl, Internationales Begegnungs-und Forschungszentrum für Informatik, Universität Saarbrücken, Germany.
198. Peters, D., Parnas, D.L., "Using Test Oracles Generated from Program Documentation", *IEEE Transactions on Software Engineering*, Vol. 24, No.3, March 1998, pp. 161 - 173
199. Parnas, D.L., Lawton, A., "Precisely Annotated Hierarchical Pictures of Programs", *CRL Report 359*, TRIO, Communication Research Laboratory, McMaster University, March 1998.
200. Parnas, D.L., "Software Engineering Programmes are not Computer Science Programmes", *Annals of Software Engineering*, vol. 6, 1998, pgs. 19-37.
  - Reprinted (by request) in *IEEE Software*, November/December 1999, pp. 19-30.
  - Available as *CRL Report 361*, McMaster University, April 1998.
201. Parnas, D.L., "'Formal Methods' Technology Transfer Will Fail", *Journal of Systems and Software*, Vol. 40, No. 3, pp. 195 - 198, 1998.
202. Xu, J., Parnas, D.L., "Priority Scheduling Versus Pre-Run-Time Scheduling", Proceedings of the 23rd *IFAC/IFIP Workshop on Real Time Programming, W RTP 98*, pgs. 47 - 54, Shantou, Guandong Province, P.R. China, 23 - 25 June, 1998. Revised version published as 210.
203. Parnas, D.L., "Successful Software Engineering Research", *ACM Software Engineering Notes*, Vol. 23, No 3, May 1998, pp. 64-68.
204. Parnas, D.L., "Who Taught Me About Software Engineering Research", *ACM Software Engineering Notes*, Vol. 23, No 4, July 1998, pp. 26-28.
  - Reprinted as Chapter 33 in item 222.

205. Parnas, D.L., "Some Perspective on Refinement", *Program Development by Refinement - Case Studies Using the B Method*, Sekerinski, E., Sere, K. (eds.), Springer-Verlag, pp.x ix - xxiv, ISBN 1-85233-053-8.
206. Parnas, D. L., Peters, D. K., "An Easily Extensible Toolset for Tabular Mathematical Expressions", in *Proceedings of the Fifth International Conference on Tools And Algorithms For The Construction and Analysis Of Systems (TACAS '99)*, volume 1579 of Lecture Notes in Computer Science (LNCS) pages 345 - 359. Springer Verlag, 1999.
207. Kreyman, K., Parnas, D.L., Qiao, S. "Inspection Procedures for Critical Programs that Model Physical Phenomena" CRL Report 368, TRIO, Communication Research Laboratory, McMaster University, February 1999, 15 pgs.
208. Parnas, D.L., "Myths and Methods: Is There a Scientific Basis for Y2K Inspections?" in the *Proceedings of the OECD Nuclear Energy Agency International Workshop: "Impact of the Year 2000 on the Nuclear Industry"*. Also available as CRL Report 369, Communications Research Laboratory, McMaster University, February 1999, 8 pgs.
209. Parnas, D.L., "Myths about Y2K Inspections", *Comm. of the ACM*, 42, 5, May 1999, pg. 128.
210. Xu, J., Parnas, D.L., "Priority Scheduling Versus Pre-Run-Time Scheduling", in "*The International Journal of Time Critical Computing Systems*", 18, pp. 7 - 23 (2000), Kluwer Academic Publishers, Boston. (Revised version of 202.)
211. Parnas, D.L., "Forward" in "*Software Product-Line Engineering. A Family-Based Software Development Process*", by David M. Weiss and Chi Tau Robert Lai, published by Addison Wesley, pp. xiii- xv, ISBN 0-201-69438-7. July 1999.
212. Parnas, D.L., "A Life of Indecision", an autobiographical note written on the occasion of receiving the Harlan D. Mills, "Practical Visionary" Prize and subsequently published in *Software Engineering Notes*, Vol. 24, No.4, July 1999, pgs. 47 - 49.
213. Börger, E., Hörger, B., Parnas, D. L., Rombach, D., (editors) "*Requirements Capture, Documentation, and Validation*" Dagstuhl-Seminar-Report 242, Schloss Dagstuhl, Internationales Begegnungs-und Forschungszentrum für Informatik, Universität Saarbrücken, Germany.
214. Denert, E., Hoffman, D., Ludewig, J., Parnas, D. L., (editors) "*Software Engineering Research and Education: Seeking a New Agenda*" Dagstuhl-Seminar-Report 230, Schloss Dagstuhl, Internationales Begegnungs-und Forschungszentrum für Informatik, Universität Saarbrücken, Germany.
215. Parnas, D.L., "A Software Engineering Program of Lasting Value" (Abstract), in *Algebraic Methodology and Software Technology, Proceedings of 8th International Conference, AMAST 2000*, volume 1816, pg 1, Springer Verlag, 2000.
216. Parnas, D.L., "Making Mathematical Methods More Practical for Software Developers" (Abstract) in *Algebraic Methodology and Software Technology, Proceedings of 8th International Conference, AMAST 2000*, volume 1816, pp. 9-10, Springer Verlag, 2000.

217. Parnas, D.L., "Requirements Documentation: Why a Formal Basis is Essential", (Abstract) in *Proceedings of the 4th IEEE International Conference on Requirements Engineering*, Schaumburg, Illinois, 19 - 23 June, 2000, pp. 81 - 82.
218. Parnas, D.L., "Two Positions on Licensing", Panel position statement in *Proceedings of the 4th IEEE International Conference on Requirements Engineering*, Schaumburg, Illinois, 19 - 23 June, 2000, pp. 154 - 155.
219. Peters, D., Parnas, D.L. "Requirements-based Monitors for Real-Time Systems", *Proceedings of the 2000 International Symposium on Software Testing and Analysis (ISSTA)*, August 22 -24, 2000.
220. Also in *Software Engineering Notes*, Vol. 25, No. 5, September 2000, pp. 77 - 85.
220. Kahl, W., Parnas, D.L., Schimidt, G. (eds), *Proceedings of the Workshop, Relational Methods in Software - RelMiS 2001, A Satellite Event Of ETAPS 2001*, Genoa, Italy, 7 - 8, April 2001, Universität der Bundeswehr München, Fakultät für Informatik.
221. Parnas, D.L., Kreyman, K., "Documenting Requirements for Software Models of Environmental Phenomena", (Abstract) in *Oceanography, The Oceanography Society Biennial Scientific Meeting*, volume 14, no. 1, pgs. 41 - 42., Miami Beach, FL, April 2 - 5, 2001.
222. Hoffman, D.M., Weiss, D.M. (eds.), *Software Fundamentals: Collected Papers by David L. Parnas*, Addison-Wesley, 2001, 664 pgs., ISBN 0-201-70369-6. New material includes:
- Parnas, D.L., "Description & Specification", pp. 1 - 6,
  - Parnas, D.L., "Software Design", pp. 137 - 142,
  - Parnas, D.L., "Concurrency and Scheduling", pp. 383 - 384,
  - Parnas, D.L., "Commentary", pp. 467 - 470,
223. Qiao, S., Parnas, D.L., "Limitations of Backward Error Analysis", *SERG 389*, McMaster's Software Engineering Research Group, Dept. of Computing and Software, August 2000.
224. Neumann, P.G., Parnas, D.L., "Computers: Boon or Bane", *Communications of the ACM*, Vol. 44, No. 3, March 2001, pg. 168.
225. Parnas, D.L., Kreyman, K., "On Documenting Requirements for Computer Programs Based on Models of Physical Phenomena", *SQRL Report No. 1*, Software Quality Research Laboratory, Dept. of Computing and Software, McMaster University, January 2002, 14 pgs.
226. Parnas, D.L., "Why Software Developers Should be Licensed", *Dimensions*, Vol. 22, No. 3, Professional Engineers Ontario, May/June 2001, pp. 36-39.
- Reprinted in *Engineering Times*, National Society of Professional Engineers, Volume 24, Number 1, January 2002, pg. 6.
227. Peters, D.K., Parnas, D.L., "Requirements-Based Monitors for Real-Time Systems", *IEEE Transactions on Software Engineering*, Vol. 28, No.2, February 2002 pp. 146 - 158.

228. Parnas, D.L., "The Secret History of Information Hiding", *Software Pioneers: Contributions to Software Engineering*, Manfred Broy and Ernst Denert (Eds.), Springer Verlag, Berlin - Heidelberg, 2002, 399-409, ISBN 3-540-43081-4.
229. Parnas, D.L., "Geleitwort" in "Basiswissen Softwaretest", by Spillner, A., Linz, T., published by Dpunkt.verlag, pp. viii - ix, ISBN 3-89864-178-3. 2003.
230. Parnas, D.L., Soltys, M., "Basic Science for Software Developers", *SQRL Report No. 7*, Software Quality Research Laboratory, Dept. of Computing and Software, McMaster University, October 2002, 8 pgs.
231. Parnas, D.L., "Licensing Software Engineers in Canada", *Communications of the ACM*, 45 11, November 2002, pp.96-98.
232. Parnas, D.L., "Give Meaning to the Status of Software Engineer", (Forum letter), *Communications of the ACM*, vol. 46, No. 3, March 2003, pp. 12-13.
233. Parnas, D.L., "Structured Programming: A Minor Part of Software Engineering" in: J. Madey (editor), *Proc. of an International Workshop: "Structured Programming: The Hard Core of Software Engineering"*, Proceedings of an International Workshop at the European Joint Conferences on Theory and Practice of Software (ETAPS'03), Warsaw University and Polish Academy of Sciences, 6th April 2003, pp.19-25
234. Parnas, D.L., Lawford, M., "Inspection's Role in Software Quality Assurance", *IEEE Software*, Focus - Guest Editor's Introduction, Vol. 20, No. 4, July/August 2003, pp. 16-20. Linked to item 235.
235. Parnas, D.L., Lawford, M., "The Role of Inspection in Software Quality Assurance", *IEEE Transactions on Software Engineering*, - Guest Editor's Introduction, Vol. 29, No. 8, August 2003, pp. 674 - 676. Linked to item 234.
236. Parnas, D.L., "The Limits of Empirical Studies of Software Engineering", *Proceedings of the 2003 International Symposium of Empirical Software Engineering*, IEEE Computer Society, pp. 2 -5, 30 September 2003.
237. Parnas, D.L., "Structured programming: A minor part of software engineering", in: J. Madey, J.L Fiadeiro, A. Tarlecki, (Guest Editors): "Special Issue to Honour Professor's W.M. Turski's Contribution to Computing Science on the Occasion of his 65th Birthday", *Information Processing Letters*, 88, 1-2, 2003, pp.53-58. Revised version of item 233.
238. Dragomiroiu, M., Parnas, D.L, Clermont, M., "On Variabilities in Program Families", *Proceedings of SPLYR (Software Product Line Young Researchers)*, Fraunhofer IESE Report, No. 086.04/E, pp. 20-29, Boston, USA.
239. Baber, R., Parnas, D.L., Vilkomir, S., Harrison, P., O'Connor, T., "Disciplined Methods of Software Specifications: A Case Study", *Proceedings of the International Conference on Information Technology Coding and Computing (ITCC 2005)*, April 4-6, 2005, Las Vegas, NV, USA, IEEE Computer Society.

240. Clermont, M., Parnas, D. L., "Using Information about Functions in Selecting Test Cases", *ICSE 2005 Workshop on Advances in Model-Based Software Testing (A-MOST)*, St. Louis, Missouri, USA, May 15-16, 2005, IEEE Computer Society.
241. Rusovan, S., Lawford, M., Parnas, D.L., "Open Source Software Development: Future or Fad?", *Perspectives on Free and Open Source Software*, Feller, J. Fitzgerald, B., Hissan, S.A., Lakhani, K.R. (editors), MIT Press, 2005, Cambridge, Massachusetts, USA.
242. Vilkomir, S.A., Parnas, D.L., Mendiratta, V.B., Murphy, E., "Availability Evaluation of Hardware/Software Systems with Several Recovery Procedures", *Proceedings of the 29th IEEE Annual International Computer Software and Applications Conference (COMPSAC 2005)*, Edinburgh, Scotland, July 25-28, 2005, IEEE Computer Society.
243. Vilkomir, S., A., Tips, P., Parnas, D, L., Monahan, J., O'Connor, T., "Evaluation of Automated Testing Coverage: a Case Study of Wireless Secure Connection Software Testing", Supplementary proceedings of the 16th IEEE International Symposium on Software Engineering Reliability (ISSRE 2005), November 8-11, 2005, Chicago, Illinois, USA, pp. 3.123-3.134.
244. Parnas, D.L., "A Family of Mathematical Methods for Professional Software Documentation", *Integrated Formal Methods: Proceedings of the 5th International Conference, IFM 2005*, Eindhoven, The Netherlands, November 30 2005.
245. Vilkomir, S., A., Parnas, D., L., Mendiratta, V., B., Murphy E., "Segregated Failure Model for Availability Evaluation of Fault-Tolerant Systems", *Proceedings of the 29th Australasian Computer Science Conference (ACSC 2006)*, Tasmania, Hobart, Australia, January 16 - 19, 2006, CRPIT vol. 48, ACS, pp. 55-61.