

Bibliographic References

All the sources referred to in the main text are listed here. Articles are indexed alphabetically according to their reference code. Codes for single-author articles are constructed from the first four letters of the surname¹, followed by the last two digits of the year of publication. Codes for multiple-author articles are constructed from the initial letter of each surname, up to a maximum of four letters, followed by the last two digits of the year of publication. To distinguish multiple articles published by the same author(s) in a given year, a suffix "a", "b"... is added to the reference codes for these articles.

References

[ABBD95] C Anderson, J Barnes, B Brogsol, K Dritz, O Pazy and B Wichmann (1995), *Ada 95 Rationale: The Language, The Standard Libraries*, Intermetrics Inc., Cambridge, MA.

[AC95] M Abadi and L Cardelli (1995), 'On subtyping and matching', *Proc. 9th European Conf. Object-Oriented Prog.*, Aarhus, Denmark .

[AGS94] E Amiel, O Gruber and E Simon (1994), 'Optimising multi-method dispatch using compressed dispatch tables', *Proc. 9th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 29(10), 244-258.

¹ Apart from Scott Meyers, whose unique identity is [Meys] to avoid aliasing with another worthy in the field. So much for value-based identifiers in the relational data model! ☺

- [Agha86] G Agha (1986), 'An overview of Actor languages', *ACM Sigplan Notices*, 21(10).
- [Agha88] G Agha (1988), *Actors: a Model of Concurrent Computation in Distributed Systems*, MIT Press.
- [AH87] G Agha and C Hewitt (1987), 'Actors: a conceptual foundation for concurrent object-oriented programming', *Research Directions in Object-Oriented Programming*, eds. B Shriver and P Wegner, MIT Press.
- [AHS89] T Andrews C Harris and K Sinkel (1989), *The Ontos Object Database*, Ontologic Ltd.
- [Amer87] P America (1987), 'Inheritance and subtyping in a parallel object-oriented language', *Proc. 1st European Conf. Object-Oriented Prog.*, pub LNCS 276, Springer Verlag, 234-242.
- [Amer90] P America (1990), 'Designing an object-oriented language with behavioural subtyping', *Proc. Conf. Foundations of Object-Oriented Lang.*, 60-90.
- [ASS85] H Abelson, G J Sussman and J Sussman (1985), *Structure and Interpretation of Computer Programs*, MIT Press.
- [BC89] K Beck and W Cunningham (1989), 'A laboratory for teaching object-oriented thinking', *Proc. 4th ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 24(10), 1-6.
- [BC90] G Bracha and W Cook (1990), 'Mixin-based inheritance', *Proc. 5th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.* and *Proc. 4th European Conf. Object-Oriented Prog.*, pub. *ACM Sigplan Notices*, 25(10), 303-311.
- [BCGS89] V Breazu-Tannen, T Coquand, C Gunder and A Scedrov (1989), 'Inheritance and explicit coercion', *Proc. IEEE Symp. on Logic in Comp. Sci.*, 112-133.
- [BCMG93] K Bruce, J Crabtree, T Murtagh and R van Gent (1993), 'Safe and decidable type checking in an object-oriented language', *Proc. 8th ACM Conf. Object-Oriented Prog., Lang., Sys. and Appl.*, 29-46.
- [BDGK88] D Bobrow, L DeMichiel, R Gabriel, S Keene, G Kiczales and D Moon (1988), *Common Lisp Object System Specification*, X3J13 Document 88-002R, June.
- [BDMN67] G Birtwistle, O-J Dahl, B Myrhaug and K Nygaard (1973), *Simula Begin*, Studentlitteratur and Auerbach
- [BHJL86] A Black, N Hutchison, E Jul and H Levy (1986), 'Object structure in the Emerald system', *Proc. 1st ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, 78-86.

- [BL85] R Brachman and H Levesque, eds. (1985), *Readings in Knowledge Representation*, Morgan Kaufmann.
- [BL90] K Bruce and G Longo (1990), 'A modest model of records, inheritance and bounded quantification', *Information and Computation*, 87(1-2), 196-240.
- [Blac92] D Black (1992), 'An optimising compiler for an object-oriented language with higher-order functions', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [BM92] K Bruce and J Mitchell (1992), 'PER models of subtyping, recursive types and higher-order polymorphism', *Proc. 19th ACM Symp. Principles of Prog. Lang.*, 316-327.
- [BMS80] R Burstall, D MacQueen and D Sanella (1980), 'Hope: an experimental applicative language', *Technical Report CSR-62-80*, Department of Computer Science, University of Edinburgh.
- [Booc91] G Booch (1991), *Object-Oriented Design with Applications*, 1st edn., Benjamin Cummings.
- [Booc94] G Booch (1994), *Object-Oriented Analysis and Design with Applications*, 2nd edn., Benjamin Cummings.
- [Booc95] G Booch (1995), *Object Solutions: Managing the Object-Oriented Project*, Addison Wesley.
- [Brac83] R J Brachman (1983), 'What IS-A and isn't: an analysis of taxonomic links in semantic networks', *IEEE Computer*, 16(10).
- [Bruc94] K Bruce (1994), 'A paradigmatic object-oriented programming language: design, static typing and semantics', *J. of Func. Prog.*, 4(2), 127-206.
- [BS83] D Bobrow and M Stefik (1983), *The LOOPS Manual*, XEROX PARC.
- [BSG94] K Bruce, A Schuett and R van Gent (1994), 'PolyTOIL: a type-safe polymorphic object-oriented language', *Technical Report, Department of Computer Science, Williams College*; also to appear as an extended abstract in *ECOOP '95*.
- [Budd91] T Budd (1991), *An Introduction to Object-Oriented Programming*, Addison-Wesley.
- [BW94] Barr and Wells (1984), *Category Theory for Computing Science*, Prentice-Hall.

- [CABD94] D Coleman, P Arnold, S Bodoff, C Dollin, H Gilchrist, F Hayes and P Jeremaes (1994), *Object-Oriented Development: The Fusion Approach*, Prentice Hall.
- [Cann80] H Cannon (1980), *Flavors*, Technical Report, MIT AI Laboratory.
- [Card84] L Cardelli (1984), 'A semantics of multiple inheritance', in: *Semantics of Data Types, LNCS 173*, eds. Kahn, MacQueen and Plotkin, Springer Verlag, 51-68.
- [Card86] L Cardelli (1986), 'Amber', *Combinators and Functional Programming Languages, LNCS, 242*, 21-47.
- [Card88a] L Cardelli (1988), 'A semantics of multiple inheritance', *Information and Computation, 76*, 138-164.
- [Card88b] L Cardelli (1988), 'Structural subtyping and the notion of power type', *Proc. 15th ACM Symp. Principles of Prog. Langs.*, 70-79.
- [Card90] L Cardelli (1990), 'Notes about F_{\leq} ', unpublished manuscript.
- [Card92] L Cardelli (1992), 'Extensible records in a pure calculus of subtyping', *Research Report 81, DEC Systems Research Center*, January. Reprinted in: [GM94].
- [CCHO89a] P Canning, W Cook, W Hill, W Olthoff and J Mitchell (1989), 'F-bounded polymorphism for object-oriented programming', *Proc. 4th Int. Conf. Func. Prog. Lang. and Arch.*, Imperial College London, September, 273-280.
- [CCHO89b] P Canning, W Cook, W Hill and W Olthoff (1989), 'Interfaces for strongly-typed object-oriented programming', *Proc. 4th ACM Conf. Object-Oriented Lang., Sys. and Appl.*, 457-467.
- [CF58] H B Curry and R Feys (1958), *Combinatory Logic*, North-Holland.
- [CG92] P-L Curien and G Ghelli (1992), 'Coherence of subsumption: minimum typing and type-checking in F_{\leq} ', *Mathematical Structures in Computer Science, 2*, 55-91; reprinted in: [GM94].
- [CH86] B J Cox and B Hunt (1986), 'Objects, icons and software-ICs', *Byte, 11(8)*, August, McGraw-Hill.
- [CHC90] W Cook, W Hill and P Canning (1990), 'Inheritance is not subtyping', *Proc. 17th ACM Symp. Principles of Prog. Lang.*, 125-135.
- [Chur40] A Church (1940), 'A formulation of the simple theory of types', *J. Symbolic Logic, 5*, 56-68.
- [CL91] L Cardelli and G Longo (1991), 'A semantic basis for Quest', *J. of Func. Prog.*, 1(4), 417-458.

- [CM92] L Cardelli and J Mitchell (1992), 'Operations on records (summary)', *Proc. 5th Int. Conf. Math. Found. Prog. Lang. Semantics*, pub. LNCS, 442, Springer Verlag, 22-52.
- [CN91] B J Cox and A J Novobilski (1991), *Object-Oriented Programming: an Evolutionary Approach, 2nd Ed.*, Addison-Wesley.
- [Comp94] A Compagnoni (1994), 'Subtyping in F^{ω} is decidable', *Technical Report ECS-LFCS-94-281*, University of Edinburgh, LFCS.
- [Cook89a] W Cook (1989), *A denotational semantics of inheritance*, PhD Thesis, Brown University.
- [Cook89b] W Cook (1989), 'A proposal for making Eiffel type-safe', *Proc. 3rd European Conf. Object-Oriented Prog.*, 57-70; reprinted in *Computer Journal* 32(4), 305-311.
- [Cook91] W Cook (1991), 'Object-oriented programming versus abstract data types', in: *Foundations of Object-Oriented Languages*, LNCS 489, eds. J de Bakker et al., Springer Verlag, 151-178.
- [Cox86] B J Cox (1986), *Object-Oriented Programming: an Evolutionary Approach, 1st edn.*, Addison-Wesley.
- [CP89] W Cook and J Palsberg (1989), 'A denotational semantics of inheritance and its correctness', *Proc. 4th ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 24(10), 433-443.
- [CP93] A Compagnoni and B Pierce (1993), 'Multiple inheritance via intersection types', *Technical Report ECS-LFCS-93-275*, University of Edinburgh, LFCS.
- [CP94] G Castagna and B Pierce (1994), 'Decidable bounded quantification', *Proc. 21st ACM Symp. Principles of Prog. Lang.*
- [CU90] C Chambers and D Ungar (1990), 'Iterative type analysis and extended message splitting: optimizing dynamically-typed object-oriented programs', *Proc. 5th ACM Conf. Prog. Lang. Design and Impl.*, pub. *ACM Sigplan Notices*, 25(6), 150-164; reprinted in: *Lisp and Symbolic Computation*, 4(3) (1991), 283-310.
- [CUL89] C Chambers, D Ungar and E Lee (1989), 'An efficient implementation of Self, a dynamically-typed object-oriented language based on prototypes', *Proc. 4th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 24(10), 49-70; reprinted in: *Lisp and Symbolic Computation*, 4(3) (1991), 243-281.
- [CW85] L Cardelli and P Wegner (1985), 'On understanding types, data abstraction and polymorphism', *ACM Computing Surveys*, 17(4), 471-521.

- [CY91a] P Coad and E Yourdon (1991), *Object-Oriented Analysis, 2nd ed.*, Prentice Hall.
- [CY91b] P Coad and E Yourdon (1991), *Object-Oriented Design*, Prentice Hall.
- [DDH72] O-J Dahl, E Dijkstra and C A R Hoare (1972), *Structured Programming*, Academic Press.
- [DDS78] A Demers, J Donahue and G Skinner (1978), 'Data types as values: polymorphism, type-checking, encapsulation', *Proc. 5th ACM Symp. Principles Prog. Lang.*, 23-30.
- [DD79] A Demers and J Donahue (1979), 'Revised report on Russell', *Technical Report TR 79-389*, Department of Computer Science, Cornell University, Ithaca NY.
- [DeMa79] T DeMarco (1979), *Structured Analysis and System Specification*, Prentice Hall.
- [DH95] K Driesen and U Hölzle (1995), 'Minimising row displacement dispatch tables', *Proc. 10th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 30(10).
- [DHHM94] R Ducournau, M Habib, M Huchard and M L Mugnier (1994), 'Proposal for a monotonic multiple inheritance linearization', *Proc. 9th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 29(10), 164-175.
- [Digi92] Digitalk, Inc. (1992), *Smalltalk/V for Windows, Tutorial and Programming Handbook*, Digitalk Inc.
- [DMSV89] R Dixon, T McKee, P Schweizer and M Vaughan (1989), 'A fast method dispatcher for compiled languages with multiple inheritance', *Proc. 4th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 24(10), 211-214.
- [Dries93] K Driesen (1993), 'Selector table indexing and sparse arrays', *Proc. 8th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 28(10), 259-270.
- [DS89] S Dewhurst and K Stark (1989), *Programming in C++*, Prentice Hall.
- [DT88] S Danforth and C Tomlinson (1988), 'Type theories and object-oriented programming', *ACM Computing Surveys*, 20(1), 29-72.
- [ES90] M Ellis and B Stroustrup (1990), *The Annotated C++ Reference Manual, ANSI Base Document*, Wokingham: Addison-Wesley.

- [EST95] J Eifrig, S Smith and V Trifonov (1995), 'Sound polymorphic type inference for objects', *Proc. 10th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 30(10).
- [ESTZ94] J Eifrig, S Smith, V Trifonov and A Zwarico (1994), 'Application of object-oriented type theory: state, decidability and integration', *Proc. 9th ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 29(10), 16-30.
- [FGJM85] K Futatsugi, J Goguen, J-P Jouannaud and J Meseguer (1985), 'Principles of OBJ2', *Proc. 12th ACM Symp. Principles of Prog. Lang.*, 52-66.
- [Fish87] D H Fishmann et al. (1987), 'Iris: an object-oriented database management system', *ACM Trans. Office Information Systems*, 5, 48-69.
- [Ghel90a] G Ghelli (1990), *Proof Theoretic Studies about a Minimal Type System Integrating Inclusion and Parametric Polymorphism*, PhD Thesis, TD-6-90, Dipartimento di Informatica dell'Università di Pisa.
- [Ghel90b] G Ghelli (1990), 'Modelling features of object-oriented languages in second-order functional languages with subtypes', *LNCS*, 489, 311-337.
- [GHJV95] E Gamma, R Helm, R Johnson and J Vlissides (1995), *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley.
- [Gibs90] E Gibson (1990), 'Objects - born and bred', *Byte*, 15(10), McGraw Hill, 245-254.
- [Gira72] J-Y Girard (1972), *Interprétation fonctionnelle et élimination des coupures de l'arithmétique d'ordre supérieur*, PhD Thesis, Université Paris VII.
- [GJ90] J Graver and R Johnson (1990), 'A type system for Smalltalk', *Proc. 17th ACM Symp. Principles of Prog. Lang.*, 136-150.
- [GM94] C Gunter and J Mitchell eds. (1994), *Theoretical aspects of Object-Oriented Programming: Types, Semantics and Language Design*, MIT Press.
- [Gold81] A Goldberg et al (1981), various articles, *Byte*, 6(8), August, McGraw Hill.
- [Gold85] A Goldberg (1985), *Smalltalk-80: the Interactive Programming Environment*, Addison-Wesley.
- [GR83] A Goldberg and D Robson (1983), *Smalltalk-80: the Language and its Implementation*, Addison-Wesley.
- [GS79] C Gane and T Sarson (1979), *Structured Systems Analysis*, Prentice Hall.

- [Gutt75] J V Guttag (1975), 'The specification and application to programming of abstract data types', *Technical Report CSRG-59, University of Toronto*, September.
- [Gutt77] J V Guttag (1977), 'Abstract data types and the development of data structures', *Comm. ACM 20(6)*, 396-404; reprinted in: *Programming Language Design*, ed. A Wasserman (1980), IEEE Computer Society Press.
- [GH78] J V Guttag and J J Horning (1978), 'The algebraic specification of data types', *Acta Informatica, 10*, 27-52; reprinted in: *Programming Methodology*, ed. D Gries (1978), Springer Verlag.
- [GWB91] R Gabriel, J White and D Bobrow (1991), 'CLOS: integrating object-oriented and functional programming', *Comm. ACM, 34(9)*.
- [Harr91a] W Harris (1991), *Typed Object-Oriented Programming: Abel Project Posthumous Report*, Hewlett-Packard Laboratories.
- [Harr91b] W Harris (1991), 'Contravariance for the rest of us', *J. Object-Oriented Prog., November/December*, 10-18.
- [Hauc93] F J Hauck (1993), 'Inheritance modelled with explicit bindings: an approach to typed inheritance', *Proc. 8th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *Sigplan Notices, 28(10)*, 231-239.
- [HE94] B Henderson-Sellers and J M Edwards (1994), *Book Two of Object-Oriented Knowledge: the Working Object*, Prentice Hall.
- [Hend92] B Henderson-Sellers (1992), *A Book of Object-Oriented Knowledge*, Prentice Hall.
- [Hewi77] C Hewitt (1977), 'Viewing control structures as patterns of passing messages', *Artificial Intelligence, 8*, 323-364.
- [Hoar72] C A R Hoare (1972), 'Proof of correctness of data representations', *Acta Informatica, 1*, 271-281.
- [Howa80] W A Howard (1980), 'The formulae-as-types notion of construction', in: *To H B Curry: Essays on Combinatory Logic, Lambda Calculus and Formalism*, eds. J P Seldin and J R Hindley, Academic Press, 479-490.
- [Howa93] R Howard (1993), 'Eiffel: an overview', *Journal of Object-Oriented Programming, 5 (8)*, January, 76-79.
- [HP92] M Hofmann and B Pierce (1992), 'An abstract view of objects and subtyping', *Technical Report ECS-LFCS-92-226*, University of Edinburgh, LFCS.

- [IBHK79] J Ichbiah, J Barnes, J Heliard, B Krieg-Bruckner, O Roubine and B Wichmann (1979), 'Rationale and design of the programming language Ada', *ACM Sigplan Notices*, 14(6).
- [Jaco87] I Jacobson (1987), 'Object-oriented development in an industrial environment', *ACM Sigplan Notices*, 22(12).
- [JCJÖ92] I Jacobson, M Christerson, P Jonsson and G Övergaard (1992), *Object-Oriented Software Engineering: a Use-Case Driven Approach*, Addison-Wesley and ACM Press.
- [JF88] R E Johnson and B Foote (1988), 'Designing reuseable classes', *J. Object-Oriented Prog.*, 1(2), 22-35.
- [JGZ88] R Johnson, J Graver and L Zurawski (1988), 'TS: an optimizing compiler for Smalltalk', *Proc. 3rd ACM Conf. on Object-Oriented Prog. Sys., Lang. and Appl.*, 18-25.
- [Jone86] C B Jones (1986), *Systematic Software Development Using VDM*, Prentice-Hall.
- [Keen89] S E Keene (1989), *Object-Oriented Programming in Common Lisp: a Programmer's Guide to CLOS*, Addison-Wesley and Symbolics Press, Reading MA.
- [KRB91] G Kiczales, J Rivieres and D Bobrow (1991), *The Art of the Metaobject Protocol*, MIT Press.
- [KS92] D Katiyar and S Sankar (1992), 'Completely bounded quantification is decidable', *Proc. ACM Sigplan Workshop on ML and its Applications*, June.
- [LABM81] B Liskov, R Atkinson, T Bloom, E Moss, C Schaffert, R Scheifler and A Snyder (1981), *CLU Reference Manual*, Springer Verlag.
- [Lipp91] S B Lippman (1991), *C++ Primer, 2nd ed.*, Addison-Wesley.
- [Lisk80] B Liskov (1980), 'Programming with abstract data types', in: *Programming Language Design*, ed. A Wasserman, IEEE Computer Society Press.
- [Lisk87] B Liskov (1987), 'Data abstraction and hierarchy', *Addendum to Proc. 2nd ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 23(5) (1988), 17-34.
- [Lisk95] B Liskov *et al.* (1995), 'Where clauses', *Proc. 10th ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub. *ACM Sigplan Notices*, 30(10).
- [Lore93] M Lorenz (1993), *Object-Oriented Software Development*, Prentice Hall.

- [Low91] Low E-K (1991), 'A class structure optimiser for object-oriented languages', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [LZ74] B H Liskov and S N Zilles (1974), 'Programming with abstract data types', *ACM Sigplan Notices*, 9, 50-59.
- [LZ75] B H Liskov and S N Zilles (1975), 'Specification techniques for data abstraction', *IEEE Trans. on Software Eng.*, 1, 7-19.
- [LZ77] B Liskov and S Zilles (1977), 'An introduction to formal specifications of data abstractions, in: *Current Trends in Programming Methodology: Software Specification and Design*, 1, ed. R Yeh, Prentice Hall.
- [MacL82] B J MacLennan (1982), 'Values and objects in programming languages', *ACM Sigplan Notices*, 17(12), 70-79.
- [Mads93] O L Madsen (1993), *Object-Oriented Programming in the Beta Programming Language*, Addison-Wesley.
- [Mart80] P Martin-Löf (1980), 'Intuitionistic type theory', *series of lecture notes*, June, University of Padova.
- [MBDF90] B Magnusson, M Bengtsson, L-O Dahlin, G Fries, A Gustavsson, G Hedin, S Minor, D Oscarsson and M Taube (1990), 'An overview of the Mjølner/ORM environment: incremental language and software development, *Technical Report LU-CS-TR:90-57 and LUTEDX/(TFCS-3026)/1-12/(1990)*, Dept. Comp. Sci., Lund University, Lund Institute of Technology, Sweden.
- [Meye88] B Meyer (1988), *Object-Oriented Software Construction*, Prentice-Hall.
- [Meye89] B Meyer (1989), 'Static typing for Eiffel', *Interactive Software Engineering Technical Report TR-EI-18, January; updated in July 1989*; also supplied with: 'Eiffel 2.3 Release Notes', *Interactive Software Engineering, Inc.*, 1990.
- [Meye92] B Meyer (1992), *Eiffel: The Language*, Prentice-Hall.
- [Meye95] B Meyer (1995), 'Beware polymorphic cat-calls', *Eiffel Forum at 18th Conf. Tech. Object-Oriented Lang. and Sys.*, Melbourne.
- [Meys92] S Meyers (1992), *Effective C++: 50 Specific Ways to Improve your Programs and Designs*, Addison-Wesley.
- [Miln78] R Milner (1978), 'A theory of type polymorphism in programming', *J. Computer and System Sciences*, 17, 348-375.
- [Mins75] M Minsky (1975), 'A framework for representing knowledge', in: *The Psychology of Computer Vision*, ed. P Winston, McGraw-Hill, New York.

- [Mitt88] J C Mitchell (1988), 'Polymorphic type inference and containment', *Information and Computation*, 76, 211-249.
- [Mitt90] J C Mitchell (1990), 'Towards a typed foundation for method specialisation and inheritance', *Proc. 17th ACM Symp. on Principles of Prog. Langs.*, 109-124.
- [Moon86] D A Moon (1986), 'Object-oriented programming with Flavors', *Proc. 1st ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub ACM Sigplan Notices, 21(11), 1-6.
- [Morr73] J H Morris (1973), 'Types are not sets', *Proc. ACM Symp. on Principles of Programming Languages*, Boston, 120-124.
- [MP85] J C Mitchell and G D Plotkin (1985), 'Abstract types have existential type', *Proc. 12th ACM Symp. Principles of Prog. Langs.*, 37-51; reprinted in: *ACM Trans. Programming Languages and Systems*, 10(3), July (1988).
- [MPS84] D MacQueen, G Plotkin and R Sethi (1984), 'An ideal model for recursive polymorphic types', *Proc. 11th ACM Symp. on Principles of Programming Languages*, 165-174.
- [MS76] R Milne and C Strachey (1976), *A Theory of Programming Language Semantics*, Chapman and Hall.
- [MS82] D MacQueen and R Sethi (1982), 'A higher order polymorphic type system for applicative languages', *Proc. ACM Symp. Lisp and Func. Prog.*, 243-252.
- [MSOP86] D Maier, J Stein, A Otis and A Purdy (1986), 'Development of an object-oriented DBMS', *Proc. 1st ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, 472-482.
- [MTH90] R Milner, M Tofte and R Harper (1990), *The Definition of Standard ML*, MIT Press.
- [Myer78] G Myers (1978), *Composite/Structured Design*, Van Nostrand Reinhold.
- [ND81] K Nygaard and O-J Dahl (1981), 'The development of the Simula languages', *History of Programming Languages*, ed. R Wexelblat, Academic Press.
- [NeXT93] NeXT Computer Inc. (1993), *NeXTStep Object-Oriented Programming and the Objective C Language*, Addison-Wesley.
- [Ng92] Ng Y-M (1992), 'An optimising compiler for handling multiple inheritance in Brunel', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.

- [OMG91] The Object Management Group (1991), *The Common Object Request Broker: Architecture and Specification, Revision 1.1*, OMG.
- [Omoh94] S M Omohundro (1994), *The Sather 1.0 specification*, International Computer Science Institute, Berkley CA.
- [Ong91] Ong P-S (1991), 'An object-oriented graphical user interface for Brunel', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [Page88] M Page-Jones (1988), *The Practical Guide to Structured Systems Design*, Yourdon Press.
- [Parn72] D Parnas (1972), 'On the criteria to be used in decomposing systems into modules', *Comm. ACM*, 15(12), 1053-1058; reprinted in: *Classics in Software Engineering*, ed. E Yourdon (1979), Yourdon Press.
- [Pier92a] B Pierce (1992), 'Intersection types and bounded polymorphism', *Technical Report ECS-LFCS-92-200*, University of Edinburgh, LFCS.
- [Pier92b] B Pierce (1992), 'Bounded quantification is undecidable', *Proc. 19th ACM Symp. Principles of Prog. Lang.*, 305-315.
- [PT92] B Pierce and D Turner (1992), 'Object-oriented programming without recursive types', *Technical Report ECS-LFCS-92-225*, University of Edinburgh, LFCS.
- [PT93] B Pierce and D Turner (1993), 'Simple type-theoretic foundations for object-oriented programming', *J. Func. Prog.*, to appear.
- [PW89] W Pun and R Winder (1989) 'A design method for object-oriented programming', *Proc. 3rd European Conf. Object-Oriented Prog.*, 225-240.
- [Quil68] R Quillian (1968), 'Semantic memory', in: *Semantic Information Processing*, ed. M Minsky, MIT Press.
- [Quin90] B Quinn (1990), 'Object-oriented languages for software engineering: a comparative study', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [RBPE91] J Rumbaugh, M Blaha, W Premerlani, F Eddy and W Lorenzen (1991), *Object-Oriented Modeling and Design*, Prentice Hall.
- [Read89] C Reade (1989), *Elements of Functional Programming*, Addison Wesley.
- [Redd88] U S Reddy (1988), 'Objects as closures: abstract semantics of object-oriented languages', *Proc. ACM Symp. on Lisp and Func. Prog.*, 289-297.
- [Rent82] T Rentsch (1982), 'Object-oriented programming', *ACM Sigplan Notices*, 17 (12).

- [Reyn74] J C Reynolds (1974), 'Towards a theory of type structure', *Proc. Coll. sur la Programmation*, New York; pub. LNCS 19, Springer Verlag, 408-425.
- [Reyn75] J C Reynolds (1975), 'User defined types and procedural data structures as complementary approaches to data abstraction', in: *Programming Methodology, A Collection of Articles by IFIP WG2.3*, ed. D Gries, 309-317; reprinted from *New Advances in Algorithmic Languages*, ed. S A Schuman, INRIA, 157-168.
- [Reyn83] J C Reynolds (1983), 'Types, abstraction and parametric polymorphism', in: *Information Processing 83*, ed. R E A Mason, North-Holland, Amsterdam, 513-523.
- [RG92] K S Rubin and A Goldberg (1992), 'Object-behaviour analysis', *Comm. ACM*, 35(9), 48-62.
- [RL89] R Raj and H Levy (1989), 'A compositional model for software reuse', *Proc. 3rd European Conf. Object-Oriented Prog.*, 3-24; reprinted in *Computer Journal* 32(4), 312-322.
- [Robi65] J A Robinson (1965), 'A machine-oriented logic based on the resolution principle', *J. of ACM*, 12(1).
- [RW92] M Reiser and N Wirth (1992), *Programming in Oberon: Steps beyond Pascal and Modula*, Addison-Wesley.
- [Sakk89] M Sakkinen (1989), 'Disciplined inheritance', *Proc. 3rd European Conf. Object-Oriented Prog.*, 39-56.
- [SB86] M Stefik and D Bobrow (1986), 'Object-oriented programming: themes and variations', *AI Magazine*, 6(4).
- [SBMC83] M Stefik, D Bobrow, S Mittal and L Conway (1983), 'Knowledge programming in LOOPS', *AI Magazine*, 4(3).
- [SC92] A Simons and A Cowling (1992), 'A proposal for harmonising types, inheritance and polymorphism for object-oriented programming', *Dept. Comp. Sci. Research Report CS-92-13*, Univ. Sheffield, UK.
- [SCBK86] C Schaffert, T Cooper, B Bullis, M Kilian and C Wilpolt (1986), 'An introduction to Trellis/Owl', *Proc. 1st ACM Conf. Object-Oriented Prog., Sys., Lang., and Appl.*, pub. ACM Sigplan Notices, 21(11), 9-16.
- [Scot76] D Scott (1976), 'Data types as lattices', *SIAM J. Computing*, 5(3), 523-587.
- [SG82] M Smyth and G Gordon (1982), 'The category-theoretic solutions of recursive domain equations', *SIAM J. Computing*, 11(4), 761-783.

- [Ship81] D W Shipman (1981), 'The functional data model and the data language DAPLEX', *ACM Trans. Database Sys.*, 6, 140-173.
- [Simo91] A J H Simons (1991), 'Brunel: a strongly-typed, portable object-oriented language and programming environment', *Dept. Comp. Sci. Research Report CS-91-07*, Univ. Sheffield, UK.
- [Simo92] A J H Simons (1992), 'Using and teaching object-oriented languages: the future of software engineering', *Proc. 2nd Nat. Conf. on Soft. Eng. in Higher Education*, Southampton Institute, 23-34.
- [Simo93] A J H Simons (1993), *Introduction to Object-Oriented Type Theory*, OOPSLA-93 Tutorial 23, ACM Press.
- [Simo94a] A J H Simons (1994), *Exploring Object-Oriented Type Systems*, OOPSLA-94 Tutorial 28, ACM Press.
- [Simo94b] A J H Simons (1994), 'Adding axioms to Cardelli-Wegner subtyping', *Dept. Comp. Sci. Research Report CS-94-6*, Univ. Sheffield, UK.
- [Simo95] A J H Simons (1995), 'Rationalising Eiffel's type system', *Proc. 18th Conf. Tech. Object-Oriented Lang. and Sys.*, Melbourne, eds. R Duke, C Mingins and B Meyer, Prentice Hall, 365-377.
- [SLN94] A Simons, Low E-K, Ng Y-M (1994), 'An optimising delivery system for object-oriented software', *Object-Oriented Systems*, 1(1), 21-44.
- [SM88] S Shlaer and S J Mellor (1988), *Object-Oriented Systems Analysis: Modeling the World in Data*, Yourdon Press.
- [SM91] S Shlaer and S J Mellor (1991), *Object Lifecycles: Modeling the World in States*, Yourdon Press.
- [Snyd86a] A Snyder (1986), 'CommonObjects: an overview', *ACM Sigplan Notices*, 21(10), 19-28.
- [Snyd86b] A Snyder (1986), 'Encapsulation and inheritance in object-oriented programming languages', *Proc. 1st ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub *ACM Sigplan Notices*, 21(11), 38-45.
- [Snyd87] A Snyder (1987), 'Inheritance and the development of encapsulated software systems', in: *Research Directions in Object-Oriented Programming*, eds. B Shriver and P Wegner, MIT Press, 165-188.
- [SOM93] C Szypersky, S Omohundro and S Murer (1993), 'Engineering a programming language: the type and class system of Sather', *Technical Report TR-93-064*, International Computer Science Institute, Berkley CA.
- [SP94] M Steffen and B Pierce (1994), 'Higher order subtyping', *Technical Report ECS-LFCS-94-280*, University of Edinburgh, LFCS.

- [Spiv88] J M Spivey (1988), *Understanding Z: A Specification Language and its Formal Semantics*, CUP.
- [Spiv89] J M Spivey (1989), *The Z Notation: A Reference Manual*, Prentice-Hall.
- [Stoy77] J Stoy (1977), *Denotational Semantics: The Scott-Strachey Approach to Programming Language Theory*, MIT Press, Cambridge MA.
- [Stra67] C Strachey (1967), *Fundamental Concepts of Programming Languages*, Oxford University Programming Research Group.
- [Stra73] C Strachey (1973), *Varieties of Programming Languages*, Oxford University Programming Research Group.
- [Stro84] B Stroustrup (1984), 'Data abstraction in C', *AT&T Bell Labs. Tech. J.*, 63(8), Part 2, 1701-1732,
- [Stro86] B Stroustrup (1986), *The C++ Programming Language, 1st edn.*, Addison-Wesley.
- [Stro87] B Stroustrup (1987), 'Multiple inheritance for C++', *Proc. European Users' Group Conf.*, Helsinki.
- [Stro88] B Stroustrup (1988), 'What is "object-oriented programming"?', *IEEE Software*, 5(3), 10-20; reprinted from *Proc. 1st Europ. Conf. Object-Oriented Prog.*, pub. *BIGRE 84* (1987), 51-70.
- [Stro91] B Stroustrup (1991), *The C++ Programming Language, 2nd edn.*, Addison-Wesley.
- [Sun95] SunSoft (1995), URL "<http://www.java.sun.com>".
- [Tait65] W W Tait (1965), 'Infinitely long terms of transfinite type', in: *Formal Systems and Recursive Functions*, eds. J N Crossley and M A E Dummett, North Holland.
- [Tam92] R Tam (1992), 'A multiple inheritance graphical browser', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [Tenn81] R D Tennent (1981), *Principles of Programming Languages*, Prentice Hall.
- [Tour86] D Touretzky (1986), *The Mathematics of Inheritance Systems*, Morgan Kaufmann, Palo Alto.
- [Towe94] Tower Eiffel, inc. (1994), *personal communication* at OOPSLA '94 exhibition display stand.

- [Tse91] Tse H-P (1991), 'A class structure- and a formal type-checker for an object-oriented language', *unpublished MSc dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [TW95] P G Thomas and R A Weedon (1995), *Object-Oriented Programming in Eiffel*, Addison-Wesley
- [US87] D Ungar and R B Smith (1987), 'Self: the power of simplicity', *Proc. 2nd ACM Conf. Object-Oriented Prog. Sys., Lang. and Appl.*, pub ACM Sigplan Notices, 22(12), 227-241.
- [VMPK75] A van Wijngaarden, B Mailloux, J Peck, C Koster, M Sintzoff, C Lindsey, L Meertens and R Fisker (1975), 'Revised report on the algorithmic language Algol-68', *Acta Informatica*, 5, 1-236.
- [Wand87] M Wand (1977), 'Complete type inference for simple objects', *Proc. IEEE Symp. Logic in Comp. Sci.*, 37-44.
- [Wegn87] P Wegner (1987), 'Dimensions of object-based language design', *Proc. 2nd ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub ACM Sigplan Notices, 22(12), 168-182.
- [Will95] M H Williams (1995), 'A visualisation tool for Eiffel/S', *unpublished BEng dissertation*, Dept. Comp. Sci., Univ. Sheffield, UK.
- [Wirf91] R J Wirfs-Brock (1991), 'Object-oriented frameworks', *American Programmer*, 4(10), 27.
- [Wirt82] N Wirth (1982), *Programming in Modula-2*, Springer Verlag.
- [Wirt83] N Wirth (1983), 'Program development by stepwise refinement', *Comm. ACM* 26(1).
- [WJ90] R J Wirfs-Brock and R E Johnson (1990), 'A survey of current research in object-oriented design', *Comm. ACM*, 33(9), 104-124.
- [WN94] K Walden and J-M Nerson (1994), *Seamless Object-Oriented Software Architecture*, Prentice Hall.
- [Wolc88] M Wolczko (1988), 'Semantics of object-oriented languages', PhD thesis, pub. *Tech. Report UMCS-88-6-1*, Univ. Manchester, UK.
- [WPM90] A I Wasserman, P A Pircher and R J Muller (1990), 'The object-oriented structured design notation for software design representation', *IEEE Computer*, 23(3), 50-63.
- [WW89] R J Wirfs-Brock and B Wilkerson (1989), 'Object-oriented design: a responsibility-driven approach', *Proc. 4th ACM Conf. Object-Oriented Prog., Sys., Lang. and Appl.*, pub. ACM Sigplan Notices, 24(10), 71-75.

- [WWW90] R J Wirfs-Brock, B Wilkerson and L Wiener (1990), *Designing Object-Oriented Software*, Prentice Hall.
- [YC79] E Yourdon and L Constantine (1979), *Structured Design*, Prentice Hall.
- [Your89] E Yourdon (1989), *Modern Structured Analysis*, Prentice Hall.