

## References

- Bar-Hillel, Y.
- 1970 Mathematical Logic and Foundations of Set Theory, (Proceedings of an International Colloquium, Jerusalem, 1968, Editor), North-Holland, Amsterdam, 1970.
- Barwise, J., Keisler, H. J., Kunen, K.
- 1980 The Kleene Symposium (Editors), North-Holland, Amsterdam, 1980.
- Birkhoff, G.
- 1940 Lattice Theory, American Mathematical Society Colloquium Publications XXV, Amer. Math. Soc., Providence, R.I., 1940.
- Cohen, P. J.
- 1963/64 The independence of the continuum hypothesis I, II, Proc. Nat. Acad. Sci. USA 50 (1963) 1143–48; 51 (1964), 105–10.
- Cooper, S. B.
- 1973 Minimal degrees and the jump operator, Jour. Symb. Logic 38 (1973), 249–71.
- 1974 Minimal pairs and high recursively enumerable degree, Jour. Symb. Logic 39 (1974), 655–60.
- Crossley, J. N.
- 1967 Sets, Models, and Recursion Theory (Proceedings of the Summer School in Mathematical Logic and Logic Colloquium, Leicester, England, 1965, Editor), North-Holland, Amsterdam, 1967.
- Cutland, N. J.
- 1980 Computability: An Introduction to Recursive Function Theory, Cambridge University Press, Cambridge, 1980.
- Drake, F. R., Wainer, S. S.
- 1980 Recursion Theory: Its Generalisations and Applications (Proceedings of Logic Colloquium '79, Leeds, August 1979, Editors), London Mathematical Society Lecture Notes Series 45, Cambridge University Press, Cambridge, 1980.
- Epstein, R. L.
- 1975 Minimal Degrees of Unsolvability and the Full Approximation Construction, Memoirs of the American Mathematical Society 162, Amer. Math. Soc., Providence, R.I., 1975.
- 1979 Degrees of Unsolvability: Structure and Theory: Lecture Notes in Mathematics 759, Springer-Verlag, Berlin, Heidelberg, New York, 1979.
- 1981 Initial Segments of Degrees Below  $0'$ , Memoirs of the American Mathematical Society 241, Amer. Math. Soc., Providence, R.I., 1981.
- Epstein, R. L., Posner, D.
- 1978 Diagonalization in degree constructions, Jour. Symb. Logic 43 (1978), 280–3.
- Ershov, Y., Taitslin, M. A.
- 1963 The undecidability of certain theories, Algebra i Logika 2 (1963), 37–41.
- Feferman, S.
- 1965 Some applications of the notions of forcing and generic sets, Fund. Math. 56 (1965), 325–45.
- Feiner, L.
- 1970 The strong homogeneity conjecture, Jour. Symb. Logic 35 (1970), 375–77.

- Fenstad, J. E., Gandy, R. O., Sacks, G. E.
- 1978 Generalized Recursion Theory II (Editors), Studies in Logic and the Foundations of Mathematics 94, North-Holland, Amsterdam, 1978.
- Friedberg, R. M.
- 1957 A criterion for completeness of degrees of unsolvability, *Jour. Symb. Logic* 22 (1957), 159–60.
- 1957a Two recursively enumerable sets of incomparable degrees of unsolvability, *Proc. Nat. Acad. Sci. U.S.A.* 43 (1957), 236–8.
- 1957b The fine structure of degrees of unsolvability of recursively enumerable sets, In: Summaries of Cornell Summer Institute for Symbolic Logic, Communications Research Division, Inst. Def. Anal. 1957; pp. 404–6.
- Groszek, M., Slaman, T.
- 1983 Independence results on the global structure of the Turing degrees, to appear.
- Harrington, L., Kechris, A.
- 1975 A basis result for  $\Sigma_3^0$  sets of reals with an application to minimal covers, *Proc. Amer. Math. Soc.* 53 (1975), 445–8.
- Harrington, L., Shore, R. A.
- 1981 Definable degrees and automorphisms of  $\mathcal{D}$ , *Bull. Amer. Math. Soc. (new series)* 4 (1981), 97–100.
- Hinman, P. G.
- 1969 Some applications of forcing to hierarchy problems in arithmetic, *Z. Math. Logik und Grund. der Math.* 15 (1969), 341–52.
- Hodges, W.
- 1972 Conference in Mathematical Logic, London, 1970 (Editor), Lecture Notes in Mathematics 255, Springer-Verlag, Berlin, Heidelberg, New York, 1972.
- Hugill, D. F.
- 1969 Initial segments of Turing degrees, *Proc. London Math. Soc.* 19 (1969), 1–16.
- Jockusch, C. G. Jr.
- 1973 An application of  $\Sigma_4^0$  determinacy to the degrees of unsolvability, *Jour. Symb. Logic* 38 (1973), 293–5.
- 1974 Review of Selman [1972], *Mathematical Reviews* 47 3155 (1974), 549.
- 1977 Simple proofs of some theorems on high degrees of unsolvability, *Can. J. Math.* 29 (1977), 1072–80.
- 1980 Degrees of generic sets, In: Drake-Wainer [1980], pp. 110–39.
- Jockusch, C. G. Jr., Posner, D.
- 1978 Double jumps of minimal degrees, *Jour. Symb. Logic* 43 (1978), 715–24.
- 1981 Automorphism bases for degrees of unsolvability, *Israel Jour. Math.* 40 (1981), 150–64.
- Jockusch, C. G. Jr., Shore, R. A.
- 1983 Pseudo Jump Operators I: The R. E. case, *Trans. Amer. Math. Soc.* 275 (1983), 599–609.
- 1983a Pseudo Jump Operators II: Transfinite iterations and minimal covers, to appear.
- Jockusch, C. G. Jr., Simpson, S. G.
- 1976 A degree theoretic definition of the ramified analytical hierarchy, *Ann. Math. Logic* 10 (1976), 1–32.
- Jockusch, C. G. Jr., Soare, R. I.
- 1970 Minimal covers and arithmetical sets, *Proc. Amer. Math. Soc.* 25 (1970), 856–9.
- Jockusch, C. G. Jr., Solovay, R. M.
- 1977 Fixed points of jump preserving automorphisms of degrees, *Israel Jour. Math.* 26 (1977), 91–4.
- Jónsson, B.
- 1953 On the representation of lattices. *Math. Scand.* 1 (1953), 193–206.

- Kleene, S. C.
- 1943 Recursive predicates and quantifiers, *Trans. Amer. Math. Soc.* 53 (1943), 41–73.
  - 1952 Introduction to Metamathematics, D. van Nostrand Co., New York, Toronto, 1952.
- Kleene, S. C., Post, E. L.
- 1954 The upper semi-lattice of degrees of recursive unsolvability, *Ann. Math.* 59 (1954), 379–407.
- Lachlan, A. H.
- 1965 On a question of G. E. Sacks, *Proc. Amer. Math. Soc.* 16 (1965), 972–9.
  - 1968 Distributive initial segments of the degrees of unsolvability, *Z. Math. Logik und Grund. der Math.* 14 (1968), 457–72.
  - 1971 Solution to a problem of Spector, *Can. Jour. Math.* 23 (1971), 247–56.
- Lachlan, A. H., Lebeuf, R.
- 1976 Countable initial segments of the degrees of unsolvability, *Jour. Symb. Logic* 41 (1976), 289–300.
- Lacombe, D.
- 1954 Sur le semi-réseau constitué par les degrés d'indecidabilité récursive, *C. R. Acad. Sci. Paris* 239 (1954), 1108–9.
- Lerman, M.
- 1969 Some nondistributive lattices as initial segments of the degrees of unsolvability, *Jour. Symb. Logic* 34 (1969), 85–98.
  - 1971 Initial segments of the degrees of unsolvability, *Ann. Math.* 93 (1971), 365–89.
  - 1977 Automorphism bases for the semilattice of recursively enumerable degrees, *Notices Amer. Math. Soc.* 77T-E10 24 (1977), A-251.
- Lerman, M., Schmerl, J. H., Soare, R. I.
- 1981 Logic Year 1979–80: The University of Connecticut (Editors), *Lecture Notes in Mathematics* 859, Springer-Verlag, Berlin, Heidelberg, New York, 1981.
- Manaster, A. B.
- 1971 Some contrasts between degrees and the arithmetical hierarchy, *Jour. Symb. Logic* 36 (1971), 301–4.
- Martin, D. A.
- 1966 On a question of G. E. Sacks, *Jour. Symb. Logic* 31 (1966), 66–9.
  - 1966a Classes of recursively enumerable sets and degrees of unsolvability, *Z. Math. Logik und Grund. der Math.* 12 (1966), 295–310.
  - 1968 The axiom of determinateness and reduction principles in the analytical hierarchy, *Bull. Amer. Math. Soc.* 74 (1968), 687–9.
  - 1975 Borel determinacy, *Ann. Math.* 102 (1975), 363–71.
- Martin, D. A., Solovay, R. M.
- 1970 Internal Cohen extensions, *Ann. Math. Logic* 2 (1970), 143–78.
- Miller, W., Martin, D. A.
- 1968 The degrees of hyperimmune sets, *Z. Math. Logik und Grund. der Math.* 14 (1968), 159–66.
- Muchnik, A. A.
- 1956 Negative answer to the problem of reducibility of the theory of algorithms (Russian), *Dokl. Akad. nauk SSSR* 108 (1956), 194–7.
- Nerode, A., Shore, R. A.
- 1979 Second Order Logic and first order theories of reducibility orderings, In: Barwise-Keisler-Kunen [1980]; pp. 181–200.
  - 1980 Reducibility orderings: Theories, definability and automorphisms, *Ann. Math. Logic* 18 (1980), 61–89.
- Owings, J. C. Jr.
- 1973 Diagonalization and the recursion theorem, *Notre Dame Jour. Formal Logic* 14 (1973), 95–9.
- Paris, J. B.
- 1972  $ZF \vdash \Sigma_4^0$ -determinateness, *Jour. Symb. Logic* 37 (1972), 661–7.

- Posner, D.
- 1977 High Degrees, Doctoral Dissertation, Univ. of Cal., Berkeley, 1977.
  - 1980 A survey of non-R. E. degrees  $\leq 0'$ , In: Drake-Wainer [1980]; pp. 52–109.
  - 1981 The upper semilattice of degrees  $\leq 0'$  is complemented, Jour. Symb. Logic 46 (1981), 705–13.
- Posner, D., Robinson, R. W.
- 1981 Degrees joining to  $0'$ , Jour. Symb. Logic 46 (1981), 714–22.
- Post, E. L.
- 1943 Formal reductions of the general combinatorial decision problem, Amer. Jour. Math. 65 (1943), 197–215.
  - 1944 Recursively enumerable sets of positive integers and their decision problems, Bull. Amer. Math. Soc. 50 (1944), 284–316.
  - 1948 Degrees of recursive unsolvability (Preliminary report), abstract, Bull. Amer. Math. Soc. 54 (1948), 641–2.
- Richter, L. J.
- 1979 On automorphisms of the degrees that preserve jumps, Israel Jour. Math. 32 (1979), 27–31.
- Rogers, H. Jr.
- 1967 Theory of Recursive Functions and Effective Computability, McGraw-Hill, New York, 1968.
- Rosenstein, J. G.
- 1968 Initial segments of degrees, Pac. Jour. Math. 24 (1968), 163–72.
- Sacks, G. E.
- 1961 A minimal degree less than  $0'$ , Bull. Amer. Math. Soc. 67 (1961), 416–9.
  - 1961a On suborderings of degrees of recursive unsolvability, Z. Math. Logik und Grund. der Math. 7 (1961), 46–56.
  - 1963 Degrees of Unsolvability, Annals of Mathematics studies 55, Princeton University Press, Princeton, N.J., 1963.
  - 1963a Recursive enumerability and the jump operator, Trans. Amer. Math. Soc. 108 (1963), 223–39.
  - 1967 On a theorem of Lachlan and Martin, Proc. Amer. Math. Soc. 18 (1967), 140–1.
  - 1971 Forcing with perfect closed sets, In: Scott [1971], pp. 331–55.
- Sasso, L. P. Jr.
- 1974 A minimal degree not realizing least possible jump, Jour. Symb. Logic 39 (1974), 571–4.
- Scott, D. S.
- 1971 Axiomatic Set Theory I (Proceedings of the Thirteenth Symposium in Pure Mathematics of the American Mathematical Society, Los Angeles, 1967, Editor), Amer. Math. Soc., Providence, R. I., 1971.
- Selman, A. L.
- 1972 Applications of forcing to the degree-theory of the arithmetical hierarchy, Proc. London Math. Soc. 25 (1972), 586–602.
- Shoenfield, J. R.
- 1959 On degrees of unsolvability, Ann. Math. 69 (1959), 644–53.
  - 1960 An uncountable set of incomparable degrees, Proc. Amer. Math. Soc. 11 (1960), 61–2.
  - 1966 A theorem on minimal degrees, Jour. Symb. Logic 31 (1966), 539–44.
  - 1971 Degrees of Unsolvability, Mathematics studies 2, North-Holland, Amsterdam, 1971.
  - 1971a Unramified forcing, In: Scott [1971]; pp. 357–81.
- Shore, R. A.
- 1977 Determining automorphisms of the recursively enumerable sets, Proc. Amer. Math. Soc. 65 (1977), 318–25.
  - 1978 On the  $\forall\exists$ -sentences of  $\alpha$ -recursion theory, In: Fenstad-Gandy-Sacks [1978]; pp. 331–54.
  - 1979 The homogeneity conjecture, Proc. Nat. Acad. Sci. USA 76 (1979), 4218–19.
  - 1981 The theory of the degrees below  $0'$ , Jour. London Math. Soc. 2, 24 (1981), 1–14.
  - 1981a The degrees of unsolvability: Global results, In: Lerman-Schmerl-Soare [1981]; pp. 283–301.
  - 1982 On homogeneity and definability in the first order theory of the Turing degrees, Jour. Symb. Logic 47 (1982), 8–16.

- Simpson, S. G.
- 1977 First-order theory of the degrees of recursive unsolvability, *Ann. Math.* 105 (1977), 121–39.
- Soare, R. I.
- 1974 Automorphisms of the lattice of recursively enumerable sets, *Bull. Amer. Math. Soc.* 80 (1974), 53–8.
- 1978 Recursively enumerable sets and degrees, *Bull. Amer. Math. Soc.* 84 (1978), 1149–81.
- 1984 Recursively Enumerable Sets and Degrees, Perspectives in Mathematical Logic, Springer-Verlag, Berlin, Heidelberg, New York, to appear.
- Spector, C.
- 1956 On degrees of recursive unsolvability, *Ann. Math.* 64 (1956), 581–92.
- Thomason, S. K.
- 1970 Sublattices and initial segments of the degrees of unsolvability, *Can. Jour. Math.* 3 (1970), 569–81.
- 1970a A proof of Whitman's representation theorem for finite lattices, *Proc. Amer. Math. Soc.* 25 (1970), 618–9.
- Titgemeyer, D.
- 1962 Untersuchen über die Struktur des Kleene-Postchen Halbverbandes der Grade der rekursiven Unlösbarkeit, *Arch. Math. Logik Grundlagenforsch.* 8/1–2 (1962), 45–62.
- Turing, A. M.
- 1936/37 On computable numbers, with an application to the Entscheidungsproblem, *Proc. London Math. Soc.* 2, 42 (1936–7), 230–65; A correction, *ibid.*, 43 (1937), 544–6.
- 1939 Systems of logic based on ordinals, *Proc. London Math. Soc.* 2, 45 (1939), 161–228.
- Whitman, P. M.
- 1946 Lattices, equivalence relations, and subgroups, *Bull. Amer. Math. Soc.* 52 (1946), 507–22.
- Yates, C. E. M.
- 1965 Three theorems on the degrees of recursively enumerable sets, *Duke Math. Jour.* 32 (1965), 461–8.
- 1966 Density and incomparability in the degrees less than  $0'$ , *Jour. Symb. Logic* 31 (1966), 301–2.
- 1967 Recursively enumerable degrees and the degrees less than  $0'$ , In: Crossley [1967]; pp. 264–71.
- 1970 Initial segments of the degrees of unsolvability: Part I: A survey, In: Bar-Hillel [1970]; pp. 63–83.
- 1970a Initial segments of the degrees of unsolvability: Part II: Minimal degrees, *Jour. Symb. Logic* 35 (1970), 243–66.
- 1972 Initial segments and implications for the structure of degrees, In: Hodges [1970]; pp. 305–35.
- 1976 Banach-Mazur games, comeagre sets, and degrees of unsolvability, *Math. Proc. of the Cambridge Phil. Soc.* 79 (1976), 195–220.