

## Elements of Scheduling

### Bibliography

- E.H.L. Aarts, P.J.M. van Laarhoven, J.K. Lenstra, N.J. Ulder (1994). A computational study of local search algorithms for job shop scheduling. *ORSA J. Comput.* 6, 118–125. [13.2]
- E.H.L. Aarts, J.K. Lenstra (eds.) (1997). *Local Search in Combinatorial Optimization*, Wiley, Chichester. [13.2, Bibliography]
- H.M. Abdel-Wahab, T. Kameda (1978). Scheduling to minimize maximum cumulative cost subject to series-parallel precedence constraints. *Oper. Res.* 26, 141–158. [4.2]
- T.S. Abdul-Razaq, C.N. Potts (1988). Dynamic programming state-space relaxation for single-machine scheduling. *J. Oper. Res. Soc.* 39, 141–152.
- J.O. Achugbue, F.Y. Chin (1981). Bounds on schedules for independent tasks with similar execution times. *J. Assoc. Comput. Mach.* 28, 81–99. [8.2]
- J.O. Achugbue, F.Y. Chin (1982A). Scheduling the open shop to minimize mean flow time. *SIAM J. Comput.* 11, 709–720. [11.9]
- J.O. Achugbue, F.Y. Chin (1982B). Complexity and solution of some three-stage flow shop scheduling problems. *Math. Oper. Res.* 7, 532–544.
- J. Adams, E. Balas, D. Zawack (1988). The shifting bottleneck procedure for job shop scheduling. *Management Sci.* 34, 391–401. [13.2]
- I. Adiri, N. Aizikowitz (1989). Openshop scheduling problems with dominated machines. *Naval Res. Logist.* 36, 273–281.
- D. Adolphson, T.C. Hu (1973). Optimal linear ordering. *SIAM J. Appl. Math.* 25, 403–423. [4.3]
- A.K. Agrawala, E.G. Coffman, Jr., M.R. Garey, S.K. Tripathi (1984). A stochastic optimization algorithm minimizing expected flow times on uniform processors. *IEEE Trans. Comput. C-33*, 351–356.
- A.V. Aho, J.E. Hopcroft, J.D. Ullman (1974). *The Design and Analysis of Computer Algorithms*, Addison-Wesley, Reading, MA. [1.3]
- R.K. Ahuja, T.L. Magnanti, J.B. Orlin (1993). *Network Flows; Theory, Algorithms, and Applications*, Prentice Hall, Englewood Cliffs, NJ. [2.1,2]
- V.A. Aksjonov (1988). A polynomial-time algorithm for an approximate solution of a scheduling problem (in Russian). *Upravlyaemye Sistemy* 28, 8–11. [11.6]
- L.P. Alford (1934). *Henry Laurence Gantt, Leader in Industry*, Harper, New York. [1.1]
- C. Ambühl, M. Mastrolilli (2006). Single machine precedence constrained scheduling is a vertex cover problem. *Algorithms – ESA 2006*, Lecture Notes in Computer Science 4168, Springer, Berlin, 28–39. [4.8]
- E.J. Anderson, C.A. Glass, C.N. Potts (1997). Machine scheduling. Aarts and Lenstra [1997], 361–414. [13.2]
- E.J. Anderson, C.N. Potts (2002). On-line scheduling of a single machine to minimize total weighted completion time. *SODA '92 – Proc. 13th Annual ACM-SIAM Symp. Discrete Algorithms*, SIAM, Philadelphia, 548–557. [4.10]
- D. Applegate, W. Cook (1991). A computational study of the job-shop scheduling problem. *ORSA J. Comput.* 3, 149–156. [13.2]
- U. Bagchi, R.H. Ahmadi (1987). An improved lower bound for minimizing weighted completion times with deadlines. *Oper. Res.* 35, 311–313.
- K.R. Baker (1974). *Introduction to Sequencing and Scheduling*, Wiley, New York. [1.1, 4.9]
- K.R. Baker, E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1983). Preemptive scheduling of a single machine to minimize maximum cost subject to release dates and precedence constraints. *Oper. Res.* 31, 381–386. [3.2]

- K.R. Baker, L.E. Schrage (1978). Finding an optimal sequence by dynamic programming: an extension to precedence-related tasks. *Oper. Res.* 26, 111–120.
- K.R. Baker, G.D. Scudder (1990). Sequencing with earliness and tardiness penalties: a review. *Oper. Res.* 38, 22–36.
- K.R. Baker, Z.-S. Su (1974). Sequencing with due-dates and early start times to minimize maximum tardiness. *Naval Res. Logist. Quart.* 21, 171–176. [3.6]
- E. Balas (1970). Project scheduling with resource constraints. E.M.L. Beale (ed.) (1970). *Applications of Mathematical Programming Techniques*, English Universities Press, London, 187–200.
- E. Balas (1985). On the facial structure of scheduling polyhedra. *Math. Program. Stud.* 24, 179–218.
- E. Balas, A. Vazacopoulos (1998). Guided local search with shifting bottleneck for job-shop scheduling. *Management Sci.* 44, 262–275. [13.2]
- W. Banaszczyk (1987). The Steinitz constant of the plane. *J. Reine Angew. Math.* 373, 218–220. [11.4]
- B.P. Banerjee (1965). Single facility sequencing with random execution times. *Oper. Res.* 13, 358–364.
- I. Barany (1981). A vector-sum theorem and its application to improving flow shop guarantees. *Math. Oper. Res.* 6, 445–452. [12.3]
- I. Barany, T. Fiala (1982). Nearly optimum solution of multimachine scheduling problems (in Hungarian). *Sigma Mathematika Kozgazdasagi Folyoirat* 15, 177–191. [11.5,6]
- J.R. Barker, G.B. McMahon (1985). Scheduling the general job-shop. *Management Sci.* 31, 594–598.
- J.W. Barnes, J.J. Brennan (1977). An improved algorithm for scheduling jobs on identical machines. *AIIE Trans.* 9, 25–31. [7.3]
- M. Bartusch, R.H. Mohring, F.J. Radermacher (1988A). M-machine unit time scheduling: a report of ongoing research. A. Kurzhanski, K. Neumann, D. Pallaschke (eds.) (1988). *Optimization, Parallel Processing, and Applications*, Lecture Notes in Economics and Mathematical Systems 304, Springer, Berlin, 165–212.
- M. Bartusch, R.H. Mohring, F.J. Radermacher (1988B). Scheduling project networks with resource constraints and time windows. *Ann. Oper. Res.* 16, 201–240.
- R. Bellman (1957). *Dynamic Programming*, Princeton University Press, Princeton, NJ. [2.1]
- R. Bellman, S.E. Dreyfus (1962). *Applied Dynamic Programming*, Princeton University Press, Princeton, NJ. [2.1]
- H. Belouadah, M.E. Posner, C.N. Potts (1989). *A branch and bound algorithm for scheduling jobs with release dates on a single machine to minimize total weighted completion time*, Preprint OR14, Faculty of Mathematical Studies, University of Southampton.
- I.S. Belov, Ya.N. Stolin (1974). An algorithm for the single-route scheduling problem (in Russian). *Mathematical Economics and Functional Analysis*, Nauka, Moscow, 248–257. [11.5, 12.3]
- V. Bergstrom (1931). Zwei Satze uber ebene Vektorpolygone. *Abh. Math. Semin. Univ. Hamburg* 8, 148–152. [11.4]
- D. Bertsimas, J.N. Tsitsiklis (1997). *Introduction to Linear Optimization*, Athena Scientific, Belmont, MA. [2.1]
- D. Bertsimas, C. Teo, R. Vohra (1995). Nonlinear formulations and improved randomized approximation algorithms for multicut problems. E. Balas, J. Clausen (eds.) (1995). *Proc. 4th IPCO Conf.*, Lecture Notes in Computer Science 920, Springer, Berlin, 29–39. [2.1]
- L. Bianco, S. Ricciardelli (1982). Scheduling of a single machine to minimize total weighted completion time subject to release dates. *Naval Res. Logist. Quart.* 29, 151–167.

- J. Birge, J.B.G. Frenk, J. Mittenenthal, A.H.G. Rinnooy Kan (1990). Single machine scheduling subject to stochastic breakdowns. *Naval Res. Logist.* 37, 661–677.
- R.A. Blau (1973).  $N$ -job, one machine sequencing problems under uncertainty. *Management Sci.* 20, 101–109.
- J. Blazewicz (1987). Selected topics in scheduling theory. *Ann. Discrete Math.* 31, 1–60. [1.1]
- J. Blazewicz, G. Finke, R. Haupt, G. Schmidt (1988). New trends in machine scheduling. *European J. Oper. Res.* 37, 303–317. [1.1]
- J. Blazewicz, J.K. Lenstra, A.H.G. Rinnooy Kan (1983). Scheduling subject to resource constraints: classification and complexity. *Discrete Appl. Math.* 5, 11–24.
- J.A. Bondy, U.S.R. Murty (1976). *Graph Theory with Applications*, MacMillan, London. [1.3]
- H. Boothroyd (1960). Least-cost testing sequence. *J. Oper. Res. Soc.* 11, 137–138. [4.2]
- O.J. Boxma (1984). Probabilistic analysis of the LPT scheduling rule. E. Gelenbe (ed.) (1984). *Performance '84*, North-Holland, Amsterdam, 475–490. [8.6]
- O.J. Boxma, F.G. Forst (1986). Minimizing the expected weighted number of tardy jobs in stochastic flow shops. *Oper. Res. Lett.* 5, 119–126.
- P. Bratley, M. Florian, P. Robillard (1973). On sequencing with earliest starts and due dates with application to computing bounds for the  $(n/m/G/F_{max})$  problem. *Naval Res. Logist. Quart.* 20, 57–67. [3.6]
- P. Bratley, M. Florian, P. Robillard (1975). Scheduling with earliest start and due date constraints on multiple machines. *Naval Res. Logist. Quart.* 22, 165–173. [8.2]
- P. Brucker (1981). Minimizing maximum lateness in a two-machine unit-time job shop. *Computing* 27, 367–370.
- P. Brucker (1982). A linear time algorithm to minimize maximum lateness for the two-machine, unit-time, job-shop, scheduling problem. R.F. Drenick, F. Kozin (eds.) (1982). *System Modeling and Optimization*, Lecture Notes in Control and Information Sciences 38, Springer, Berlin, 566–571.
- P. Brucker, M.R. Garey, D.S. Johnson (1977). Scheduling equal-length tasks under tree-like precedence constraints to minimize maximum lateness. *Math. Oper. Res.* 2, 275–284.
- S.L. Brumelle, J.B. Sidney (1982). *The two machine makespan problem with stochastic flow times*, Technical report, University of British Columbia, Vancouver.
- J.L. Bruno, E.G. Coffman, Jr., R. Sethi (1974). Scheduling independent tasks to reduce mean finishing time. *Comm. ACM* 17, 382–387. [7.1,3]
- J.L. Bruno, P.J. Downey (1977). *Sequencing tasks with exponential service times on two machines*, Technical report, Department of Electrical Engineering and Computer Science, University of California, Santa Barbara.
- J.L. Bruno, P.J. Downey (1986). Probabilistic bounds on the performance of list scheduling. *SIAM J. Comput.* 15, 409–417.
- J.L. Bruno, P.J. Downey, G.N. Frederickson (1981). Sequencing tasks with exponential service times to minimize the expected flowtime or makespan. *J. Assoc. Comput. Mach.* 28, 100–113.
- J.L. Bruno, T. Gonzalez (1976). *Scheduling independent tasks with release dates and due dates on parallel machines*, Technical Report 213, Computer Science Department, Pennsylvania State University. [9.4]
- H. Buer, R.H. Möhring (1983). A fast algorithm for the decomposition of graphs and posets. *Math. Oper. Res.* 8, 170–184.
- H.G. Campbell, R.A. Dudek, M.L. Smith (1970). A heuristic algorithm for the  $n$  job,  $m$  machine sequencing problem. *Management Sci.* 16, B630–637. [12.2]
- F. Cao (1995). Determining the performance ratio of algorithm multifit for scheduling. D.-Z. Du, P.M. Pardalos (eds.) (1995). *Minimax and Applications*, Springer, Berlin, 79–96. [8.2]

- J. Carlier (1979). *Problème à une machine dans le cas où les tâches ont des durées égales*, Technical report, Institut de Programmation, Université Paris VI, Paris. [3.3]
- J. Carlier (1982). The one-machine sequencing problem. *European J. Oper. Res.* 11, 42–47. [3.2,6]
- J. Carlier (1987). Scheduling jobs with release dates and tails on identical machines to minimize makespan. *European J. Oper. Res.* 29, 298–306. [8.2]
- J. Carlier, E. Pinson (1988). A method for the job-shop problem. *Management Sci.* 35, 64–176.
- J.M. Charlton, C.C. Death (1970). A generalized machine scheduling algorithm. *Oper. Res. Quart.* 21, 127–134.
- C. Chekuri, R. Motwani (1999). Precedence constrained scheduling to minimize sum of weighted completion times on a single machine. *Discrete Appl. Math.* 98, 29–38. [4.6,7]
- C. Chekuri, M. Motwani, B. Natarajan, C. Stein (2001). Approximation techniques for average completion time scheduling. *SIAM J. Comput.* 31, 146–166. [4.9]
- B. Chen (1991). Tighter bound for MULTIFIT scheduling on uniform processors. *Discrete Appl. Math.* 31, 227–260. [8.3]
- B. Chen, V.A. Strusevich (1993). Approximation algorithms for three-machine open shop scheduling. *ORSA J. Comput.* 5, 321–326. [11.6]
- B. Chen, W. Yu (2001). How good is a dense shop schedule? *Acta Math. Appl. Sinica* 17, 121–128. [11.6]
- N.-F. Chen (1975). *An analysis of scheduling algorithms in multiprocessing computing systems*, Technical Report UIUCDCS-R-75-724, Department of Computer Science, University of Illinois at Urbana-Champaign.
- N.-F. Chen, C.L. Liu (1975). On a class of scheduling algorithms for multiprocessors computing systems. T.-Y. Feng (ed.) (1975). *Parallel Processing*, Lecture Notes in Computer Science 24, Springer, Berlin, 1–16.
- T.C.E. Cheng, M.C. Gupta (1989). Survey of scheduling research involving due date determination decisions. *European J. Oper. Res.* 38, 156–166.
- B.V. Cherkassky, A.V. Goldberg (1997). On implementing the push-relabel method for the maximum flow problem. *Algorithmica* 19, 390–410. [2.2]
- F.Y. Chin, L.-L. Tsai (1981). On  $J$ -maximal and  $J$ -minimal flow-shop schedules. *J. Assoc. Comput. Mach.* 28, 462–476.
- Y. Cho, S. Sahni (1980). Bounds for list schedules on uniform processors. *SIAM J. Comput.* 9, 91–103. [8.3]
- Y. Cho, S. Sahni (1981). Preemptive scheduling of independent jobs with release and due times on open, flow and job shops. *Oper. Res.* 29, 511–522. [11.9]
- N. Christofides, R. Alvarez-Valdes, J.M. Tamarit (1987). Project scheduling with resource constraints: a branch and bound approach. *European J. Oper. Res.* 29, 262–273.
- F.N.A. Chudak, D.S. Hochbaum (1999). A half-integral linear programming relaxation for scheduling precedence-constrained jobs on a single machine. *Oper. Res. Lett.* 25, 199–204. [4.1,6,8]
- V. Chvátal (1983). *Linear Programming*, Freeman, New York. [2.1]
- W. Clark (1922). *The Gantt Chart: A Working Tool of Management*, Ronald Press, New York; Third Edition (1952), Pitman, New York.
- E.G. Coffman, Jr. (ed.) (1976). *Computer & Job/Shop Scheduling Theory*, Wiley, New York. [1.1; Bibliography]
- E.G. Coffman, Jr., L. Flatto, M.R. Garey, R.R. Weber (1987). Minimizing expected makespans on uniform processor systems. *Adv. in Appl. Probab.* 19, 177–201.
- E.G. Coffman, Jr., L. Flatto, G.S. Lueker (1984). Expected makespans for largest-fit multiprocessor scheduling. E. Gelenbe (ed.) (1984). *Performance '84*, North-Holland, Amsterdam, 491–506. [8.6]

- E.G. Coffman, Jr., M.R. Garey, D.S. Johnson (1978). An application of bin-packing to multiprocessor scheduling. *SIAM J. Comput.* 7, 1–17. [8.2]
- E.G. Coffman, Jr., M.R. Garey, D.S. Johnson (1984). Approximation algorithms for bin packing – an updated survey. G. Ausiello, M. Lucertini, P. Serafini (eds.) (1984). *Algorithm Design for Computer System Design*, Springer, Vienna, 49–106. [8.2]
- E.G. Coffman, Jr., E.N. Gilbert (1985). On the expected relative performance of list scheduling. *Oper. Res.* 33, 548–561.
- E.G. Coffman, Jr., R.L. Graham (1972). Optimal scheduling for two-processor systems. *Acta Informat.* 1, 200–213.
- E.G. Coffman, Jr., M. Hofri, G. Weiss (1989). Scheduling stochastic jobs with a two point distribution on two parallel machines. *Probab. Engrg. Inform. Sci.* 3, 89–116.
- E.G. Coffman, Jr., G.S. Lueker (1991). *Probabilistic Analysis of Packing and Partitioning Algorithms*, Wiley, New York. [8.6]
- E.G. Coffman, Jr., G.S. Lueker, A.H.G. Rinnooy Kan (1988). Asymptotic methods in the probabilistic analysis of sequencing and packing heuristics. *Management Sci.* 34, 266–290. [8.6]
- R.W. Conway, W.L. Maxwell, L.W. Miller (1967). *Theory of Scheduling*, Addison-Wesley, Reading, MA. [1.1,7, 4.3, 7.1]
- S.A. Cook (1971). The complexity of theorem-proving procedures. *Proc. 3rd Annual ACM Symp. Theory of Computing*, 151–158. [2.4]
- W.J. Cook, W.H. Cunningham, W.R. Pulleyblank, A. Schrijver (1998). *Combinatorial Optimization*, Wiley, New York. [2.1]
- T.H. Cormen, C.E. Leiserson, R.L. Rivest (1990). *Introduction to Algorithms*, MIT Press, Cambridge, MA. [2.1]
- J.R. Correa, A.S. Schulz (2005). Single-machine scheduling with precedence constraints. *Math. Oper. Res.* 30, 1005–1021. [4.7,8]
- T.B. Crabill, W.L. Maxwell (1969). Single machine sequencing with random processing times and random due-dates. *Naval Res. Logist. Quart.* 16, 549–554.
- D.G. Dannenbring (1977). An evaluation of flow shop sequencing heuristics. *Management Sci.* 23, 1174–1182. [12.2]
- G.I. Davida, D.J. Linton (1976). A new algorithm for the scheduling of tree structured tasks. *Proc. Conf. Inform. Sci. and Syst.*, Baltimore, MD, 543–548.
- E. Davis, J.M. Jaffe (1981). Algorithms for scheduling tasks on unrelated processors. *J. Assoc. Comput. Mach.* 28, 721–736. [8.4]
- E.W. Davis (1966). Resource allocation in project network models - a survey. *J. Indust. Engrg.* 17, 177–188.
- E.W. Davis (1973). Project scheduling under resource constraints - historical review and categorization of procedures. *AIIE Trans.* 5, 297–313.
- L. Davis (1985). Job-shop scheduling with genetic algorithm. J.J. Grefenstette (ed.) (1985). *Proc. First Int. Conf. Genetic Algorithms Appl.*, Erlbaum, Pittsburg, PA, 136–140. [13.2]
- J. Day, M.P. Hottenstein (1970). Review of scheduling research. *Naval Res. Logist. Quart.* 17, 11–39.
- F. Della Croce, V. T'kindt (2010). Improving the preemptive bound for the single machine dynamic maximum lateness problem. *Oper. Res. Lett.* 38, 589–591. [3.6]
- M. Dell'Amico, S. Martello (1995). Optimal scheduling of tasks on identical parallel processors. *ORSA J. Comput.* 7, 191–200. [8.2]
- M. Dell'Amico, M. Trubian (1993). Applying tabu search to the job-shop scheduling problem. *Ann. Oper. Res.* 41, 231–252. [13.2]

- M.A.H. Dempster, J.K. Lenstra, A.H.G. Rinnooy Kan (eds.) (1982). *Deterministic and Stochastic Scheduling: Proceedings of the NATO Advanced Study and Research Institute on Theoretical Approaches to Scheduling Problems, held in Durham, England, July 6–17, 1981*, Reidel, Dordrecht. [1.1; Bibliography]
- M.I. Dessouky, J.S. Deogun (1981). Sequencing jobs with unequal ready times to minimize mean flow time. *SIAM J. Comput.* 10, 192–202.
- M.I. Dessouky, B.J. Lageweg, S.L. van de Velde (1990). Scheduling identical jobs on uniform parallel machines. *Statist. Neerlandica* 44, 115–123. [7.4]
- M.I. Dessouky, C.R. Margenthaler (1972). The one-machine sequencing problem with early starts and due dates. *AIIE Trans.* 4, 214–222. [3.6]
- P. Dileepan, T. Sen (1988). Bicriterion static scheduling research for a single machine. *Omega* 16, 53–59.
- G. Dobson (1984). Scheduling independent tasks on uniform processors. *SIAM J. Comput.* 13, 705–716. [8.3]
- D. Dolev, M.K. Warmuth (1984). Scheduling precedence graphs of bounded height. *J. Algorithms* 5, 48–59.
- D. Dolev, M.K. Warmuth (1985A). Scheduling flat graphs. *SIAM J. Comput.* 14, 638–657.
- D. Dolev, M.K. Warmuth (1985B). Profile scheduling of opposing forests and level orders. *SIAM J. Algebraic Discrete Methods* 6, 665–687.
- U. Dorndorf, E. Pesch (1995). Evolution based learning in a job shop scheduling environment. *Comput. Oper. Res.* 22, 25–40. [13.2]
- J. Du, J.Y.-T. Leung (1988A). Scheduling tree-structured tasks with restricted execution times. *Inform. Process. Lett.* 28, 183–188.
- J. Du, J.Y.-T. Leung (1993). Minimizing mean flow time with release time and deadline constraints. *J. Algorithms* 14, 45–68.
- J. Du, J.Y.-T. Leung (1989A). Scheduling tree-structured tasks on two processors to minimize schedule length. *SIAM J. Discrete Math.* 2, 176–196.
- J. Du, J.Y.-T. Leung (1989B→1990). Minimizing total tardiness on one machine is NP-hard. *Math. Oper. Res.* 15, 483–495.
- J. Du, J.Y.-T. Leung (1991). Minimizing the number of late jobs on unrelated machines. *Oper. Res. Lett.* 10, 153–158.
- J. Du, J.Y.-T. Leung, C.S. Wong (1992). Minimizing the number of late jobs with release time constraint. *J. Combin. Math. Combin. Comput.* 11, 97–107.
- J. Du, J.Y.-T. Leung, G.H. Young (1990). Minimizing mean flow time with release time constraint. *Theoret. Comput. Sci.* 75, 347–355.
- J. Du, J.Y.-T. Leung, G.H. Young (1991). Scheduling chain-structured tasks to minimize makespan and mean flow time. *Inform. and Comput.* 92, 219–236. [7.3]
- R.J. Duffin (1965). Topology of series-parallel networks. *J. Math. Anal. Appl.* 10, 303–318. [4.3]
- B. Dushnik, E.W. Miller (1941). Partially ordered sets. *Amer. J. Math.* 63, 600–610. [4.8]
- M.E. Dyer, L.A. Wolsey (1990). Formulating the single machine sequencing problem with release dates as a mixed integer program. *Discrete Appl. Math.* 26, 255–270.
- W.L. Eastman, S. Even, I.M. Isaacs (1964). Bounds for the optimal scheduling of  $n$  jobs on  $m$  processors. *Management Sci.* 11, 268–279. [4.1, 7.3]
- J. Edmonds (1965). Minimum partition of a matroid into independent subsets. *J. Res. Nat. Bur. Standards* 69B, 67–72.
- S.E. Elmaghraby (1968). The one-machine sequencing problem with delay costs. *J. Indust. Engrg.* 19, 105–108.
- S.E. Elmaghraby, S.H. Park (1974). Scheduling jobs on a number of identical machines. *AIIE Trans.* 6, 1–12. [7.3]

- H. Emmons (1969). One-machine sequencing to minimize certain functions of job tardiness. *Oper. Res.* 17, 701–715.
- J. Erschler, G. Fontan, C. Merce, F. Roubellat (1982). Applying new dominance concepts to job schedule optimization. *European J. Oper. Res.* 11, 60–66. [3.6]
- J. Erschler, G. Fontan, C. Merce, F. Roubellat (1983). A new dominance concept in scheduling  $n$  jobs on a single machine with ready times and due dates. *Oper. Res.* 31, 114–127. [3.6]
- E. Falkenauer, S. Bouffouix (1991). *A genetic algorithm for the job-shop*. Proc. IEEE Int. Conf. Robotics and Automation. [13.2]
- A. Federguen, H. Groenevelt (1986). Preemptive scheduling of uniform machines by ordinary network flow techniques. *Management Sci.* 32, 341–349. [9.4.5]
- W. Feller (1968). *An Introduction to Probability Theory and Its Applications, Vol. I, 3rd Edition*, Wiley, New York. [8.6]
- W. Feller (1971). *An Introduction to Probability Theory and Its Applications, Vol. II, 2nd Edition*, Wiley, New York. [8.6]
- T. Fiala (1983). An algorithm for the open-shop problem. *Math. Oper. Res.* 8, 100–109. [11.5]
- M.C. Fields, G.N. Frederickson (1990). A faster algorithm for the maximum weighted tardiness problem. *Inform. Process. Lett.* 36, 39–44. [3.1]
- M. Fischetti, S. Martello (1987). Worst-case analysis of the differencing method for the partition problem. *Math. Program.* 37, 117–120. [8.1]
- H. Fisher, G.L. Thompson (1963). Probabilistic learning combinations of local job-shop scheduling rules. J.F. Muth, G.L. Thompson (eds.) (1963). *Industrial Scheduling*, Prentice-Hall, Englewood Cliffs, NJ, 225–251.
- M.L. Fisher (1976). A dual algorithm for the one-machine scheduling problem. *Math. Program.* 11, 229–251.
- M.L. Fisher (1981). The Lagrangian relaxation method for solving integer programming problems. *Management Sci.* 27, 1–18. [2.5]
- M.L. Fisher, A.M. Krieger (1984). Analysis of a linearization heuristic for single-machine scheduling to maximize profit. *Math. Program.* 28, 218–225.
- M.L. Fisher, B.J. Lageweg, J.K. Lenstra, A.H.G. Rinnooy Kan (1983). Surrogate duality relaxation for job scheduling. *Discrete Appl. Math.* 5, 65–75.
- R.D. Foley, S. Suresh (1986). Scheduling  $n$  nonoverlapping jobs and two stochastic jobs in a flow shop. *Naval Res. Logist. Quart.* 33, 123–128.
- L.R. Ford, Jr., D.R. Fulkerson (1956). Maximal flow through a network. *Canad. J. Math.* 8, 399–404. [2.1]
- F.G. Forst (1984). A review of the static, stochastic job sequencing literature. *Opsearch* 21, 127–144.
- G.N. Frederickson (1983). Scheduling unit-time tasks with integer release times and deadlines. *Inform. Process. Lett.* 16, 171–173. [3.2]
- S. French (1982). *Sequencing and Scheduling: an Introduction to the Mathematics of the Job-Shop*, Horwood, Chichester. [1.1]
- J.B.G. Frenk (1991). A general framework for stochastic one-machine scheduling problems with zero release times and no partial ordering. *Probab. Engrg. Inform. Sci.* 5, 297–315.
- J.B.G. Frenk, A.H.G. Rinnooy Kan (1986). The rate of convergence to optimality of the LPT rule. *Discrete Appl. Math.* 14, 187–197. [8.6]
- J.B.G. Frenk, A.H.G. Rinnooy Kan (1987). The asymptotic optimality of the LPT rule. *Math. Oper. Res.* 12, 241–254. [8.6]
- D.K. Friesen (1984). Tighter bounds for the multifit processor scheduling algorithm. *SIAM J. Comput.* 13, 170–181. [8.2]

- D.K. Friesen (1987). Tighter bounds for LPT scheduling on uniform processors. *SIAM J. Comput.* 16, 554–560. [8.3]
- D.K. Friesen, M.A. Langston (1983). Bounds for multifit scheduling on uniform processors. *SIAM J. Comput.* 12, 60–70. [8.3]
- D.K. Friesen, M.A. Langston (1986). Evaluation of a MULTIFIT-based scheduling algorithm. *J. Algorithms* 7, 35–59. [8.2]
- E. Frostig (1988). A stochastic scheduling problem withintree precedence constraints. *Oper. Res.* 36, 937–943.
- M. Fujii, T. Kasami, K. Ninomiya (1969, 1971). Optimal sequencing of two equivalent processors. *SIAM J. Appl. Math.* 17, 784–789; Erratum. *SIAM J. Appl. Math.* 20, 141.
- H.N. Gabow (1982). An almost linear-time algorithm for two-processor scheduling. *J. Assoc. Comput. Mach.* 29, 766–780.
- H.N. Gabow (1988). Scheduling UET systems on two uniform processors and length two pipelines. *SIAM J. Comput.* 17, 810–829.
- H.N. Gabow, R.E. Tarjan (1985). A linear-time algorithm for a special case of disjoint set union. *J. Comput. System Sci.* 30, 209–221.
- G. Gallo, M.D. Grigoriadis, R.E. Tarjan (1989). A fast parametric maximum flow algorithm and applications. *SIAM J. Comput.* 18, 30–55. [2.2]
- H.L. Gantt (1919A). Efficiency and democracy. *Trans. Amer. Soc. Mech. Engin.* 40, 799–808. [1.1]
- H.L. Gantt (1919B). *Organizing for Work*, Harcourt, Brace and Howe, New York. [1.1]
- M.R. Garey (1973). Optimal task sequencing with precedence constraints. *Discrete Math.* 4, 37–56. [4.2]
- M.R. Garey, R.L. Graham, D.S. Johnson (1978). Performance guarantees for scheduling algorithms. *Oper. Res.* 26, 3–21. [8.1]
- M.R. Garey, D.S. Johnson (1975). Complexity results for multiprocessor scheduling under resource constraints. *SIAM J. Comput.* 4, 397–411.
- M.R. Garey, D.S. Johnson (1976). Scheduling tasks with nonuniform deadlines on two processors. *J. Assoc. Comput. Mach.* 23, 461–467. [5.7]
- M.R. Garey, D.S. Johnson (1977). Two-processor scheduling with start-times and deadlines. *SIAM J. Comput.* 6, 416–426.
- M.R. Garey, D.S. Johnson (1978). Strong NP-completeness results: motivation, examples and implications. *J. Assoc. Comput. Mach.* 25, 499–508. [2.4]
- M.R. Garey, D.S. Johnson (1979). *Computers and Intractability: a Guide to the Theory of NP-Completeness*, Freeman, San Francisco. [2.4]
- M.R. Garey, D.S. Johnson, R. Sethi (1976). The complexity of flowshop and jobshop scheduling. *Math. Oper. Res.* 1, 117–129.
- M.R. Garey, D.S. Johnson, B.B. Simons, R.E. Tarjan (1981). Scheduling unit-time tasks with arbitrary release times and deadlines. *SIAM J. Comput.* 10, 256–269. [3.3, 8.2]
- M.R. Garey, D.S. Johnson, R.E. Tarjan, M. Yannakakis (1983). Scheduling opposing forests. *SIAM J. Algebraic Discrete Methods* 4, 72–93.
- M.R. Garey, R.E. Tarjan, G.T. Wilfong (1988). One-processor scheduling with symmetric earliness and tardiness penalties. *Math. Oper. Res.* 13, 330–348.
- P.G. Gazmuri (1985). Probabilistic analysis of a machine scheduling problem. *Math. Oper. Res.* 10, 328–339.
- L. Gelders, P.R. Kleindorfer (1974). Coordinating aggregate and detailed scheduling decisions in the one-machine job shop: part I. Theory. *Oper. Res.* 22, 46–60.
- L. Gelders, P.R. Kleindorfer (1975). Coordinating aggregate and detailed scheduling in the one-machine job shop: II – computation and structure. *Oper. Res.* 23, 312–324.

- G.V. Gens, E.V. Levner (1978). Approximation algorithm for some scheduling problems. *Engrg. Cybernetics* 6, 38–46. [5.3]
- G.V. Gens, E.V. Levner (1981). Fast approximation algorithm for job sequencing with deadlines. *Discrete Appl. Math.* 3, 313–318. [5.3]
- A.M. Geoffrion (1974). Lagrangean relaxation for integer programming. *Math. Program. Stud.* 2, 82–114. [2.5]
- W.S. Gere (1966). Heuristics in job shop scheduling. *Management Sci.* 13, 167–190.
- B. Giffler, G.L. Thompson (1960). Algorithms for solving production-scheduling problems. *Oper. Res.* 8, 487–503.
- P.C. Gilmore, R.E. Gomory (1964). Sequencing a one-state variable machine: a solvable case of the traveling salesman problem. *Oper. Res.* 12, 655–679.
- P.C. Gilmore, E.L. Lawler, D.B. Shmoys (1985). Well-solvable cases. Lawler, Lenstra, Rinnooy Kan, and Shmoys [1985], Ch. 4.
- M.X. Goemans, M. Queyranne, A.S. Schulz, M. Skutella, Y. Wang (2002). Single machine scheduling with release dates. *SIAM J. Discrete Math.* 15, 165–192. [4.1,9,10]
- M.X. Goemans, J.M. Wein, D.P. Williamson (2000). A 1.47-approximation algorithm for a preemptive single-machine scheduling problem. *Oper. Res. Lett.* 26, 149–154. [4.10]
- M.X. Goemans, D.P. Williamson (2000). Two-dimensional Gantt charts and a scheduling algorithm of Lawler. *SIAM J. Discrete Math.* 13, 281–294. [4.1,3,7]
- A.V. Goldberg (1997). An efficient implementation of a scaling minimum-cost flow algorithm. *J. Algorithms* 22, 1–29. [2.2]
- A.V. Goldberg, S. Rao (1998). Beyond the flow decomposition barrier. *J. Assoc. Comput. Mach.* 45, 783–797. [2.2]
- A.V. Goldberg, R.E. Tarjan (1988). A new approach to the maximum flow problem. *J. Assoc. Comput. Mach.* 35, 921–940. [2.2]
- A.V. Goldberg, R.E. Tarjan (1990). Solving minimum cost flow problem by successive approximation. *Math. Oper. Res.* 15, 430–466. [2.2]
- T. Gonzalez (1977). *Optimal mean finish time preemptive schedules*, Technical report 220, Computer Science Department, Pennsylvania State University. [7.2,3]
- T. Gonzalez (1979). A note on open shop preemptive schedules. *IEEE Trans. Comput. C-28*, 782–786.
- T. Gonzalez (1982). Unit execution time shop problems. *Math. Oper. Res.* 7, 57–66.
- T. Gonzalez, O.H. Ibarra, S. Sahni (1977). Bounds for LPT schedules on uniform processors. *SIAM J. Comput.* 6, 155–166. [8.3]
- T. Gonzalez, D.B. Johnson (1980). A new algorithm for preemptive scheduling of trees. *J. Assoc. Comput. Mach.* 27, 287–312. [9.2]
- T. Gonzalez, E.L. Lawler, S. Sahni (1990). Optimal preemptive scheduling of two unrelated processors. *ORSA J. Comput.* 2, 219–224. [9.7]
- T. Gonzalez, S. Sahni (1976). Open shop scheduling to minimize finish time. *J. Assoc. Comput. Mach.* 23, 665–679. [9.7, 11.1,2,8]
- T. Gonzalez, S. Sahni (1978A). Flowshop and jobshop schedules: complexity and approximation. *Oper. Res.* 26, 36–52. [12.2]
- T. Gonzalez, S. Sahni (1978B). Preemptive scheduling of uniform processor systems. *J. Assoc. Comput. Mach.* 25, 92–101. [9.1]
- D.K. Goyal (1977). *Non-preemptive scheduling of unequal execution time tasks on two identical processors*, Technical report CS-77-039, Computer Science Department, Washington State University, Pullman.
- S.K. Goyal, C. Sriskandarajah (1988). No-wait shop scheduling: computational complexity and approximate algorithms. *Opsearch* 25, 220–244.

- J. Grabowski (1980). On two-machine scheduling with release dates to minimize maximum lateness. *Opsearch* 17, 133–154.
- J. Grabowski (1982). A new algorithm of solving the flow-shop problem. G. Feichtinger, P. Kall (eds.) (1982). *Operations Research in Progress*, Reidel, Dordrecht, 57–75.
- J. Grabowski, E. Skubalska, C. Smutnicki (1983). On flow shop scheduling with release and due dates to minimize maximum lateness. *J. Oper. Res. Soc.* 34, 615–620.
- R.L. Graham (1966). Bounds for certain multiprocessing anomalies. *Bell System Tech. J.* 45, 1563–1581. [8.1]
- R.L. Graham (1969). Bounds on multiprocessing timing anomalies. *SIAM J. Appl. Math.* 17, 263–269. [8.1]
- R.L. Graham, E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1979). Optimization and approximation in deterministic sequencing and scheduling: a survey. *Ann. Discrete Math.* 5, 287–326. [About, 1.1,7, 7.2]
- S.C. Graves (1981). A review of production scheduling. *Oper. Res.* 29, 646–675. [1.1]
- M.D. Grigoriadis (1986). An efficient implementation of the network simplex method. *Math. Program. Stud.* 26, 83–111. [2.2]
- V.S. Grinberg, S.V. Sevastyanov (1980). Value of the Steinitz constant. *Functional Anal. Appl.* 14, 125–126. [11.4]
- J.N.D. Gupta, S.S. Reddi (1978). Improved dominance conditions for the three-machine flowshop scheduling problem. *Oper. Res.* 26, 200–203.
- S.K. Gupta, J. Kyparisis (1987). Single machine scheduling research. *Omega* 15, 207–227. [1.1]
- D. Gusfield (1984). Bounds for naive multiple machine scheduling with release times and deadlines. *J. Algorithms* 5, 1–6. [8.2]
- L.A. Hall, A.S. Schulz, D.B. Shmoys, J. Wein (1997). Scheduling to minimize average completion time: off-line and on-line approximation algorithms. *Math. Oper. Res.* 22, 513–544. [4.6]
- L.A. Hall, D.B. Shmoys (1989). Approximation schemes for constrained scheduling problems. *Proc. 30th IEEE Symp. Foundations of Computer Science*, 134–139. [8.2]
- L.A. Hall, D.B. Shmoys (1990). Near-optimal sequencing with precedence constraints. Kannan and Pulleyblank [1990], 249–260. [3.5]
- L.A. Hall, D.B. Shmoys (1992). Jackson’s rule for single-machine scheduling: making a good heuristic better. *Math. Oper. Res.* 17, 22–35. [3.5]
- G.H. Hardy, J.E. Littlewood, G. Pólya (1934). *Inequalities*, Cambridge University Press, Cambridge. [4.1]
- A.M.A. Hariri, C.N. Potts (1983). An algorithm for single machine sequencing with release dates to minimize total weighted completion time. *Discrete Appl. Math.* 5, 99–109.
- A.M.A. Hariri, C.N. Potts (1984). Algorithms for two-machine flow-shop sequencing with precedence constraints. *European J. Oper. Res.* 17, 238–248.
- A.M.A. Hariri, C.N. Potts (1991). Heuristics for scheduling unrelated parallel machines. *Comput. Oper. Res.* 18, 323–331. [8.4]
- R. Haupt (1989). A survey of priority rule-based scheduling. *OR Spektrum* 11, 3–16. [13.2]
- N. Hefetz, I. Adiri (1982). An efficient optimal algorithm for the two-machines unit-time jobshop schedule-length problem. *Math. Oper. Res.* 7, 354–360.
- D.S. Hochbaum (ed.) (1997). *Approximation algorithms for NP-hard problems*, PWS, Boston, MA. [2.5]
- D.S. Hochbaum, R. Shamir (1989). An  $O(n \log^2 n)$  algorithm for the maximum weighted tardiness problem. *Inform. Process. Lett.* 31, 215–219. [3.1]
- D.S. Hochbaum, R. Shamir (1991). Strongly polynomial algorithms for the high multiplicity scheduling problem. *Oper. Res.* 39, 648–653.

- D.S. Hochbaum, D.B. Shmoys (1987). Using dual approximation algorithms for scheduling problems: theoretical and practical results. *J. Assoc. Comput. Mach.* 34, 144–162. [8.2]
- D.S. Hochbaum, D.B. Shmoys (1988). A polynomial approximation scheme for machine scheduling on uniform processors: using the dual approximation approach. *SIAM J. Comput.* 17, 539–551. [8.3]
- S.M. Hodgson (1977). A note on single machine sequencing with random processing times. *Management Sci.* 23, 1144–1146.
- W. Hoeffding (1963). Probability inequalities for sums of bounded random variables. *J. Amer. Statist. Assoc.* 58, 13–30. [8.6]
- J.A. Hoogeveen, A.P.A. Vestjens (1996). Optimal on-line algorithms for single-machine scheduling. W.H. Cunningham, S.T. McCormick, M. Queyranne (eds.) (1996). *Integer Programming and Combinatorial Optimization*, Lecture Notes in Computer Science 1084, 404–414, Springer, Berlin. [4.9]
- W.A. Horn (1972). Single-machine job sequencing with treelike precedence ordering and linear delay penalties. *SIAM J. Appl. Math.* 23, 189–202. [4.3]
- W.A. Horn (1973). Minimizing average flow time with parallel machines. *Oper. Res.* 21, 846–847. [7.1]
- W.A. Horn (1974). Some simple scheduling algorithms. *Naval Res. Logist. Quart.* 21, 177–185. [2.1, 3.2, 9.3,4]
- E. Horowitz, S. Sahni (1976). Exact and approximate algorithms for scheduling nonidentical processors. *J. Assoc. Comput. Mach.* 23, 317–327. [7.1, 8.3,4]
- E.C. Horvath, S. Lam, R. Sethi (1977). A level algorithm for preemptive scheduling. *J. Assoc. Comput. Mach.* 24, 32–43. [9.1]
- N.C. Hsu (1966). Elementary proof of Hu’s theorem on isotone mappings. *Proc. Amer. Math. Soc.* 17, 111–114.
- T.C. Hu (1961). Parallel sequencing and assembly line problems. *Oper. Res.* 9, 841–848.
- T. Ibaraki, H. Kise, H. Mine (1976). Parallel-machine scheduling problem with unit processing time when jobs have ready and due times. *Trans. IECE Japan E59-7*, 1–6. [5.7]
- O.H. Ibarra, C.E. Kim (1975). Fast approximation algorithms for the knapsack and sum of subset problems. *J. Assoc. Comput. Mach.* 22, 463–468. [2.5]
- O.H. Ibarra, C.E. Kim (1976). On two-processor scheduling of one- or two-unit time tasks with precedence constraints. *J. Cybernet.* 5, 87–109.
- O.H. Ibarra, C.E. Kim (1977). Heuristic algorithms for scheduling independent tasks on nonidentical processors. *J. Assoc. Comput. Mach.* 24, 280–289. [8.4]
- O.H. Ibarra, C.E. Kim (1978). Approximation algorithms for certain scheduling problems. *Math. Oper. Res.* 3, 197–204. [5.3]
- E. Ignall, L. Schrage (1965). Application of the branch and bound technique to some flow-shop scheduling problems. *Oper. Res.* 13, 400–412.
- J.R. Jackson (1955). *Scheduling a production line to minimize maximum tardiness*, Research Report 43, Management Science Research Project, University of California, Los Angeles. [3.1, 4.2]
- J.R. Jackson (1956). An extension of Johnson’s results on job lot scheduling. *Naval Res. Logist. Quart.* 3, 201–203.
- J.M. Jaffe (1980A). Efficient scheduling of tasks without full use of processor resources. *Theoret. Comput. Sci.* 12, 1–17.
- J.M. Jaffe (1980B). An analysis of preemptive multiprocessor job scheduling. *Math. Oper. Res.* 5, 415–421.
- A.S. Jain, S. Meeran (1999). Deterministic job-shop scheduling: past, present and future. *European J. Oper. Res.* 113, 390–434. [13.2]

- D.S. Johnson (1983). The NP-completeness column: an ongoing guide. *J. Algorithms* 4, 189–203. [1.1]
- D.S. Johnson, C.C. McGeoch (1993). *Network Flows and Matching: First DIMACS Implementation Challenge*, AMS, New York. [2.2]
- S.M. Johnson (1954). Optimal two- and three-stage production schedules with setup times included. *Naval Res. Logist. Quart.* 1, 61–68. [12.1]
- S.M. Johnson (1958). Discussion: sequencing  $n$  jobs on two machines with arbitrary time lags. *Management Sci.* 5, 299–303.
- D.G. Kafura, V.Y. Shen (1977). Task scheduling on a multiprocessor system with independent memories. *SIAM J. Comput.* 6, 167–187. [8.2, 9.6]
- D.G. Kafura, V.Y. Shen (1978). An algorithm to design the memory configuration of a computer network. *J. Assoc. Comput. Mach.* 25, 365–377. [8.2]
- R. Kannan, W.R. Pulleyblank (eds.) (1990). *Integer Programming and Combinatorial Optimization*, University of Waterloo Press, Waterloo. [Bibliography]
- E.P.C. Kao, M. Queyranne (1982). On dynamic programming methods for assembly line balancing. *Oper. Res.* 30, 375–390.
- N. Karmarkar, R.M. Karp (1982). *The differencing method of set partitioning*, Report UCB/CSD 82/113, Computer Science Division, University of California, Berkeley. [8.1,6]
- R.M. Karp (1972). Reducibility among combinatorial problems. R.E. Miller, J.W. Thatcher (eds.) (1972). *Complexity of Computer Computations*, Plenum Press, New York, 85–103. [2.4, 5.2]
- R.M. Karp (1975). On the computational complexity of combinatorial problems. *Networks* 5, 45–68.
- R.M. Karp, J.K. Lenstra, C.J.H. McDiarmid, A.H.G. Rinnooy Kan (1985). Probabilistic analysis. O’heigeartaigh, Lenstra, and Rinnooy Kan [1985], 52–88. [8.6]
- M.T. Kaufman (1974). An almost-optimal algorithm for the assembly line scheduling problem. *IEEE Trans. Comput. C-23*, 1169–1174.
- T. Kawaguchi, S. Kyan (1986). Worst case bound of an LRF schedule for the mean weighted flow-time problem. *SIAM J. Comput.* 15, 1119–1129. [7.3]
- T. Kawaguchi, S. Kyan (1988). Deterministic scheduling in computer systems: a survey. *J. Oper. Res. Soc. Japan* 31, 190–217. [1.1]
- J.L. Kennington, R.V. Helgason (1980). *Algorithms for Network Programming*, Wiley, New York. [2.2]
- L.G. Khachiyan (1979). A polynomial algorithm in linear programming. *Soviet Math. Dokl.* 20, 191–194.
- H. Kise, T. Ibaraki, H. Mine (1978). A solvable case of the one-machine scheduling problem with ready and due times. *Oper. Res.* 26, 121–126. [5.5]
- H. Kise, T. Ibaraki, H. Mine (1979). Performance analysis of six approximation algorithms for the one-machine maximum lateness scheduling problem with ready times. *J. Oper. Res. Soc. Japan* 22, 205–224. [3.5]
- V. Klee, G.J. Minty (1972). How good is the simplex algorithm? O. Shisha (ed.) (1972). *Inequalities, III*, Academic Press, New York. 159–175. [2.2]
- W.H. Kohler, K. Steiglitz (1975). Exact, approximate and guaranteed accuracy algorithms for the flow-shop problem  $n/2/F/\bar{F}$ . *J. Assoc. Comput. Mach.* 22, 106–114.
- P.R. Kumar, J. Walrand (1985). Individually optimal routing in parallel systems. *J. Appl. Probab.* 22, 989–995.
- M. Kunde (1976). *Beste Schranken beim LP-Scheduling*, Bericht 7603, Institut für Informatik und Praktische Mathematik, Universität Kiel.
- M. Kunde (1981). Nonpreemptive LP-scheduling on homogeneous multiprocessor systems. *SIAM J. Comput.* 10, 151–173.

- M. Kunde, H. Steppat (1985). First fit decreasing scheduling on uniform multiprocessors. *Discrete Appl. Math.* 10, 165–177.
- J. Labetoulle, E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1984). Preemptive scheduling of uniform machines subject to release dates. Pulleyblank [1984], 245–261. [4.4, 9.3.5]
- B.J. Lageweg, E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1981). *Computer Aided Complexity Classification of Deterministic Scheduling Problems*, Report BW 138, Centrum Wiskunde & Informatica, Amsterdam.
- B.J. Lageweg, J.K. Lenstra, E.L. Lawler, A.H.G. Rinnooy Kan (1982). Computer-aided complexity classification of combinatorial problems. *Comm. ACM* 25, 817–822.
- B.J. Lageweg, J.K. Lenstra, A.H.G. Rinnooy Kan (1976). Minimizing maximum lateness on one machine: computational experience and some applications. *Statist. Neerlandica* 30, 25–41. [3.2,6]
- B.J. Lageweg, J.K. Lenstra, A.H.G. Rinnooy Kan (1977). Job-shop scheduling by implicit enumeration. *Management Sci.* 24, 441–450.
- B.J. Lageweg, J.K. Lenstra, A.H.G. Rinnooy Kan (1978). A general bounding scheme for the permutation flow-shop problem. *Oper. Res.* 26, 53–67.
- T.-H. Lai, S. Sahni (1983). Nearly on-line scheduling of multiprocessor systems with memories. *J. Algorithms* 4, 353–362. [9.5]
- T.-H. Lai, S. Sahni (1984). Preemptive scheduling of a multiprocessor system with memories to minimize maximum lateness. *SIAM. J. Comput.* 13, 690–704. [9.5]
- S. Lam, R. Sethi (1977). Worst case analysis of two scheduling algorithms. *SIAM J. Comput.* 6, 518–536.
- R.E. Larson, M.I. Dessouky, R.E. Devor (1985). A forward-backward procedure for the single machine problem to minimize maximum lateness. *IIE Trans.* 17, 252–260. [3.6]
- E.L. Lawler (1973). Optimal sequencing of a single machine subject to precedence constraints. *Management Sci.* 19, 544–546. [3.1]
- E.L. Lawler (1976). *Combinatorial Optimization: Networks and Matroids*, Holt, Rinehart and Winston, New York. [2.1]
- E.L. Lawler (1976A). Sequencing to minimize the weighted number of tardy jobs. *RAIRO Rech. Opér.* 10, 5 Suppl. 27–33. [5.4, 7.4]
- E.L. Lawler (1977). A ‘pseudopolynomial’ algorithm for sequencing jobs to minimize total tardiness. *Ann. Discrete Math.* 1, 331–342.
- E.L. Lawler (1978A). Sequencing jobs to minimize total weighted completion time subject to precedence constraints. *Ann. Discrete Math.* 2, 75–90. [4.3.4]
- E.L. Lawler (1978B). *Sequencing problems with series parallel precedence constraints*, unpublished manuscript. [4.3,4]
- E.L. Lawler (1979). Fast approximation algorithms for knapsack problems. *Math. Oper. Res.* 4, 339–356. [2.1]
- E.L. Lawler (1979A). *Preemptive scheduling of uniform parallel machines to minimize the weighted number of late jobs*, Report BW105, Centrum Wiskunde & Informatica, Amsterdam. [7.4, 9.2]
- E.L. Lawler (1979B). *Efficient implementation of dynamic programming algorithms for sequencing problems*, Report BW 106, Centrum Wiskunde & Informatica, Amsterdam.
- E.L. Lawler (1982A). Preemptive scheduling of precedence-constrained jobs on parallel machines. Dempster, Lenstra, and Rinnooy Kan [1982], 101–123.
- E.L. Lawler (1982B). *Scheduling a single machine to minimize the number of late jobs*, Preprint, Computer Science Division, University of California, Berkeley. [5.4,5,6]
- E.L. Lawler (1982C). A fully polynomial approximation scheme for the total tardiness problem. *Oper. Res. Lett.* 1, 207–208.

- E.L. Lawler (1983). Recent results in the theory of machine scheduling. A. Bachem, M. Grötschel, B. Korte (eds.) (1983). *Mathematical Programming: the State of the Art – Bonn 1982*, Springer, Berlin, 202–234. [1.1, 7.2,4]
- E.L. Lawler (1990). A dynamic programming algorithm for preemptive scheduling of a single machine to minimize the number of late jobs. *Ann. Oper. Res.* 26, 125–133. [5.6]
- E.L. Lawler (-). Unpublished. [3.5, 5.5, 7.4]
- E.L. Lawler, J. Labetoulle (1978). On preemptive scheduling of unrelated parallel processors by linear programming. *J. Assoc. Comput. Mach.* 25, 612–619. [7.2, 9.7, 11.8]
- E.L. Lawler, J.K. Lenstra (1982). Machine scheduling with precedence constraints. I. Rival (ed.) (1982). *Ordered Sets*, Reidel, Dordrecht, 655–675. [1.1]
- E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1981, 1982). Minimizing maximum lateness in a two-machine open shop. *Math. Oper. Res.* 6, 153–158; Erratum. *Math. Oper. Res.* 7, 635. [11.9]
- E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan (1982). Recent developments in deterministic sequencing and scheduling: a survey. Dempster, Lenstra, and Rinnooy Kan [1982], 35–73. [1.1]
- E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan, D.B. Shmoys (eds.) (1985). *The Traveling Salesman Problem: a Guided Tour of Combinatorial Optimization*, Wiley, Chichester. [1.2, Bibliography]
- E.L. Lawler, J.K. Lenstra, A.H.G. Rinnooy Kan, D.B. Shmoys (1993). Sequencing and scheduling: algorithms and complexity. S.C. Graves, A.H.G. Rinnooy Kan, P. Zipkin (eds.). *Handbooks in Operations Research and Management Science, Volume 4: Logistics of Production and Inventory*, North-Holland, Amsterdam. [About, 1.1, 7.2]
- E.L. Lawler, C.U. Martel (1982). Computing maximal ‘polymatroidal’ network flows. *Math. Oper. Res.* 7, 334–347. [9.4]
- E.L. Lawler, C.U. Martel (1989). Preemptive scheduling of two uniform machines to minimize the number of late jobs. *Oper. Res.* 37, 314–318. [9.2]
- E.L. Lawler, J.M. Moore (1969). A functional equation and its application to resource allocation and sequencing problems. *Management Sci.* 16, 77–84. [5.2, 7.3]
- E.L. Lawler, B.D. Sivazlian (1978). Minimization of time varying costs in single machine sequencing. *Oper. Res.* 26, 563–569. [4.2]
- J.K. Lenstra (1977). *Sequencing by Enumerative Methods*, Mathematical Centre Tracts 69, Centrum Wiskunde & Informatica, Amsterdam. [1.1]
- J.K. Lenstra (1998). The mystical power of twoness; in memoriam Eugene L. Lawler. *J. Scheduling* 1, 3–14. [About]
- J.K. Lenstra (-). Unpublished. [4.4, 5.5, 11.3]
- J.K. Lenstra, A.H.G. Rinnooy Kan (1978). Complexity of scheduling under precedence constraints. *Oper. Res.* 26, 22–35. [2.4, 4.4]
- J.K. Lenstra, A.H.G. Rinnooy Kan (1979). Computational complexity of discrete optimization problems. *Ann. Discrete Math.* 4, 121–140.
- J.K. Lenstra, A.H.G. Rinnooy Kan (1980). Complexity results for scheduling chains on a single machine. *European J. Oper. Res.* 4, 270–275. [5.7]
- J.K. Lenstra, A.H.G. Rinnooy Kan (1984). New directions in scheduling theory. *Oper. Res. Lett.* 2, 255–259. [1.1]
- J.K. Lenstra, A.H.G. Rinnooy Kan (1985). Sequencing and scheduling. O’heigartaigh, Lenstra, and Rinnooy Kan [1985], 164–189. [1.1]
- J.K. Lenstra, A.H.G. Rinnooy Kan, P. Brucker (1977). Complexity of machine scheduling problems. *Ann. Discrete Math.* 1, 343–362. [2.4, 3.4, 4.4, 7.3]
- J.K. Lenstra, D.B. Shmoys, É. Tardos (1990). Approximation algorithms for scheduling unrelated parallel machines. *Math. Program.* 46, 259–271. [8.4,5]
- J.Y.-T. Leung (1991). Bin packing with restricted piece sizes. *Inform. Process. Lett.* 31, 145–149.

- J.Y.-T. Leung, G.H. Young (1990). Minimizing total tardiness on a single machine with precedence constraint. *ORSA J. Comput.* 2, 346–352.
- L.A. Levin (1973). Universal sequential search problems. *Problemy Peredachi Informatsii* 9, 115–116. English translation (1975). *Problems Inform. Transmission* 9, 265–266. [2.4]
- C.Y. Liu, R.L. Bulfin (1985). On the complexity of preemptive open-shop scheduling problems. *Oper. Res. Lett.* 4, 71–74. [11.9]
- J.W.S. Liu, C.L. Liu (1974A). Bounds on scheduling algorithms for heterogeneous computing systems. J.L. Rosenfeld (ed.) (1974). *Information Processing 74*, North-Holland, Amsterdam, 349–353. [8.3]
- J.W.S. Liu, C.L. Liu (1974B). *Bounds on scheduling algorithms for heterogeneous computing systems*, Technical report UIUCDCS–R–74–632, Department of Computer Science, University of Illinois at Urbana-Champaign. [8.3]
- J.W.S. Liu, C.L. Liu (1974C). Performance analysis of heterogeneous multi-processor computing systems. E. Gelenbe, R. Mahl (eds.) (1974). *Computer Architectures and Networks*, North-Holland, Amsterdam, 331–343. [8.3]
- E.M. Livshits, V.I. Rublinetsky (1972). On the comparative complexity of some discrete optimization problems. *Numerical Mathematics and Computer Technology* 3, Physics-Technology Institute for Low Temperatures, Academy of Sciences of the Ukrainian SSR, Kharkov, 78–85 (in Russian; translated by J.K. Lenstra, V.A. Strusevich and M. Vlach). [About]
- R. Loulou (1984). Tight bounds and probabilistic analysis of two heuristics for parallel processor scheduling. *Math. Oper. Res.* 9, 142–150. [8.6]
- O. Marcotte, L.E. Trotter, Jr. (1984). An application of matroid polyhedral theory to unit-execution time, tree-precedence constrained job scheduling. Pulleyblank [1984], 263–271.
- F. Margot, M. Queyranne, Y. Wang (2003). Decompositions, network flows, and a precedence constrained single-machine scheduling problem. *Oper. Res.* 51, 981–992. [4.6,7]
- P.S. Mankekar, L.G. Mitten (1965). Constrained least cost testing sequence problem. *J. Indust. Engrg.* 16, 146–149. [4.2]
- C.U. Martel (1982). Preemptive scheduling with release times, deadlines and due times. *J. Assoc. Comput. Mach.* 29, 812–829. [9.4,5]
- C.U. Martel (1985). Preemptive scheduling to minimize maximum completion time on uniform processors with memory constraints. *Oper. Res.* 33, 1360–1380. [9.5]
- H. Matsuo, C.J. Suh, R.S. Sullivan (1988). *A controlled search simulated annealing method for the general jobshop scheduling problem*, Working paper 03–44–88, Graduate School of Business, University of Texas, Austin. [13.2]
- W.L. Maxwell (1970). On sequencing  $n$  jobs on one machine to minimize the number of late jobs. *Management Sci.* 16, 295–297. [5.4]
- S.T. McCormick, M.L. Pinedo (1995). Scheduling  $n$  independent jobs on  $m$  uniform machines with both flowtime and makespan objectives: a parametric analysis. *INFORMS J. Comput.* 7, 63–77. [7.3]
- G.B. McMahon (1969). Optimal production schedules for flow shops. *Canad. Oper. Res. Soc. J.* 7, 141–151.
- G.B. McMahon (1971). *A Study of Algorithms for Industrial Scheduling Problems*, PhD thesis, University of New South Wales, Kensington.
- G.B. McMahon, M. Florian (1975). On scheduling with ready times and due dates to minimize maximum lateness. *Oper. Res.* 23, 475–482. [3.6]
- R. McNaughton (1959). Scheduling with deadlines and loss functions. *Management Sci.* 6, 1–12. [7.3, 9.1]
- N. Megiddo (1983). Applying parallel computation algorithms in the design of serial algorithms. *J. Assoc. Comput. Mach.* 30, 852–865. [10.2,5,6]

- I. Meilijson, A. Tamir (1984). Minimizing flow time on parallel identical processors with variable unit processing time. *Oper. Res.* 32, 440–446.
- V. Melkonian (1997). Private communication. [8.1]
- L.G. Mitten (1958). Sequencing  $n$  jobs on two machines with arbitrary time lags. *Management Sci.* 5, 293–298.
- L.G. Mitten (1960). An analytic solution to the least cost testing sequence problem. *J. Indust. Engrg.* 11, 17. [4.2]
- R.H. Möhring (1983). Scheduling problems with a singular solution. *Ann. Discrete Math.* 16, 225–239.
- R.H. Möhring (1984). Minimizing costs of resource requirements in project networks subject to a fixed completion time. *Oper. Res.* 32, 89–120.
- R.H. Möhring (1989). Computationally tractable classes of ordered sets. I. Rival (ed.) (1989). *Algorithms and Order*, Kluwer Academic, Dordrecht, 105–193.
- R.H. Möhring, F.J. Radermacher (1985A). Generalized results on the polynomiality of certain weighted sum scheduling problems. *Methods of Oper. Res.* 49, 405–417.
- R.H. Möhring, F.J. Radermacher (1985B). An introduction to stochastic scheduling problems. K. Neumann, D. Pallaschke (eds.) (1985). *Contributions to Operations Research*, Lecture Notes in Economics and Mathematical Systems 240, Springer, Berlin, 72–130.
- R.H. Möhring, F.J. Radermacher, G. Weiss (1984). Stochastic scheduling problems I: general strategies. *Z. Oper. Res.* 28, 193–260.
- R.H. Möhring, F.J. Radermacher, G. Weiss (1985). Stochastic scheduling problems II: set strategies. *Z. Oper. Res.* 29, 65–104.
- C.L. Monma (1979). The two-machine maximum flow-time problem with series-parallel precedence constraints: an algorithm and extensions. *Oper. Res.* 27, 792–798.
- C.L. Monma (1980). Sequencing to minimize the maximum job cost. *Oper. Res.* 28, 942–951. [3.1, 4.2]
- C.L. Monma (1981). Sequencing with general precedence constraints. *Discrete Appl. Math.* 3, 137–150.
- C.L. Monma (1982). Linear-time algorithms for scheduling on parallel processors. *Oper. Res.* 30, 116–124. [3.2, 5.1]
- C.L. Monma, A.H.G. Rinnooy Kan (1983). A concise survey of efficiently solvable special cases of the permutation flow-shop problem. *RAIRO Rech. Opér.* 17, 105–119.
- C.L. Monma, J.B. Sidney (1979). Sequencing with series-parallel precedence constraints. *Math. Oper. Res.* 4, 215–224. [4.3]
- C.L. Monma, J.B. Sidney (1987). Optimal sequencing via modular decomposition: characterizations of sequencing functions. *Math. Oper. Res.* 12, 22–31.
- J.M. Moore (1968). An  $n$  job, one machine sequencing algorithm for minimizing the number of late jobs. *Management Sci.* 15, 102–109. [5.4]
- J.F. Morrison (1988). A note on LPT scheduling. *Oper. Res. Lett.* 7, 77–79. [8.3]
- J.H. Muller, J. Spinrad (1989). Incremental modular decomposition. *J. Assoc. Comput. Mach.* 36, 1–19.
- R.R. Muntz, E.G. Coffman, Jr. (1969). Optimal preemptive scheduling on two-processor systems. *IEEE Trans. Comput. C-18*, 1014–1020.
- R.R. Muntz, E.G. Coffman, Jr. (1970). Preemptive scheduling of real time tasks on multiprocessor systems. *J. Assoc. Comput. Mach.* 17, 324–338.
- I. Nabeshima (1963). Sequencing on two machines with start lag and stop lag. *J. Oper. Res. Soc. Japan* 5, 97–101.
- K. Nakajima, J.Y.-T. Leung, S.L. Hakimi (1981). Optimal two processor scheduling of tree precedence constrained tasks with two execution times. *Performance Evaluation* 1, 320–330.

- M. Nawaz, E.E. Enscore, Jr., I. Ham (1983). A heuristic algorithm for the  $m$ -machine,  $n$ -job flow-shop sequencing problem. *Omega* 11, 91–95. [12.2]
- L. Németi (1964). Das Reihenfolgeproblem in der Fertigungsprogrammierung und Linearplanung mit logischen Bedingungen. *Mathematica (Cluj)* 6, 87–99.
- G.L. Nemhauser, M.W.P. Savelsbergh (1992). A cutting plane algorithm for the single machine scheduling problem with release times. M. Akgül, H.W. Hamacher, S. Tüfekçi (eds.) (1992). *Combinatorial Optimization: New Frontiers in Theory and Practice*, NATO ASI Series F 82, Springer, Berlin, 63–83. [4.6]
- G.L. Nemhauser, L.A. Wolsey (1988). *Integer and Combinatorial Optimization*, Wiley, New York. [2.1]
- E. Nowicki, C. Smutnicki (1987). On lower bounds on the minimum maximum lateness on one machine subject to release date. *Opsearch* 24, 106–110. [3.6]
- E. Nowicki, C. Smutnicki (1989). Worst-case analysis of an approximation algorithm for flow-shop scheduling. *Oper. Res. Lett.* 8, 171–177. [12.2]
- E. Nowicki, C. Smutnicki (1991). Worst-case analysis of Dannenbring's algorithm for flow-shop scheduling. *Oper. Res. Lett.* 10, 473–480. [12.2]
- E. Nowicki, C. Smutnicki (1993). New results in the worst-case analysis for flow-shop scheduling. *Discrete Appl. Math.* 46, 21–41. [12.2]
- E. Nowicki, C. Smutnicki (1994). An approximation algorithm for single-machine scheduling problem with release times and delivery times. *Discrete Appl. Math.* 48, 69–79. [3.5]
- E. Nowicki, C. Smutnicki (1996). A fast taboo search algorithm for the job shop problem. *Management Sci.* 42, 797–813. [13.2]
- E. Nowicki, S. Zdrzalka (1986). A note on minimizing maximum lateness in a one-machine sequencing problem with release dates. *European J. Oper. Res.* 23, 266–267. [3.2]
- M. O'hEigeartaigh, J.K. Lenstra, A.H.G. Rinnooy Kan (eds.) (1985). *Combinatorial Optimization: Annotated Bibliographies*, Wiley, Chichester. [Bibliography]
- I.H. Osman, G. Laporte (1996). Metaheuristics: a bibliography. *Ann. Oper. Res.* 63, 513–623. [13.2]
- I.H. Osman, C.N. Potts (1989). Simulated annealing for permutation flow-shop scheduling. *Omega* 17, 551–557. [12.2]
- D.S. Palmer (1965). Sequencing jobs through a multi-stage process in the minimum total time – a quick method of obtaining a near optimum. *Oper. Res. Quart.* 16, 101–107. [12.2]
- Y. Pan, L. Shi (2006). Branch-and-bound algorithms for solving hard instances of the one-machine sequencing problem. *European J. Oper. Res.* 168, 1030–1039. [3.6]
- S.S. Panwalkar, W. Iskander (1977). A survey of scheduling rules. *Oper. Res.* 25, 45–61.
- C.H. Papadimitriou (1994). *Computational Complexity*, Addison-Wesley, Reading, MA. [2.3]
- C.H. Papadimitriou, P.C. Kannelakis (1980). Flowshop scheduling with limited temporary storage. *J. Assoc. Comput. Mach.* 27, 533–549.
- C.H. Papadimitriou, K. Steiglitz (1982). *Combinatorial Optimization: Algorithms and Complexity*, Prentice-Hall, Englewood Cliffs, NJ. [2.1]
- C.H. Papadimitriou, M. Yannakakis (1979). Scheduling interval-ordered tasks. *SIAM J. Comput.* 8, 405–409.
- C.H. Papadimitriou, M. Yannakakis (1988). Towards an architecture-independent analysis of parallel algorithms. *Proc. 20th Annual ACM Symp. Theory of Computing*, 510–513.
- R. Peters (1988). L'ordonnancement sur une machine avec des contraintes de délai. *Belg. J. Oper. Res. Stat. Comput. Sci.* 28, 33–76. [4.5]
- F. Pezzella, E. Merelli (2000). A tabu search method guided by shifting bottleneck for the job shop scheduling problem *European J. Oper. Res.* 120, 297–310. [13.2]
- C. Phillips, C. Stein, J. Wein (1998). Minimizing average completion time in the presence of release dates. *Math. Program.* 82, 199–223. [4.9]

- J. Piehler (1960). Ein Beitrag zum Reihenfolgeproblem. *Unternehmensforschung* 4, 138–142.
- M.L. Pinedo (1981). A note on the two machine job shop with exponential processing times. *Naval Res. Logist. Quart.* 28, 693–696.
- M.L. Pinedo (1982). Minimizing the expected makespan in stochastic flow shops. *Oper. Res.* 30, 148–162.
- M.L. Pinedo (1983). Stochastic scheduling with release dates and due dates. *Oper. Res.* 31, 559–572.
- M.L. Pinedo (1984). Optimal policies in stochastic shop scheduling. *Ann. Oper. Res.* 1, 305–329.
- M.L. Pinedo (1995). *Scheduling; Theory, Algorithms, and Systems*. Prentice Hall, Englewood Cliffs, NJ. [15]
- M.L. Pinedo, X. Chao (1999). *Operations Scheduling with Applications in Manufacturing and Services*. Irwin/McGraw-Hill, Boston. [15]
- M.L. Pinedo, E. Rammouz (1988). A note on stochastic scheduling on a single machine subject to breakdown and repair. *Probab. Engrg. Inform. Sci.* 2, 41–49.
- M.L. Pinedo, L. Schrage (1982). Stochastic shop scheduling: a survey. Dempster, Lenstra, and Rinnooy Kan [1982], 181–196.
- M.L. Pinedo, M. Singer (1999). A shifting bottleneck heuristic for minimizing the total weighted tardiness in a job shop. *Naval. Res. Logist.* 46, 1–17. [15]
- M.L. Pinedo, G. Weiss (1984). Scheduling jobs with exponentially distributed processing times on two machines with resource constraints. *Management Sci.* 30, 883–889.
- M.L. Pinedo, G. Weiss (1985). Scheduling jobs with exponentially distributed processing times andintree precedence constraints on two parallel machines. *Oper. Res.* 33, 1381–1388.
- M.L. Pinedo, G. Weiss (1987). The 'largest variance first' policy in some stochastic scheduling problems. *Oper. Res.* 35, 884–891.
- A. Pnueli, A. Lempel, S. Even (1971). Transitive orientation of graphs and identification of permutations graphs. *Canad. J. Math.* 23, 160–175. [4.8]
- B.T. Polyak (1967). A general method of solving extremum problems. *Dokl. Math.* 8, 593–597. [2.5]
- S.G. Ponnambalam, P. Aravindan, P. Sreenivasa Rao (2001). Comparative evaluation of genetic algorithms for job-shop scheduling. *Production Planning Control* 12, 560–574. [13.2]
- D.B. Porter (1968). The Gantt chart as applied to production scheduling and control. *Naval Res. Logist. Quart.* 15, 311–317. [1.1]
- M.E. Posner (1985). Minimizing weighted completion times with deadlines. *Oper. Res.* 33, 562–574.
- C.N. Potts (1980A). An adaptive branching rule for the permutation flow-shop problem. *European J. Oper. Res.* 5, 19–25.
- C.N. Potts (1980B). Analysis of a heuristic for one machine sequencing with release dates and delivery times. *Oper. Res.* 28, 1436–1441. [3.5]
- C.N. Potts (1980C). An algorithm for the single machine sequencing problem with precedence constraints. *Math. Program. Stud.* 13, 78–87. [4.6]
- C.N. Potts (1985A). Analysis of a linear programming heuristic for scheduling unrelated parallel machines. *Discrete Appl. Math.* 10, 155–164. [8.4]
- C.N. Potts (1985B). Analysis of heuristics for two-machine flow-shop sequencing subject to release dates. *Math. Oper. Res.* 10, 576–584. [12.2]
- C.N. Potts (1985C). A Lagrangean based branch and bound algorithm for single machine sequencing with precedence constraints to minimize total weighted completion time. *Management Sci.* 31, 1300–1311.
- C.N. Potts, D.B. Shmoys, D.P. Williamson (1991). Permutation vs. non-permutation flow shop schedules. *Oper. Res. Lett.* 10, 281–284. [12.2]

- C.N. Potts, L.N. van Wassenhove (1982). A decomposition algorithm for the single machine total tardiness problem. *Oper. Res. Lett.* 1, 177–181.
- C.N. Potts, L.N. van Wassenhove (1983). An algorithm for single machine sequencing with deadlines to minimize total weighted completion time. *European J. Oper. Res.* 12, 379–387.
- C.N. Potts, L.N. van Wassenhove (1985). A branch and bound algorithm for the total weighted tardiness problem. *Oper. Res.* 33, 363–377.
- C.N. Potts, L.N. van Wassenhove (1987). Dynamic programming and decomposition approaches for the single machine total tardiness problem. *European J. Oper. Res.* 32, 405–414.
- C.N. Potts, L.N. van Wassenhove (1988). Algorithms for scheduling a single machine to minimize the weighted number of late jobs. *Management Sci.* 34, 843–858. [5.2]
- W.R. Pulleyblank (ed.) (1984). *Progress in Combinatorial Optimization*, Academic Press, New York. [Bibliography]
- M. Queyranne (1988). *Structure of a simple scheduling polyhedron*, Report 88014, L.A.A.S., Toulouse. [4.5]
- M. Queyranne (1993). Structure of a simple scheduling polyhedron. *Math. Program.* 58, 263–285. [4.5]
- M. Queyranne, A.S. Schulz (1994). *Polyhedral approaches to machine scheduling*, Report 404/1994, Fachbereich 3 Mathematik, Technische Universität Berlin. [4.5]
- R.M.V. Rachamadugu (1987). A note on the weighted tardiness problem. *Oper. Res.* 35, 450–452.
- F.J. Radermacher (1985/6). Scheduling of project networks. *Ann. Oper. Res.* 4, 227–252.
- M. Raghavachari (1988). Scheduling problems with non-regular penalty functions: a review. *Opsearch* 25, 144–164.
- A.W. Rathe (ed.) (1961). *Gantt on Management; Guidelines for Today's Executive*, American Management Association, New York. [1.1]
- V.J. Rayward-Smith (1987A). UET scheduling with unit interprocessor communication delays. *Discrete Appl. Math.* 18, 55–71.
- V.J. Rayward-Smith (1987B). The complexity of preemptive scheduling given interprocessor communication delays. *Inform. Process. Lett.* 25, 123–125. [9.1]
- S.S. Reddi, C.V. Ramamoorthy (1972). On the flow-shop sequencing problem with no wait in process. *Oper. Res. Quart.* 23, 323–331.
- R. Righter (1988). Job scheduling to minimize expected weighted flowtime on uniform processors. *Syst. and Control Lett.* 10, 211–216.
- G. Rinaldi, A. Sassano (1977). *On a job scheduling problem with different ready times: some properties and a new algorithm to determine the optimal solution*, Report R.77–24, Istituto di Automatica, Università di Roma.
- A.H.G. Rinnooy Kan (1976). *Machine Scheduling Problems: Classification, Complexity and Computations*, Nijhoff, The Hague. [1.1]
- A.H.G. Rinnooy Kan, B.J. Lageweg, J.K. Lenstra (1975). Minimizing total costs in one-machine scheduling. *Oper. Res.* 23, 908–927.
- A.H.G. Rinnooy Kan, L. Stougie (1989). Probabilistic analysis of algorithms. J.K. Lenstra, H.C. Tijms, A. Volgenant (eds.) (1989). *Twenty-Five Years of Operations Research in the Netherlands: Papers Dedicated to Gijs de Leve*, CWI Tract 70, Centrum Wiskunde & Informatica, Amsterdam, 104–121. [8.6]
- H. Röck (1984A). The three-machine no-wait flow shop problem is NP-complete. *J. Assoc. Comput. Mach.* 31, 336–345.
- H. Röck (1984B). Some new results in flow shop scheduling. *Z. Oper. Res.* 28, 1–16.
- H. Röck, G. Schmidt (1983). Machine aggregation heuristics in shop scheduling. *Methods of Oper. Res.* 45, 303–314. [12.2]

- M.H. Rothkopf (1966). Scheduling independent tasks on parallel processors. *Management Sci.* 12, 437–447. [4.2, 7.3]
- B. Roy, B. Sussmann (1964). *Les problèmes d'ordonnement avec contraintes disjonctives*, Note DS no. 9 bis, SEMA, Montrouge. [13.1]
- S. Sahni (1976). Algorithms for scheduling independent tasks. *J. Assoc. Comput. Mach.* 23, 116–127. [5.3, 7.3, 8.1,3]
- S. Sahni, Y. Cho (1979A). Complexity of scheduling shops with no wait in process. *Math. Oper. Res.* 4, 448–457. [11.2]
- S. Sahni, Y. Cho (1979B). Nearly on line scheduling of a uniform processor system with release times. *SIAM J. Comput.* 8, 275–285. [9.3]
- S. Sahni, Y. Cho (1980). Scheduling independent tasks with due times on a uniform processor system. *J. Assoc. Comput. Mach.* 27, 550–563. [9.2]
- S.C. Sarin, S. Ahn, A.B. Bishop (1988). An improved branching scheme for the branch and bound procedure of scheduling  $n$  jobs on  $m$  machines to minimize total weighted flowtime. *Int.. J. Production Res.* 26, 1183–1191. [7.3]
- G. Schmidt (1983). *Preemptive scheduling on identical processors with time dependent availabilities*, Bericht 83–4, Fachbereich 20 Informatik, Technische Universität Berlin. [9.1]
- L. Schrage (1970). Solving resource-constrained network problems by implicit enumeration – nonpreemptive case. *Oper. Res.* 18, 263–278.
- L. Schrage (1971). *Obtaining optimal solutions to resource constrained network scheduling problems*, Unpublished manuscript. [3.5]
- L. Schrage, K.R. Baker (1978). Dynamic programming solution of sequencing problems with precedence constraints. *Oper. Res.* 26, 444–449.
- A. Schrijver (1986). *Theory of Linear and Integer Programming*, Wiley, Chichester. [2.1]
- A.S. Schulz, M. Skutella (2002). The power of  $\alpha$ -points in preemptive single machine scheduling. *J. Sched.* 5, 121–133. [4.10]
- R. Sethi (1976A). Algorithms for minimal-length schedules. Coffman [1976], 51–99.
- R. Sethi (1976B). Scheduling graphs on two processors. *SIAM J. Comput.* 5, 73–82.
- R. Sethi (1977). On the complexity of mean flow time scheduling. *Math. Oper. Res.* 2, 320–330. [7.3]
- S.V. Sevastyanov (1974). The asymptotic approach to certain problems of scheduling theory (in Russian). *Third All-Union Conf. Theoretical Cybernetics, Thes. Dokl. Novosibirsk, June 1974*, 67–69. [12.3]
- S.V. Sevastyanov (1978). Approximate solution of some problems in scheduling theory (in Russian) *Metody Diskretnogo Analiza* 32, 66–75. [11.4]
- S.V. Sevastyanov (1986). An algorithm with an estimate for a problem with routings of parts of arbitrary shape and alternative executors. *Cybernetics* 22, 773–781. [13.3]
- S.V. Sevastyanov (1992). A polynomially solvable case of the open shop problem with arbitrary number of machines (in Russian). *Kibernet. Sistem. Anal.* 6, 135–154. [11.5]
- S.V. Sevastyanov (1994). On some geometric methods in scheduling theory: a survey. *Discrete Appl. Math.* 55, 59–82. [11.5]
- S.V. Sevastyanov (1995). Vector summation in Banach space and polynomial algorithms for flow shops and open shops. *Math. Oper. Res.* 20, 90–103. [11.5]
- S.V. Sevastyanov, I.D. Tchernykh (1998). Computer-aided way to prove theorems in scheduling. *Proceedings of the 6th European Symposium on Algorithms – ESA 1998*, Lecture Notes in Computer Science 1461, Springer, Berlin, 502–513. [11.6]
- S.V. Sevastyanov, G.J. Woeginger (1998). Makespan minimization in open shops: a polynomial time approximation scheme. *Math. Program.* 82, 191–198. [11.7]

- N.V. Shakhlevich, V.A. Strusevich (1993). Two machine open shop scheduling problem to minimize an arbitrary machine usage regular penalty function. *European J. Oper. Res.* 70, 391–404. [11.2]
- D.B. Shmoys (1995). Computing near-optimal solutions to combinatorial optimization problems. W. Cook, L. Lovász, P. Seymour (eds.) (1995). *Combinatorial Optimization; Papers from the DIMACS Special Year*, AMS, Providence, RI, 355–397. [2.5]
- D.B. Shmoys, C. Stein, J. Wein. (1994). Improved approximation algorithms for shop scheduling problems. *SIAM J. Comput.* 23, 617–632. [12.3]
- D.B. Shmoys, É. Tardos (1989). Computational complexity of combinatorial problems. R.L. Graham, M. Grötschel, L. Lovász (eds.) (1989). *Handbook in Combinatorics*, North-Holland, Amsterdam.
- J. Shwimer (1972). On the  $N$ -jobs, one-machine, sequence-independent scheduling problem with tardiness penalties: a branch-and-bound solution. *Management Sci.* 18B, 301–313.
- J.B. Sidney (1973). An extension of Moore's due date algorithm. S.E. Elmaghraby (ed.) (1973). *Symposium on the Theory of Scheduling and its Applications*, Lecture Notes in Economics and Mathematical Systems 86, Springer, Berlin, 393–398. [5.4]
- J.B. Sidney (1975). Decomposition algorithms for single-machine sequencing with precedence relations and deferral costs. *Oper. Res.* 23, 283–298. [4.3,7]
- J.B. Sidney (1979). The two-machine maximum flow time problem with series parallel precedence relations. *Oper. Res.* 27, 782–791.
- J.B. Sidney (1981). A decomposition algorithm for sequencing with general precedence constraints. *Math. Oper. Res.* 6, 190–204.
- J.B. Sidney, G. Steiner (1986). Optimal sequencing by modular decomposition: polynomial algorithms. *Oper. Res.* 34, 606–612.
- B. Simons (1978). A fast algorithm for single processor scheduling. *Proc. 19th Annual Symp. Foundations of Computer Science*, 246–252. [3.3]
- B. Simons (1983). Multiprocessor scheduling of unit-time jobs with arbitrary release times and deadlines. *SIAM J. Comput.* 12, 294–299. [8.2]
- B. Simons, M. Warmuth (1989). A fast algorithm for multiprocessor scheduling of unit-length jobs. *SIAM J. Comput.* 18, 690–710. [8.2]
- M. Singer, M.L. Pinedo (1998). A computational study of branch and bound techniques for minimizing the total weighted tardiness in job shops. *IIE Trans. Sched. Logist.* 30, 109–118. [15]
- M. Sipser (1997). *Introduction to the Theory of Computation*, PWS, Boston, MA. [2.3]
- R. Sitters (2005). Complexity of preemptive minsum scheduling on unrelated parallel machines. *J. Algorithms* 57, 37–48. [7.2]
- M.L. Smith, S.S. Panwalkar, R.A. Dudek (1975). Flow shop sequencing with ordered processing time matrices. *Management Sci.* 21, 544–549.
- M.L. Smith, S.S. Panwalkar, R.A. Dudek (1976). Flow shop sequencing problem with ordered processing time matrices: a general case. *Naval Res. Logist. Quart.* 23, 481–486.
- W.E. Smith (1956). Various optimizers for single-stage production. *Naval Res. Logist. Quart.* 3, 59–66. [4.1,2]
- Yu.N. Sotskov (1991). The complexity of shop-scheduling problems with two or three jobs. *European J. Oper. Res.* 53, 326–336.
- E. Steinitz (1913). Bedingt konvergente Reihen und convexe Systeme. *J. Reine Angew. Math.* 143, 128–175. [11.4]
- L.J. Stockmeyer (1990). Complexity theory. E.G. Coffman, Jr., J.K. Lenstra, A.H.G. Rinnooy Kan (eds.) (1990). *Handbooks in Operations Research and Management Science; Volume 3: Computation*, North-Holland, Amsterdam, Chapter 8.

- W. Szwarc (1968). On some sequencing problems. *Naval Res. Logist. Quart.* 15, 127–155.
- W. Szwarc (1971). Elimination methods in the  $m \times n$  sequencing problem. *Naval Res. Logist. Quart.* 18, 295–305.
- W. Szwarc (1973). Optimal elimination methods in the  $m \times n$  sequencing problem. *Oper. Res.* 21, 1250–1259.
- W. Szwarc (1978). Dominance conditions for the three-machine flow-shop problem. *Oper. Res.* 26, 203–206.
- É. Taillard (1994). Parallel taboo search techniques for the job-shop scheduling problem. *ORSA J. Comput.* 16, 108–117. [13.2]
- F.B. Talbot, J.H. Patterson (1978). An efficient integer programming algorithm with network cuts for solving resource-constrained scheduling problems. *Management Sci.* 24, 1163–1174.
- É. Tardos (–). Private communication. [8.4]
- M.A. Trick (1990). Scheduling multiple variable-speed machines. Kannan and Pulleyblank [1990], 485–494. [8.4]
- S. Turner, D. Booth (1987). Comparison of heuristics for flow shop sequencing. *Omega* 15, 75–78. [12.2]
- J.D. Ullman (1975). NP-complete scheduling problems. *J. Comput. System Sci.* 10, 384–393. [2.4]
- J.D. Ullman (1976). Complexity of sequencing problems. Coffman [1976], 139–164.
- R.J.M. Vaessens, E.H.L. Aarts, J.K. Lenstra (1996). Job shop scheduling by local search. *INFORMS J. Comput.* 8, 302–317. [13.2]
- J. Valdes, R.E. Tarjan, E.L. Lawler (1982). The recognition of series parallel digraphs. *SIAM J. Comput.* 11, 298–313. [4.3]
- S.L. van de Velde (1990). Minimizing the sum of the job completion times in the two-machine flow shop by Lagrangian relaxation. *Ann. Oper. Res.* 26, 257–268. [2.5]
- S.L. van de Velde (1993). Duality-based algorithms for scheduling unrelated parallel machines. *ORSA J. Comput.* 5, 192–205. [8.4]
- M. van den Akker, J.A. Hoogeveen. G.J. Woeginger (2003). The two-machine open shop problem: to fit or not to fit, that is the question. *Oper. Res. Lett.* 31, 219–224. [11.2]
- P.J.M. van Laarhoven, E.H.L. Aarts, J.K. Lenstra (1992). Job shop scheduling by simulated annealing. *Oper. Res.* 40, 113–125. [13.2]
- A. Vazacopoulos (1994). *Essays on machine scheduling problems*, PhD thesis, Carnegie Mellon University, Pittsburgh, PA. [3.6]
- V.V. Vazirani. (2001). *Approximation algorithms*. Springer, Berlin. [2.5]
- W.J.H. Verkooijen (1991). *Job-shop scheduling by an interactive implementation of the shifting bottleneck procedure*, MSc thesis, Eindhoven University of Technology. [3.6]
- A.P.A. Vestjens (1997). *On-line Machine Scheduling*, PhD Thesis, Eindhoven University of Technology. [4.9]
- F.J. Villarreal, R.L. Bulfin (1983). Scheduling a single machine to minimize the weighted number of tardy jobs. *AIIE Trans.* 15, 337–343. [5.4]
- A. Von Armin, U. Faigle. R. Schrader (1990). The permutahedron of series-parallel posets. *Discrete Appl. Math.* 28, 3–9. [4.1]
- R.R. Weber (1979). The interchangeability of  $M/1$  queues in series. *J. Appl. Probab.* 16, 690–695.
- R.R. Weber, P. Varaiya, J. Walrand (1986). Scheduling jobs with stochastically ordered processing times on parallel machines to minimize expected flowtime. *J. Appl. Probab.* 23, 841–847.
- G. Weiss (1982). Multiserver stochastic scheduling. Dempster, Lenstra, and Rinnooy Kan [1982], 157–179.
- G. Weiss, M.L. Pinedo (1980). Scheduling tasks with exponential service times on non-identical processors to minimize various cost functions. *J. Appl. Probab.* 17, 187–202.

- S.-H. Wie, M.L. Pinedo (1986). On minimizing the expected makespan and flow time in stochastic flow shops with blocking. *Math. Oper. Res.* 11, 336–342.
- D.P. Williamson (–). Private communication. [8.3]
- D.P. Williamson, L.A. Hall, J.A. Hoogeveen, C.A.H. Hurkens, J.K. Lenstra, S.V. Sevastyanov, D.B. Shmoys (1997). Short shop schedules. *Oper. Res.* 45, 288–294. [11.3,6, 13.2]
- D.P. Williamson, D.B. Shmoys (2011). *The Design of Approximation Algorithms*, Cambridge University Press, Cambridge. [2.5]
- R.J. Wilson (1972). *Introduction to Graph Theory*, Oliver and Boyd, Edinburgh. [1.3]
- D.A. Wismer (1972). Solution of the flowshop-scheduling problem with no intermediate queues. *Oper. Res.* 20, 689–697.
- A.P. Woerlee (1991). *Decision support systems for production scheduling*, PhD thesis, Erasmus University, Rotterdam. [3.6]
- L.A. Wolsey (1985). Mixed integer programming formulations for production planning and scheduling problems. Invited talk, 12th International Symp. Mathematical Programming, MIT, Cambridge, MA. [4.5]
- L.A. Wolsey (1989). *Formulating single machine scheduling problems with precedence constraints*, CORE discussion paper 8924, Université Catholique de Louvain. [4.6]
- S.J. Wright (1997). *Primal-Dual Interior-Point Methods*, SIAM, Philadelphia, PA. [2.1,2]
- Y. Yang, S. Kreipl, M.L. Pinedo (2000). Heuristics for minimizing total weighted tardiness in flexible flow shops. *J. Sched.* 3, 89–109. [15]
- Y. Ye (1997). *Interior Point Algorithms; Theory and Analysis*, Wiley, New York. [2.2]
- M. Yue (1990). On the exact upper bound for the multifit processor scheduling algorithm. *Ann. Oper. Res.* 24, 233–259. [8.2]
- S. Zdrzalka, J. Grabowski (1989). An algorithm for single machine sequencing with release dates to minimize maximum cost. *Discrete Appl. Math.* 23, 73–89. [3.6]