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(*referred to in*: **Boolean and fuzzy relations; Checklist paradigm semantics for fuzzy logics; Finite complete systems of many-valued logic algebras; Inference of monotone boolean functions; Optimization in boolean classification problems; Optimization in classifying text documents**)
(*refers to*: **Boolean and fuzzy relations; Checklist paradigm semantics for fuzzy logics; Finite complete systems of many-valued logic algebras; Inference of monotone boolean functions; Optimization in boolean classification problems; Optimization in classifying text documents**)
- alternative set theory *see*: axioms of —
- alternative systems
[15A39, 90C05]
(*see*: **Motzkin transposition theorem**)
- alternative theorem
[46A20, 52A01, 90C30]
(*see*: **Farkas lemma: generalizations**)
- alternative theorem
[46A20, 52A01, 90C30]
(*see*: **Farkas lemma: generalizations**)
- alternative theorem *see*: basic —
- alternatives *see*: finite set of the —; set of —; theorem of the —
- alternatives to CG
[90C30]
(*see*: **Conjugate-gradient methods**)
- amino acid
[92B05]
(*see*: **Genetic algorithms for protein structure prediction**)
- amino acid
[92B05, 92C05]
(*see*: **Adaptive simulated annealing and its application to protein folding; Genetic algorithms for protein structure prediction**)
- analog of the dynamic programming equation *see*:
continuous-time —
- analyses *see*: post-optimality —
- analysing declarative program structure
[90C10, 90C30]
(*see*: **Modeling languages in optimization: a new paradigm**)
- analysis *see*: abstract convex —; Algorithms for genomic —;
applications of sensitivity —; approximation —;
asymptotic —; automated Fortran program for nonlocal
sensitivity —; average case —; cluster —; Combinatorial
matrix —; competitive —; convex —; data envelopment —;
decision —; dependence —; design —; discrete convex —;
discriminant —; domination —; equilibrium —; exploratory
statistical —; Financial applications of multicriteria —;
functional —; infinitesimal perturbation —; interval —;
investment —; linear Programming and Economic —;
marginal —; matrix —; mean-variance portfolio —;
model-based experimental —; monotonic —;
multicriteria —; nondegeneracy assumption for
algorithm —; nonlocal sensitivity —; nonsmooth —;
nonstandard —; numerical —; perturbation —; Portfolio
selection and multicriteria —; post-optimality —;
post-optimality sensitivity —; preference disaggregation —;
probabilistic —; range- —; regression —; relational —;
robust stability —; robustness —; scenario —; sensitivity —;
set-valued —; Shape reconstruction methods for
nonconvex feasibility —; shape sensitivity —; Short-term
scheduling under uncertainty: sensitivity —; stability —;
target —; time series —; value —; worst-case —
- analysis of an algorithm *see*: probabilistic —
- analysis: application to chemical engineering design problems
see: Interval —
- analysis with automatic differentiation *see*: Nonlocal
sensitivity —
- analysis and balanced interval arithmetic *see*: Global
optimization: interval —
- analysis of cable structures *see*: structural —
- analysis in combinatorial optimization *see*: Domination —
- analysis of complementarity problems *see*: Sensitivity —
- analysis: differential equations *see*: Interval —
- analysis: eigenvalue bounds of interval matrices *see*: Interval —
- analysis of flowsheets *see*: flexibility —; operability —
- analysis: Fréchet subdifferentials *see*: Nonsmooth —
- analysis: intermediate terms *see*: Interval —
- analysis and management of environmental systems *see*:
Global optimization in the —
- analysis methodologies *see*: semantic —
- analysis: nondifferentiable problems *see*: Interval —
- analysis and optimization *see*: nonsmooth —
- analysis for optimization of dynamical systems *see*: Interval —
- analysis of optimization problems *see*: stability —
- analysis: parallel methods for global optimization *see*:
Interval —
- analysis with respect to changes in cost coefficients *see*:
sensitivity —
- analysis with respect to right-hand side changes *see*:
sensitivity —
- analysis of simplex algorithms *see*: Probabilistic —
- analysis Step
[90B15]
(*see*: **Evacuation networks**)
- analysis: subdivision directions in interval branch and bound
methods *see*: Interval —
- analysis system *see*: stability of a structural —
- analysis: systems of nonlinear equations *see*: Interval —
- analysis: unconstrained and constrained optimization *see*:
Interval —
- analysis of variance *see*: one-way —
- analysis of variational inequality problems *see*: Sensitivity —
- analysis: verifying feasibility *see*: Interval —
- analysis: weak stationarity *see*: Nonsmooth —

- analytic center*
[46N10, 49M20, 90-00, 90-08, 90C25, 90C47]
(*see: Nondifferentiable optimization; Nondifferentiable optimization: cutting plane methods*)
- analytic center cutting plane method*
[90B10, 90C05, 90C06, 90C35]
(*see: Nonoriented multicommodity flow problems*)
- analytic hierarchy process*
[90C29]
(*see: Estimating data for multicriteria decision making problems: optimization techniques*)
- analytic hierarchy process*
[90C29]
(*see: Estimating data for multicriteria decision making problems: optimization techniques*)
- analytical approximation of linear programming*
[90C05, 90C25]
(*see: Young programming*)
- analytical approximation of a linear programming problem*
[90C05, 90C25]
(*see: Young programming*)
- analytical differentiation*
[65D25, 68W30]
(*see: Complexity of gradients, Jacobians, and Hessians*)
- analytical tractability*
[90B85]
(*see: Single facility location: multi-objective euclidean distance location*)
- analyzing almost empty spaces*
(*see: Selection of maximally informative genes*)
- anchor*
(*see: Semidefinite programming and the sensor network localization problem, SNLP*)
- anchor see: non- —*
- AND-ing*
[03B52, 03E72, 47S40, 68T27, 68T35, 68Uxx, 90Bxx, 91Axx, 91B06, 92C60]
(*see: Boolean and fuzzy relations*)
- angle see: bond —; dihedral —*
- angle condition see: acute —; nonobtuse —; uniform —*
- angle method see: cutting —; Global optimization: cutting —*
- angle optimization see: beam —*
- angle selection see: beam —*
- angle selection and wedge orientation optimization see: beam —*
- angles see: direction —*
- angular form see: block —*
- angular structure see: block- —; dual block- —*
- annealed replication heuristic*
[05C69, 05C85, 68W01, 90C59]
(*see: Heuristics for maximum clique and independent set*)
- annealing*
[60]65, 68Q25, 90C27, 90C90]
(*see: Adaptive global search; Simulated annealing*)
- annealing see: adaptive simulated —; Gaussian density —; Packet —; re- —; simulated —; simulating —; stochastic simulated —*
- annealing and genetic algorithm see: simulated —*
- annealing and its application to protein folding see: Adaptive simulated —*
- annealing methods in protein folding see: Simulated —*
- annealing in protein folding see: Monte-Carlo simulated —*
- annealing schedule*
[90C27, 90C90]
(*see: Laplace method and applications to optimization problems; Simulated annealing*)
- annealing temperature see: initial —*
- annexation see: polyhedral —*
- another see: pseudomonotone bifunction (with respect to —*
- Ansatz see: reduction —*
- ant colony*
[68T20, 68T99, 90C27, 90C59]
(*see: Metaheuristics*)
- ant system*
[68T20, 68T99, 90C08, 90C11, 90C27, 90C57, 90C59]
(*see: Metaheuristics; Quadratic assignment problem*)
- ant system see: MAX-MIN —*
- ante (risk averse, anticipative) decision see: ex- —*
- anti-cycling procedure*
[90C60]
(*see: Complexity of degeneracy*)
- anti-Monge inequalities*
[90C08, 90C11, 90C27, 90C57, 90C59]
(*see: Quadratic assignment problem*)
- anti-Monge matrix*
[90C08, 90C11, 90C27, 90C57, 90C59]
(*see: Quadratic assignment problem*)
- anti-Robinson*
[62H30, 90C27]
(*see: Assignment methods in clustering*)
- anti-Robinson matrix*
[62H30, 90C39]
(*see: Dynamic programming in clustering*)
- anticipative see: non- —*
- anticipative) decision see: ex-ante (risk averse —*
- anticycling*
[05B35, 65K05, 90C05, 90C20, 90C33]
(*see: Criss-cross pivoting rules; Least-index anticycling rules; Lexicographic pivoting rules*)
- anticycling rules*
[05B35, 90C05, 90C20, 90C33]
(*see: Least-index anticycling rules*)
- anticycling rules see: Least-index —*
- antisymmetric partial order*
[41A30, 47A99, 65K10]
(*see: Lipschitzian operators in best approximation by bounded or continuous functions*)
- antisymmetric relation*
[03B52, 03E72, 47S40, 68T27, 68T35, 68Uxx, 90Bxx, 91Axx, 91B06, 92C60]
(*see: Boolean and fuzzy relations*)
- antisymmetric relation see: strictly —*
- antitone Boolean function*
[90C09]
(*see: Inference of monotone boolean functions*)
- antitone monotone Boolean function*
[90C09]
(*see: Inference of monotone boolean functions*)
- antitone operator*
[90C33]
(*see: Order complementarity*)

- APF
[90C15]
(see: **Approximation of extremum problems with probability functionals**)
- appearance of control function *see*: linear —
- application to chemical engineering design problems *see*: Interval analysis: —
- application to the enclosure of all azeotropes *see*: Nonlinear systems of equations: —
- application in facility location-allocation *see*: MINLP: —
- application to phase equilibrium problems *see*: Global optimization: —
- application of PI-algebras*
[03B50, 68T15, 68T30]
(see: **Finite complete systems of many-valued logic algebras**)
- application process*
[68T20, 68T99, 90C27, 90C59]
(see: **Capacitated minimum spanning trees; Metaheuristics**)
- application to protein folding *see*: Adaptive simulated annealing and its —
- applications
[49M37, 65K10, 90-01, 90B30, 90B50, 90C26, 90C27, 90C30, 91B06, 91B32, 91B52, 91B60, 91B74]
(see: **α BB algorithm; Bilevel programming in management; Financial applications of multicriteria analysis; Operations research and financial markets**)
- applications *see*: Bilevel programming: —; Continuous global optimization: —; Dynamic programming: optimal control —; economic —; engineering —; Invexity and its —; medical —; minimization Methods for Non-Differentiable Functions and —; Multi-quadratic integer programming: models and —; multistage —; noneconomic —; Pseudomonotone maps: properties and —; Quasidifferentiable optimization: —; Robust linear programming with right-hand-side uncertainty, duality and —; scientific —; Standard quadratic optimization problems: —; Stochastic quasigradient methods: —
- applications in blending and pooling problems *see*: MINLP: —
- applications in distillation systems *see*: Successive quadratic programming: —
- applications in engineering *see*: Bilevel programming: —
- applications in environmental systems modeling and management
[90C05]
(see: **Global optimization in the analysis and management of environmental systems**)
- applications in finance *see*: Semi-infinite programming and —
- applications in the interaction of design and control *see*: MINLP: —
- applications in mechanics*
[49J52, 49S05, 74G99, 74H99, 74Pxx, 90C33]
(see: **Hemivariational inequalities: applications in mechanics**)
- applications in mechanics *see*: Hemivariational inequalities: —
- applications of multicriteria analysis *see*: Financial —
- applications to optimization problems *see*: Laplace method and —
- applications of parametric programming*
[90C05, 90C25, 90C29, 90C30, 90C31]
(see: **Nondifferentiable optimization: parametric programming**)
- applications in the process industry *see*: Successive quadratic programming: —
- applications of sensitivity analysis*
[90C31]
(see: **Sensitivity and stability in NLP: approximation**)
- applications in the supply chain management *see*: Bilinear programming: —
- applications to thermoelasticity *see*: Quasidifferentiable optimization: —
- applications to variational inequalities and equilibrium problems *see*: Generalized monotonicity: —
- approach *see*: Archimedean —; auction —; augmented Lagrangian decomposition —; axiomatic —; Bayesian —; Bayesian heuristic —; Benders decomposition —; Bilevel programming: implicit function —; closed form —; continuously differentiable exact penalty function —; cutting plane —; direct —; equation oriented —; Everett generalized Lagrange multiplier —; feasibility —; feasible —; feasible path —; Generalized primal-relaxed dual —; Global optimization: g - α BB —; Global optimization: p - α BB —; gradient based —; GRASP —; implicit function —; index —; infeasible path —; Kuhn–Tucker —; lexicographic —; limited-memory —; limited-memory symmetric rank-one —; material derivative —; Mixed-integer nonlinear optimization: A disjunctive cutting plane —; modified Cauchy —; modular —; Multiple minima problem in protein folding: α BB global optimization —; one clause at a time —; open form —; Optimization with equilibrium constraints: A piecewise SQP —; outranking relations —; parabolic curve —; parametric —; path following —; penalty —; Petrov–Galerkin —; Phase problem in X-ray crystallography: Shake and bake —; preference disaggregation —; primal-relaxed dual —; proximal point —; semidefinite programming —; simultaneous —; stochastic —; Stochastic programming: minimax —; subgraph —; Tikhonov’s regularization —; trust region —; value function —; Variational inequalities: F. E. —; worst-case —
- approach: basic features, examples from financial decision making *see*: Preference disaggregation —
- approach to bilevel programming *see*: implicit function —
- approach to clustering *see*: Nonsmooth optimization —
- approach for DNA transcription element identification *see*: Mixed 0-1 linear programming —
- approach to fractional optimization *see*: parametric —
- approach: global optimum search with enhanced positioning *see*: Gene clustering: A novel decomposition-based clustering —
- approach to image reconstruction from projection data *see*: feasibility —; optimization —
- approach to optimality *see*: parametric —
- approach to optimization *see*: Image space —
- approach to optimization in water resources *see*: stochastic —
- approach to solving CAP on trees *see*: heuristic —
- approaches *see*: cutting plane —; equation based —; heuristic —; logic-based —; Optimal solvent design —; Statistical classification: optimization —
- appropriateness*
[90B85]
(see: **Single facility location: multi-objective euclidean distance location**)

- approximate*
[68T20, 68T99, 90C27, 90C59]
(*see: Metaheuristics*)
- approximate continuous*
[90C10, 90C11, 90C27, 90C33]
(*see: Continuous reformulations of discrete-continuous optimization problems*)
- approximate gradient* *see: v-* —
- approximate inference* *see: interval-valued* —
- approximate inverse*
[65H10, 65J15]
(*see: Contraction-mapping*)
- approximate Jacobian*
[49J52, 90C30]
(*see: Nondifferentiable optimization: Newton method*)
- approximate methods for solving vehicle routing problems*
[90B06]
(*see: Vehicle routing*)
- approximate Newton method*
[90C30]
(*see: Generalized total least squares*)
- approximate optimization* *see: sequential* —
- approximate reasoning*
[03B50, 03B52, 03C80, 62F30, 62Gxx, 68T27]
(*see: Checklist paradigm semantics for fuzzy logics*)
- approximate reasoning*
[03B50, 03B52, 03C80, 62F30, 62Gxx, 68T27]
(*see: Checklist paradigm semantics for fuzzy logics*)
- approximate reasoning* *see: interval logic system of* —;
point-based logic system of —
- approximate solutions of nonlinear systems of equations* *see: error bound for* —
- approximately* *see: exactly or* —
- approximating cone* *see: high-order* —; *tangent high-order* —
- approximating cone of decrease* *see: high-order* —
- approximating cones* *see: feasible high-order* —; *tangent high-order* —
- approximating curve* *see: feasible high-order* —;
high-order —; *tangent high-order* —
- approximating the recourse function*
[90C06, 90C15]
(*see: Stabilization of cutting plane algorithms for stochastic linear programming problems*)
- approximating vector* *see: feasible high-order* —; *high-order tangent* —
- approximating vector of decrease* *see: high-order* —
- approximating vectors* *see: high-order* —
- approximation*
[49J20, 49J52, 65H20, 65M60]
(*see: Multi-scale global optimization using terrain/funneling methods; Shape optimization; Variational inequalities: F. E. approach*)
- approximation*
[65C05, 65C30, 65C40, 65C50, 65C60, 65Cxx, 65D10, 65D30, 65K05, 65K10, 90C15, 90C25, 90C26, 90C34, 90C35]
(*see: ABS algorithms for optimization; Approximation of multivariate probability integrals; Graph coloring; Multistage stochastic programming: barycentric approximation; Overdetermined systems of linear equations; Semi-infinite programming: numerical methods;*
- Stochastic linear programs with recourse and arbitrary multivariate distributions**)
- approximation* *see: algorithmic* —; *barycentric* —; *best* —; *better* —; *Chebyshev best* —; *cost* —; *discrete* —; *ellipsoidal* —; *finite-difference* —; *finite element* —; *Generalized outer* —; *hybrid branch and bound and outer* —; *inner* —; *linear* —; *linear outer* —; *logic of* —; *Logic-based outer* —; *maximal best* —; *mean field* —; *minimal best* —; *mixed finite element* —; *multipoint* —; *Multistage stochastic programming: barycentric* —; *outer* —; *Padé* —; *Padé-type* —; *perturbative* —; *point-based* —; *polyblock* —; *polynomial of best* —; *proximal* —; *quadratic outer* —; *second order* —; *Sensitivity and stability in NLP: —; stochastic* —; *successive* —; *truncated Taylor* —
- approximation algorithm*
[90C20, 90C25]
(*see: Quadratic programming over an ellipsoid*)
- approximation algorithm* *see: MINLP: outer* —; *outer* —
- approximation algorithms*
[05C05, 05C85, 68Q25, 90B06, 90B35, 90B80, 90C06, 90C10, 90C27, 90C39, 90C57, 90C59, 90C60, 90C90]
(*see: Bottleneck steiner tree problems; Directed tree networks; Traveling salesman problem*)
- approximation algorithms*
[03B05, 05C05, 05C85, 68P10, 68Q25, 68R05, 68T15, 68T20, 90B80, 90C09, 90C27, 90C35, 90C60, 90C90, 94C10]
(*see: Bottleneck steiner tree problems; Complexity theory; Quadratic programming; Maximum satisfiability problem; Multi-index transportation problems; Simulated annealing; Steiner tree problems*)
- approximation algorithms* *see: Cost* —
- approximation algorithms for GAP*
[90-00]
(*see: Generalized assignment problem*)
- approximation Analysis*
[68Q25, 68R10, 68W40, 90C27, 90C59]
(*see: Domination analysis in combinatorial optimization*)
- approximation by bounded or continuous functions* *see: Lipschitzian operators in best* —
- approximation with equality relaxation* *see: outer* —
- approximation with equality relaxation and augmented penalty* *see: outer* —
- Approximation of extremum problems with probability functionals**
(90C15)
(*referred to in: Approximation of multivariate probability integrals; Discretely distributed stochastic programs: descent directions and efficient points; Extremum problems with probability functions: kernel type solution methods; General moment optimization problems; Logconcave measures, logconvexity; Logconcavity of discrete distributions; L-shaped method for two-stage stochastic programs with recourse; Multistage stochastic programming: barycentric approximation; Preprocessing in stochastic programming; Probabilistic constrained linear programming: duality theory; Probabilistic constrained problems: convexity theory; Simple recourse problem: dual method; Simple recourse problem: primal method; Stabilization of cutting plane algorithms for stochastic linear programming problems; Static stochastic*

programming models; Static stochastic programming models: conditional expectations; Stochastic integer programming: continuity, stability, rates of convergence; Stochastic integer programs; Stochastic linear programming: decomposition and cutting planes; Stochastic linear programs with recourse and arbitrary multivariate distributions; Stochastic network problems: massively parallel solution; Stochastic programming: minimax approach; Stochastic programming models: random objective; Stochastic programming: nonanticipativity and lagrange multipliers; Stochastic programs with recourse: upper bounds; Stochastic vehicle routing problems; Two-stage stochastic programs with recourse)

(refers to: Approximation of multivariate probability integrals; Discretely distributed stochastic programs: descent directions and efficient points; Extremum problems with probability functions: kernel type solution methods; General moment optimization problems; Logconcave measures, logconvexity; Logconcavity of discrete distributions; L-shaped method for two-stage stochastic programs with recourse; Multistage stochastic programming: barycentric approximation; Preprocessing in stochastic programming; Probabilistic constrained linear programming: duality theory; Probabilistic constrained problems: convexity theory; Simple recourse problem: dual method; Simple recourse problem: primal method; Stabilization of cutting plane algorithms for stochastic linear programming problems; Static stochastic programming models: conditional expectations; Stochastic integer programming: continuity, stability, rates of convergence; Stochastic integer programs; Stochastic linear programming: decomposition and cutting planes; Stochastic linear programs with recourse and arbitrary multivariate distributions; Stochastic network problems: massively parallel solution; Stochastic programming: minimax approach; Stochastic programming models: random objective; Stochastic programming: nonanticipativity and lagrange multipliers; Stochastic programming with simple integer recourse; Stochastic programs with recourse: upper bounds; Stochastic quasigradient methods in minimax problems; Stochastic vehicle routing problems; Two-stage stochastic programming: quasigradient method; Two-stage stochastic programs with recourse)

approximation of a function *see*: first order —

approximation of linear programming *see*: analytical —

approximation of a linear programming problem *see*: analytical —

approximation measure *see*: contraction/ —

approximation method *see*: Logic-based outer- —; outer —; polyblock —; Vogel —

approximation methods *see*: Gaussian —; Semi-infinite programming: —

Approximation of multivariate probability integrals

(65C05, 65D30, 65Cxx, 65C30, 65C40, 65C50, 65C60, 90C15)

(referred to in: Approximation of extremum problems with probability functionals; Discretely distributed stochastic programs: descent directions and efficient points; Extremum problems with probability functions: kernel type

solution methods; General moment optimization problems; Logconcave measures, logconvexity; Logconcavity of discrete distributions; L-shaped method for two-stage stochastic programs with recourse; Multistage stochastic programming: barycentric approximation; Preprocessing in stochastic programming; Probabilistic constrained linear programming: duality theory; Probabilistic constrained problems: convexity theory; Simple recourse problem: dual method; Simple recourse problem: primal method; Stabilization of cutting plane algorithms for stochastic linear programming problems; Static stochastic programming models: conditional expectations; Stochastic integer programming: continuity, stability, rates of convergence; Stochastic integer programs; Stochastic linear programming: decomposition and cutting planes; Stochastic linear programs with recourse and arbitrary multivariate distributions; Stochastic network problems: massively parallel solution; Stochastic programming: minimax approach; Stochastic programming models: random objective; Stochastic programming: nonanticipativity and lagrange multipliers; Stochastic programs with recourse: upper bounds; Stochastic vehicle routing problems; Two-stage stochastic programs with recourse)

(refers to: Approximation of extremum problems with probability functionals; Discretely distributed stochastic programs: descent directions and efficient points; Extremum problems with probability functions: kernel type solution methods; General moment optimization problems; Logconcave measures, logconvexity; Logconcavity of discrete distributions; L-shaped method for two-stage stochastic programs with recourse; Multistage stochastic programming: barycentric approximation; Preprocessing in stochastic programming; Probabilistic constrained linear programming: duality theory; Probabilistic constrained problems: convexity theory; Simple recourse problem: dual method; Simple recourse problem: primal method; Stabilization of cutting plane algorithms for stochastic linear programming problems; Static stochastic programming models: conditional expectations; Stochastic integer programming: continuity, stability, rates of convergence; Stochastic integer programs; Stochastic linear programming: decomposition and cutting planes; Stochastic linear programs with recourse and arbitrary multivariate distributions; Stochastic network problems: massively parallel solution; Stochastic programming: minimax approach; Stochastic programming models: random objective; Stochastic programming: nonanticipativity and lagrange multipliers; Stochastic programming with simple integer recourse; Stochastic programs with recourse: upper bounds; Stochastic quasigradient methods in minimax problems; Stochastic vehicle routing problems; Two-stage stochastic programming: quasigradient method; Two-stage stochastic programs with recourse)

approximation of nonsmooth mappings
[49]52, 90C30]

(*see*: Nondifferentiable optimization: Newton method)

approximation operator *see*: best —

- approximation in ordered normed linear spaces *see*: Best —
approximation to the problem
 [41A30, 47A99, 65K10, 93-XX]
 (*see*: **Boundary condition iteration BCI**; **Lipschitzian operators in best approximation by bounded or continuous functions**)
- approximation problem *see*: simultaneous Diophantine —
approximation ratio
 [05C05, 05C85, 68Q25, 90B80]
 (*see*: **Bottleneck steiner tree problems**; **Directed tree networks**)
- approximation scheme *see*: fully polynomial time —;
 polynomial time —
- approximation of space filling curves*
 [90C26]
 (*see*: **Global optimization using space filling**)
- approximation techniques*
 [90C15]
 (*see*: **Stochastic linear programs with recourse and arbitrary multivariate distributions**)
- approximation in the uniform norm*
 [90C34]
 (*see*: **Semi-infinite programming: approximation methods**)
- approximation of variational inequalities
 [65M60]
 (*see*: **Variational inequalities: F. E. approach**)
- approximations *see*: nonsmooth local —
approximations of nonsmooth mappings
 [49]52, 90C30]
 (*see*: **Nondifferentiable optimization: Newton method**)
- Approximations to robust conic optimization problems**
- approximations to subdifferentials *see*: Continuous —
approximator
 [49]52, 90C30]
 (*see*: **Nondifferentiable optimization: Newton method**)
- aquifers*
 [90C30, 90C35]
 (*see*: **Optimization in water resources**)
- arbitrage pricing theory*
 [91B50]
 (*see*: **Financial equilibrium**)
- arbitrary*
 [90C60]
 (*see*: **Complexity classes in optimization**)
- arbitrary multivariate distributions *see*: Stochastic linear programs with recourse and —
- arborescence *see*: minimum Steiner —; Steiner —
- arborescence problem *see*: capacitated minimum spanning —
- arborescence system *see*: multi-echelon —
- arborescence tree *see*: rectilinear Steiner —
- arboricity*
 [90C35]
 (*see*: **Fractional zero-one programming; Optimization in leveled graphs**)
- arc *see*: admissible —; arrival-ground connection —;
 backward —; central —; conjunction —; disjunction —;
 dual —; endpoint of an —; entering —; forward —;
 ground-departure connection —; inadmissible —;
 incoming —; multiplier associated with an —; network —;
 outgoing —; primal —; root —; train —
- arc capacity*
 [90C35]
 (*see*: **Maximum flow problem**)
- arc coloring*
 [05C85]
 (*see*: **Directed tree networks**)
- arc consistency*
 [65G20, 65G30, 65G40, 68T20]
 (*see*: **Interval constraints**)
- arc construction procedure *see*: best —
- arc cost *see*: piecewise linear —
- arc cost function *see*: sawtooth —; staircase —
- (arc) deletion problem *see*: vertex —
- arc in a directed network *see*: directed —; endpoint of an —
- arc flow bounds*
 [90B10, 90C26, 90C30, 90C35]
 (*see*: **Nonconvex network flow problems**)
- arc flows *see*: capacity constraint on —
- arc formulation *see*: node- —
- arc formulation of the problem *see*: node- —
- arc incidence matrix *see*: node- —
- arc legend*
 (*see*: **Railroad crew scheduling**)
- arc length vector*
 [90C31, 90C39]
 (*see*: **Multiple objective dynamic programming**)
- arc in a network *see*: capacity of an —; cost of an —;
 directed —
- arc oriented branch and bound method*
 [68T99, 90C27]
 (*see*: **Capacitated minimum spanning trees**)
- arc oriented construction procedure*
 [68T99, 90C27]
 (*see*: **Capacitated minimum spanning trees**)
- arc routing*
 [68T99, 90C27]
 (*see*: **Capacitated minimum spanning trees**)
- arc routing
 [90B06]
 (*see*: **Vehicle routing**)
- arc routing problem *see*: capacitated —
- arc separation procedure*
 [90B10]
 (*see*: **Piecewise linear network flow problems**)
- (arc) set problem *see*: feedback —; minimum feedback —;
 minimum feedback vertex —; minimum weight
 feedback —; subset feedback vertex —; subset minimum
 feedback vertex —
- Archimedes and the foundations of industrial engineering**
 (01A20)
- archimedian*
 (*see*: **Planning in the process industry**)
- Archimedian approach
 (*see*: **Planning in the process industry**)
- architecture *see*: selection of —; von Neumann —
- archive*
 [34-xx, 34Bxx, 34Lxx, 93E24]
 (*see*: **Complexity and large-scale least squares problems**)
- arcs *see*: bold —; critical —; deadhead —; demand —;
 ground —; natural stream —; rest —; sequence of —;
 train-train connection —

- are under control *see*: rounding errors —
- area computer network *see*: local- —
- areas *see*: software package for specific mathematical —
- argon atoms*
[60]15, 60]60, 60]70, 60K35, 65C05, 65C10, 65C20, 68U20,
70-08, 82B21, 82B31, 82B41, 82B80, 92C40, 92E10]
(*see*: Global optimization in protein folding)
- argument *see*: noncompensatory —; ordinal —
- argument function *see*: four- —; three- —
- argument principle*
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(*see*: **Fundamental theorem of algebra**)
- argument principle
[01A50, 01A55, 01A60]
(*see*: **Fundamental theorem of algebra**)
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- arithmetic degree of a monomial ideal*
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- arithmetic operation *see*: interval —
- arithmetic operations on fuzzy numbers*
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(*see*: **Fuzzy multi-objective linear programming**)
- arity of a constraint*
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(*see*: **Maximum constraint satisfaction: relaxations and
upper bounds**)
- arm *see*: flexible —; Optimal control of a flexible —
- armed restless bandit problem *see*: multi- —
- Armijo-like criterion *see*: test nonmonotone —
- Armijo rule*
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(*see*: **Convex-simplex algorithm; Cost approximation
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- Armijo steplength rule*
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(*see*: **Local attractors for gradient-related descent iterations**)
- Arora PTAS*
[90C27]
(*see*: **Steiner tree problems**)
- ARR
[68W10, 90C27]
(*see*: **Load balancing for parallel optimization techniques**)
- arr-station*
(*see*: **Railroad locomotive scheduling**)
- arr-time*
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- arrangement*
[05B35, 20F36, 20F55, 26A24, 52C35, 57N65, 65K99, 85-08]
(*see*: **Automatic differentiation: geometry of satellites and
tracking stations; Hyperplane arrangements in
optimization**)
- arrangement *see*: face of an —; hyperplane —; linear —;
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- arrangement of hyperplane*
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cohomology of an —; complement of an —; divisor of
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- arrangement problem *see*: linear —
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- Arrhenius constants*
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(*see*: **Gauss-Newton method: Least squares, relation to
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- arrival *see*: duty-after- —
- arrival-ground connection arc*
(*see*: **Railroad locomotive scheduling**)
- arrival-ground node*
(*see*: **Railroad locomotive scheduling**)
- arrival node*
(*see*: **Railroad locomotive scheduling**)
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- artificial intelligence*
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90C10, 90C11, 90C20, 90C26, 90C30, 90C90]
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- artificial intelligence
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- ary relation *see*: n- —
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- as conic convex program *see*: semidefinite program —
- ASA
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conjecture**)
- ascendant direction *see*: feasible —
- ascent *see*: dual —; rate of steepest —; rule of steepest —
- ascent direction *see*: Dini steepest —; Hadamard steepest —;
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- ascent flow
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- asking strategy *see*: binary search-Hansel chains question- —;
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- ASOG equation
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[91B06, 91B60]
(*see*: **Oligopolistic market equilibrium**)
- aspatial and spatial markets
[91B06, 91B60]
(*see*: **Oligopolistic market equilibrium**)
- aspiration criteria
[68M20, 90B06, 90B35, 90B80, 90C59]
(*see*: **Flow shop scheduling problem; Heuristic and metaheuristic algorithms for the traveling salesman problem; Location routing problem**)
- aspiration level
[05C69, 05C85, 68W01, 90C29, 90C59]
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- aspiration search *see*: parallel —
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(*referred to in*: **Assignment methods in clustering; Bi-objective assignment problem; Communication network assignment problem; Frequency assignment problem; Linear ordering problem; Maximum partition matching;**
- Multidimensional assignment problem; Quadratic assignment problem**)
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- Assignment methods in clustering**
(62H30, 90C27)
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- assignment model *see*: the multi-resource weighted —; quasi- —
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- assignment problem *see*: algebraic quadratic —; Asymptotic properties of random multidimensional —; Bi-objective —; Biquadratic —; bottleneck quadratic —; Communication network —; fleet —; Frequency —; general quadratic —; generalized —; Koopmans–Beckmann quadratic —; Multidimensional —; multilevel generalized —; multiperiod —; optimal —; order preserving —; quadratic —; Quadratic semi- —; radio link frequency —; traffic —
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- assignment property *see*: single —
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- Astrodynamics
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(*see*: **Automatic differentiation: geometry of satellites and tracking stations**)
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[90C26, 90C90]
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