VITA

Arthur Cohen Home Phone: 908-647-1824 Office Phone: 848 445-7689 Email: artcohen@rci.rutgers.edu

Positions

Professor, Department of Statistics, Rutgers University, 1970Chairman, Department of Statistics, Rutgers University, 1968-1977
Associate Professor, Department of Statistics, Rutgers University, 1965-1970
Assistant Professor, Department of Statistics, Rutgers University, 1963-1965
Statistician, Epidemic Intelligence Service, Communicable Disease Center, U.S. Public
Health Service, 1957-1959
Statistician, I.B.M., Summer, 1956
Statistician, Western Electric Research Center, Summer, 1965

Education

B.A. in Mathematics, Brooklyn CollegePh.D. in Mathematical Statistics, Columbia University, 1963

Honors, Fellowships and Grants

NSF Grants 1965-2001, 2005-2012 NSA Grants 1999-2000, 2002-2003, 2005-2012 Rutgers University Faculty Fellowship, 1973-74 Fellow of the Institute of Mathematical Statistics, 1973 Fellow of the American Statistical Association, 1972 Fellow of International Statistical Institute Lecturer, Visiting Lecturer Program in Statistics, 1970-73, 1980-83

Service

Editor, Annals of Statistics, 1989-1991 Editor, Journal of Multivariate Analysis, 1978-1989 Associate Editor, Journal of the American Statistical Association, 1984-1989 Associate Editor, Journal of Statistical Planning and Inference, 1984-1989 Reviewer for Math. Reviews, 1974-1984

Consulting Experience

Johnson & Johnson-New Brunswick NJ, Carter Wallace-Cranbury NJ, General Instruments-Newark NJ, U.S. Naval Air Station-Lakehurst NJ, Colin Huston Associates-Mamaronek NY, Metpath-Hackensack NJ, Geomet-Gaithersburg MD, Mathematica-Princeton NJ, British Oxygen Co.-Murray Hill NJ, Foster-Higgins-Princeton NJ, Towers-Perrin Inc.-NY, INO Therapeutics, NJ, Humana, Louisville, KY. Colgate - Palmolive, NJ

Expert Testimony

Law Firm/Subject:

Sills-Beck, NJ/Tax Assessment Riker-Danzig, NJ/Tax Assessment Levine-Sklar, NJ/Tax Assessment Andora-Palmisano, NJ/Tax Assessment McGahn-Friss, NJ/Tax Assessment Amster-Rosenweig, NJ/Tax Assessment McCarter-English, NJ/Tax Assessment Satterlee and Stephens, NY/Moody's Publications David Wilentz, NJ/Business Taxes David Wilentz, NJ/Age Discrimination Rogers and Wells, NY/Sex Discrimination Proskauer, Rose, Goetz, Mendelsohn, NY/Faulty Product Proskauer, Rose, Goetz, Mendelsohn, NY/Age Discrimination Kalison, McBride, Jackson, Murphy, NJ/Health Insurance Claims Fitzpatrick, Cella, Harper, Cinto, NY/Patent Infringement Nagel, Rice, & Mezie, NJ/Health Insurance Claims Ross, Dixon, & Bell, IL/Health Insurance Claims Miller Miller, NJ/Discrimination of Foreign Born

Publications

1. Tables for the sign test when observations are estimates of binomial parameters. *Journal* of the American Statistical Association (1959), **54**, 784-793.

2. Calling behavior of Mourning Doves in two midwest life zones. *Journal of Wildlife Management* (1960), Col. 24, No. 2, April, 203-212. (with Harold F. Peters and Leonard E. Foote)

3. Epidemiologic studies of Asian influenza in a Louisiana Parish. *American Journal of Hygiene* (1959), **70** (3), November, 351-371. (with Frederick L. Dunn, Donald E. Carey, and Joseph D. Martin)

4. Monovalent Asian influenza vaccine. *Journal of American Medical Association* (1960), **192**, 1223-1229. (with H. Bruce Dull, Keith E. Jensen, Jennie H. Rakich, Donald A. Henderson, and Carl I. Pirkle)

5. Immunization Survey Manual, Part 1: Methods in Urban Areas, Communicable Disease Center, Public Health Service, U.S. Dept. of Health, Education and Welfare, 1960. (with R. E. Serfling, Ida L. Sherman, and Richard G. Cornell)

6. Estimates of linear combinations of the parameters in the mean vector of a multivariate distribution. Annals of Mathematical Statistics (1965), **36**, 78-87.

7. A hybrid problem on the exponential family. Annals of Mathematical Statistics (1965), **36**, 1185-1206.

8. All admissible linear estimates of the mean vector. Annals of Mathematical Statistics (1966), **37**, 458-463.

9. Estimation of the larger translation parameter. Annals of Mathematical Statistics (1968), **39**, 502-516. (with Saul Blumenthal)

10. Estimation of two ordered translation parameters. Annals of Mathematical Statistics (1968), **39**, 517-530. (with Saul Blumenthal)

11. Estimation of the larger of two normal means. *Journal of the American Statistical Association* (1968), **63**, 861-876. (with Saul Blumenthal)

12. A note on the admissibility of pooling in the analysis of variance. Annals of Mathematical Statistics (1968), **39**, 1744-1746.

13. A note on the unbiasedness of the likelihood ratio test for some normal covariance matrices. *Sankhya* (1969), **31**, 209-216.

14. Estimation of the last mean of a monotone sequence. Annals of Mathematical Statistics (1970), 41, 2012-2034. (with H. Sackrowitz)

15. Admissibility of estimators of the mean vector of a multivariate normal distribution with quadratic loss. Annals of Mathematical Statistics (1971), 42, 270-296. (with W. Strawderman)

16. Unbiasedness of tests for homogeneity of variances. Annals of Mathematical Statistics (1971), 42, 355-360. (with W. Strawderman)

17. Improved confidence intervals for the variance of a normal distribution. *Journal of the American Statistical Association* (1972), **67**, 382-387.

18. Admissibility implications for different criteria in confidence estimation. Ann. Statist. (1973), 1, 363-366. (with W. Strawderman)

19. Admissible confidence interval and point estimation for translation or scale parameters. Ann. Statist. (1973), 1, 545-550. (with W. Strawderman)

20. Point and confidence estimation of a common mean and recovery of interblock information. Ann. Statist. (1974), 2, 963-976. (with L. Brown)

21. On estimating the common mean of two normal distributions. Ann. Statist. (1974), 2, 1274-1282. (with H. Sackrowitz)

22. To pool or not to pool in hypothesis testing. *Journal of the American Statistical Association* (1974), **69**, 721-725.

23. Unbiasedness of the chi-square, likelihood ratio and other goodness of fit tests for the equal cell case. Ann. Statist. (1975), **3**, 959-964. (with H. Sackrowitz)

24. Combining estimates of location. *Journal of the American Statistical Association* (1976), **71**, 172-175.

25. Some remarks on Scheffe's mixed model. *The American Statistician* (1976), **30**, 36-37. (with J. Miller)

26. A complete class theorem for strict monotone likelihood ratio with applications. Ann. Statist. (1976), 4, 712-722. (with L. Brown and W.E. Strawderman)

27. Admissibility of chi-square, likelihood ratio and other goodness of fit tests. *Sankhya* (1976), **38B**, 350-355. (with H. Sackrowitz)

28. A result on hypothesis testing for a multivariate normal distribution when some observations are missing. *Journal of Multivariate Analysis* (1977), **7**, 454-460.

29. Hypothesis testing for the common mean and for Balanced Incomplete Blocks Designs. Ann. Statist. (1977), 5, 1195-1211. (with H. Sackrowitz)

30. On the admissibility or inadmissibility of fixed sample size tests in a sequential setting. Ann. Statist. (1979), 7, 569-578. (with L. Brown and W.E. Strawderman) 31. Monotonicity of Bayes sequential tests. Ann. Statist. (1979), 7, 1222-1230. (with L. Brown and W.E. Strawderman)

32. Asymptotically optimal methods of combining tests. *Journal of the American Statistical Association* (1979), **74**, 813-814. (with R.H. Berk)

33. Complete classes for sequential tests for hypothesis. Ann. Statist. (1980), 8, 377-399. (with L. Brown and W.E. Strawderman)

34. Properties of Bayes sequential test. Ann. Statist. (1981), 9, 678-682. (with R.H. Berk and L.D. Brown)

35. Bounded stopping times for a class of sequential Bayes tests. Ann. Statist. (1981), 9, 834-845. (with R.H. Berk and L.D. Brown)

36. Inadmissibility of large classes of sequential test. Ann. Statist. (1981), 9, 1239-1247. (with L.D. Brown)

37. Inference for marginal means in contingency tables with conditional independence. *Journal of the American Statistical Association* (1981), **76**, 895-902.

38. Estimating the mean of the selected population. *Third Purdue Symposium on Statistical Decision Theory and Related Topics* (1982). (with H.B. Sackrowitz)

39. Second order asymptotic and non-asymptotic optimality properties of combined test. *Journal of Statistical Planning and Inference* (1982), **6**, 253-276. (with J. Marden and K. Singh)

40. Necessary and sufficient conditions for bounded stopping times of sequential Bayes tests in exponential families. *Sequential Analysis: Communication in Statistics*, Series C (1982), **1**, 89-99. (with E. Samuel-Cahn)

41. A sharp necessary condition for admissibility of sequential tests-necessary and sufficient condition for admissibility of SPRT's. Ann. Statist. (1983), **11**, 640-653. (with E. Samuel-Cahn)

42. Hypothesis tests and optimality properties in discrete multivariate analysis. *Studies in Econometrics, Time Series, and Multivariate Statistics.* Edited by S. Karlin, T. Amemiya, and L.A. Goodman. Academic Press, 1983. (with C. Gatsonis and J. Marden)

43. Hypothesis testing for marginal means in a $2 \times 2 \times 2$ contingency table with conditional independence. *Journal of the American Statistical Association* (1983), **78**, 920-929. (with C. Gatsonis and J. Marden)

44. Testing hypotheses about the common mean of normal distribution. *Journal of Statistical Planning and Inference* (1984), **9**, 207-227. (with H. Sackrowitz)

45. Decision theory results for vector risks with applications. *Statistics and Decisions* (1984), Supplement Issue No. 1, 159-176. (with H. Sackrowitz)

46. Bayes double sample estimation procedures. Ann. Statist. (1984), **12**, 1035-1049. (with H. Sackrowitz)

47. Results on double sample estimation for the binomial distribution. Ann. Statist. (1984), **12**, 1109-1116. (with H. Sackrowitz)

48. Estimating the common location parameter of exponential distribution with censored samples. *Naval Research Logistics Quarterly* (1984), **31**, 475-482. (with W. Chiou)

49. Multivariate locally most powerful unbiased test. *Multivariate Analysis VI*, P.R. Krishnaiah, ed., Elsevier, 1985, 121-144. (with H. Sackrowitz and W. Strawderman)

50. On estimating a common multivariate normal mean vector. Ann. Inst. Stat. Math. (1985), **37A**, 499-506. (with W. Chiou)

51. Estimating a quantile of a symmetric distribution. Ann. Statist. (1985), **13**, 1114-1128. (with Shaw-Hwa Lo and Kesar Singh)

52. Variances and asymptotic distributions of direct standardized rates. *Biometrical Jour*nal (1986), **28**, 847-858. (with L. Davis)

53. Bounded stopping time of some Bayes sequential tests for the t-test model. *Probability* and Mathematical Statistics (1986), 7, 1-5.

54. Admissibility of goodness of fit tests for discrete exponential families. *Statistics and Probability Letters* (1987), **5**, 1-3. (with H. Sackrowitz)

55. Unbiasedness of tests for homogeneity. Ann. Statist. (1987), 15, 805-816. (with H. Sackrowitz)

56. Optimality properties of some tests for homogeneity in contingency tables. *Statistics* (1987), 4, 591-597.

57. A characterization of the multivariate normal distribution and some remarks on linear estimators. *Journal of Statistical Planning and Inference* (1987), **17**, 361-365. (with A. Rukhin and W.E. Strawderman)

58. An approach to inference following model selection with applications to transformation based and adaptive inference. *JASA* (1987), **82**, 1123-1130. (with H. Sackrowitz)

59. A decision theory formulation for population selection followed by estimating the mean of the selected population. *Fourth Purdue Symposium on Statistical Decision Theory and Related Topics.* (1988), **2**, 33-36. (with H. Sackrowitz)

60. Minimal complete classes of invariant tests for equality of normal covariance matrices and sphericity. *Journal of Multivariate Analysis* (1988), **27**, 131-150. (with J. Marden)

61. On the admissibility and consistency of tests of homogeneity of variances. Ann. Statist. (1989), 17, 236-251. (with J. Marden)

62. Exact tests that recover interblock information on BIBDs. *Journal of the American Statistical Association* (1989), **84**, 556-559. (with H. Sackrowitz)

63. Two stage conditionally unbiased estimators of the selected mean. *Statistics and Probability Leters* (1989), **8**, 273-278. (with H. Sackrowitz)

64. Estimating ordered location and scale parameters. *Statistics and Decisions* (1989), 7, 201-213. (with D. Kushary)

65. Evaluating pre-test predictors of success in linear regression models. *Recent Developments in Statistical Data Analysis and Inference*, Elsevier/Amsterdam, 1989, 369-380. (with H. Sackrowitz)

66. Comment on development in decision-theoretic variance estimation. *Statistical Science* (1990), **5**, 106-107.

67. Unbiasedness of tests of homogeneity when alternatives are ordered. *Topics in Statistical Dependence. IMS Lecture Notes/Monograph Series* (1990), **16**, 135-146. (with M. Perlman and H. Sackrowitz)

68. Admissibility of estimators of the probability of unobserved outcomes. Annals of the Institute of Statistical Mathematics (1990), 42, 623-636. (with H. Sackrowitz)

69. Unbiased tests for some one sided testing problems. *Canadian Journal of Statistics* (1990), **18**, 337-346. (with H. Sackrowitz)

70. Tests for independence in contingency tables with ordered categories. *Journal of Multivariate Analysis* (1991), **36**, 56-67. (with H. Sackrowitz)

71. Estimating ordered Poisson parameters. Sankhya (1991), **53**, 334-356. (with D. Kushary)

72. Constructing unbiased tests for homogeneity and goodness of fit. *Statistics and Probability Letters* (1991), **12**, 351-355. (with H. Sackrowitz)

73. Recovery of information in BIBDs with interaction. *JSPI* (1992), **31**, 373-386. (with Z. Zhang)

74. Improved tests for comparing treatments with a control and other one sided problems. *JASA* (1992), **87**, 1137-1144. (with H. Sackrowitz)

75. On the invariance structure of the one-sided testing problem for a multivariate normal mean. *Statistica Sinica* (1992), **2**, 221-237. (with T. Kariya)

76. An evaluation of some tests of trend in contingency tables. *JASA* (1992), **87**, 470-475. (with H. Sackrowitz)

77. Some remarks on a notion of positive dependence, association, and unbiased testing. *Stochastic Inequalities*, M. Shaked and Y.L. Tong, eds. *IMS Lecture Notes/Monograph Series* (1993), **22**, 33-37. (with H. Sackrowitz)

78. Association and unbiased tests in statistics. *Stochastic Orders and their Applications*, by M. Shaked and J.G. Shantikumar, 1994, Chapter 9. (with H. Sackrowitz)

79. Inadmissibility of studentized tests for normal order restricted models. Ann. Statist. (1993), **21**, 746-752. (with H. Sackrowitz)

80. On stochastic ordering of partial sums with application to reliability theory. *Statistics and Probability*, A R.R. Bahadur Festschrift, J.K. Ghosh, S.K. Mitra, K.R. Parthasarathy, BLSP Rao, eds., Wiley, New Delhi, 1993, 165-170. (with H. Sackrowitz)

81. Unbiased tests for normal order restricted hypotheses. *Journal of Multivariate Analysis* (1993), **46**, 139-153. (with J.H.B. Kemperman and H. Sackrowitz)

82. Evaluating tests for increasing trend in the intensity of a Poisson process. *Technometrics* (1993), **35**, 446-448. (with H. Sackrowitz)

83. Double sample estimation when cost depends on the parameter. *Statistical Decision Theory and Related Topics, V*, S. Gupta and J. Berger, eds., Springer-Verlag, New York, 1994, 253-266. (with H. Sackrowitz)

84. Adaptive and unbiased predictors in a change point regression model. *Statistics and Probability Letters* (1994), **20**, 131-138. (with D. Kushary)

85. Unbiased testing in exponential family regression. Ann. Statist. (1994), **22**, 1931-1946. (with J.H.B. Kemperman and H.B. Sackrowitz)

86. Projected tests for order restricted alternatives. Ann. Statist. (1994), **22**, 1539-1546. (with J. Kemperman and H. Sackrowitz)

87. Unbiased testing of treatments against a control. *Scandinavian Journal of Statistics* (1995), **22**, 95-104. (with M. Fygenson and H. Sackrowitz)

88. Complete classes for confidence set estimation. *Statistica Sinica* (1995), **5**, 291-301. (with L.D. Brown)

89. Inadmissibility of some tests for order restricted alternatives. *Statistics and Probability Letters* (1995), **24**, 153-156. (with H. Sackrowitz)

90. On stochastic ordering of random vectors. *Journal of Applied Probability* (1995). (with H. Sackrowitz)

91. Testing homogeneity of uniform scale alternatives. JASA (1995), 90, 1062-1067. (with M. Fygenson)

92. Cone order association. *Journal of Multivariate Analysis* (1995), **55**, 320-330. (with H. Sackrowitz and E. Samuel-Cahn)

93. Constructing tests for normal order restricted inference. *Bernoulli* (1995), **1**, 321-333. (with H. Sackrowitz and E. Samuel-Cahn)

94. Lower confidence bounds using pilot samples with an application to auditing. *JASA* (1996), **91**, 338-342. (with H. Sackrowitz)

95. Lower confidence regions for restricted parameter spaces. *Mathematical Methods in Statistics* (1996), **5**, 113-123. (with H. Sackrowitz)

96. Tests for the umbrella alternative under normality. *Hogg Volume, Communications in Statistics* (1996), **25**, 2807-2818. (with H. Sackrowitz)

97. Cone order association and stochastic cone ordering with applications to order restricted testing. Ann. Statist. (1996), 24, 2036-2048. (with H. Sackrowitz)

98. Universal admissibility of maximum likelihood estimators in constrained spaces. *Statistics and Decisions* (1998), 131-146. (with D. Kushary)

99. Directional tests for one sided alternatives in multivariate models. Ann. Statist. (1998), 26, 2321-2338. (with H. Sackrowitz)

100. Properties of likelihood inference for order restricted models. *Journal of Multivariate* Analysis (2000), **72**, 50-77. (with J. Kemperman and H. Sackrowitz)

101. Testing whether treatment is "better" than control with ordered categorical data: Definitions and complete class theorems. *Statistics and Decisions* (2000), **18**, 1-25. (with H. Sackrowitz)

102. Properties of Bayes testing procedures in order restricted inference. *Statistics and Probability Letters* (2000), **49**, 205-209. (with H. Sackrowitz)

103. Testing whether treatment is "better" than control with ordered categorical data: An evaluation of new methodology. *Statistics in Medicine* (2000), **19**, 2699-2712. (with H. Sackrowitz and M. Sackrowitz)

104. A new test for treatment vs. control in an ordered 2×3 contingency table. *Probability* and Statistical Models with Applications, C.A. Charalambides, M.V. Koutras, N. Balakrishnan, Editors. Chapman & Hall, New York (2001), 549-564. (with H. Sackrowitz)

105. Wherefore similar tests? *Probability and Statistics Letters* (2001), **54**, 283-290. (with H. Sackrowitz)

106. Directed likelihood ratio tests for order restricted alternatives and inference results for the star shaped restriction. *Journal of Statistical Planning and Inference* (2002), **103**, 181-189. (with H. Sackrowitz)

107. Inadmissibility of the Studentized likelihood ratio test for testing order-restricted normal means. *Statistics and Decisions* (2002), 177-190. (with G. Manco)

108. On the bias in estimating genetic length and other quantities in simplex constrained models. Ann. Statist. (2002), **30**, 202-219. (with J. Kemperman and H. Sackrowitz)

109. Inference for the model of several treatments and a control. *Journal of Statistical Planning and Inference* (2002), **107**, 89-101. (with H. Sackrowitz)

110. Methods of reducing loss of efficiency due to discreteness of distributions. *Stat. Methods in Med. Res.* (2003), **12**, 23-36. (with H. Sackrowitz)

111. Effective directed tests for models with ordered categorical data. Australian and New Zealand Journal of Statistics (2003), 45, 285-300. (with D. Madigan and H. Sackrowitz)

112. Monotonicity properties of multiple endpoint testing procedures. *Journal of Statistical Planning and Inference* (2004), **125**, 17-30. (with H. Sackrowitz)

113. A discussion of some inference issues in order restricted models. *The Canadian Journal of Statistics* (2004), **32**. (with H. Sackrowitz)

114. A test for homogeneity of odd ratios in ordered 2×2 tables. *Biometrical Journal* (2004), **46**, 633-641. (with H. Sackrowitz and J. Kolassa)

115. A four action problem with ordered categorical data: Are two distributions the same, ordered, or otherwise. *Statistics and Probability Letters* (2004). (with H. Sackrowitz and J. Kolassa)

116. Decision theory results for one sided multiple comparison procedures. Annals of Statistics (2005), **33**, 126-144. (with H. Sackrowitz)

117. Characterization of Bayes procedures for multiple endpoint problems and inadmissibility of the step-up procedure. *Annals of Statistics* (2005), **33**, 145-158. (with H. Sackrowitz)

118. Directed alternatives in testing. *Encyclopedia of Statistics in Behavioral Science* (2005), Volume 1, 495-496. J. Wiley, Chichester.

119. A new test for stochastic order of $k \ge 3$ ordered multinomial populations. *Statistics and Probability Letters* (2007). (with J. Kolassa and H. Sackrowitz)

120. A test for equality of multinomial distributions vs increasing convex order. *Michael Woodroofe Volume. IMS-LNMS* (2007), 156-163. (with J. Kolassa and H. Sackrowitz)

121. More on the inadmissibility of step-up. *Journal of Multivariate Analysis* (2007), **98**, 481-492. (with H. Sackrowitz)

122. A smooth version of the step-up procedure for multiple tests of hypotheses. S. N. Roy Volume. Journal of Statistical Planning and Inference **137** (2007), 3352-3360. (with H. Sackrowitz and J. Kolassa)

123. Representative sampling plan for auditing health insurance claims. Yehuda Vardi Volume. IMS-LNMS 54 (2007), 121-131. (with J. Naus)

124. A note on the U, V method of estimation. Yehuda Vardi Volume. IMS-LNMS 54, 172-176. (with H. Sackrowitz)

125. A family of Bayes multiple testing procedures. *Biometrika* **95**, (2008), 295-305. (with H. Sackrowitz, M. Xu, and S. Buyske)

126. The use of an identity in Anderson for multivariate multiple testing. *Journal of Statistical Planning and Inference* **138**, (2008), 2615-2621. (with H. Sackrowitz, and M. Xu)

127. Multiple testing of two-sided alternatives with dependent data. *Statistica Sinica* (2008), 18, 1593-1602. (with H. Sackrowitz)

128. A new multiple testing method in the dependent case. Annals of Statistics, **36** (2009), 37, 1518-1544. (with H. Sackrowitz and M. Xu)

129. Some issues concerning disclosure risk in contingency tables. Statistics and Its Interface (2009). **2**, 223-226. (with H. Sackrowitz)

130. Admissible, consistent multiple testing with applications including variable selection. *Electronic Journal of Statistics* **3** (2009), 633-650. (with C. Chen and H. Sackrowitz)

131. Multiple testing in ordinal data models. *Electronic Journal of Statistics* **3** (2009), 912-931. (with C. Chen and H. Sackrowitz)

132. Rao-Blackwell Theorem, International Encyclopedia of Statistical Science, Miodrag Lovric (ed.), Springer-Verlag (2010)

133. Multiple testing of pairwise comparisons. *IMS Collections Borrowing Strength: The*ory Powering Applications-A Festschrift for Lawrence D. Brown **6** (2010), 144-157. (with C. Chen and H. Sackrowitz)

134. Consistent multiple testing for change points. *Journal of Multivariate Analysis* **102** (2011), 1339 - 1343. (with K. Chen and H. Sackrowitz)

135. Multiple rank tests for pairwise comparisons. IMS Collections Contemporary Developments in Bayesian Analysis And Statistical Decision Theory - A Festschrift for William E. Strawderman **9** (2012), 57-63. (with H. Sackrowitz)

136. The interval property in multiple testing of pairwise differences. *Statistical Science* **27** 2012, 294 - 307. (with H. Sackrowitz)

Submitted:

137. Individualized 2-stage multiple testing procedures with corresponding interval estimates. (with Y. Ma and H. Sackrowitz)

138. Nonparametric multiple testing procedures and simultaneous interval estimates. (with Y. Ma and H. Sackrowitz)