



Adaptive Designs and Multiple Testing Procedures Before the ADMTP Working Group

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Adaptive Designs and Multiple Testing Procedures Workshop
Basel, 19th - 21st April, 2023



Workshops of the Working Group „Adaptive Designs“

- 1999: Cologne
- 2000: Heidelberg
- 2001: Vienna
- 2002: Marburg
- 2003: Cologne
- 2004: Mainz
- 2005: Basel (together with WG „Multiple Methods“)
- 2006: Berlin
- 2007: within the MCP Vienna
unification with „Multiple Methods“ to WG „ADMTP“

Outline

- History of MCP's (worldwide)
- History of MCP's (in German speaking countries)
- History of AD's
- Early important conferences: Bad Ischl, Gerolstein, Tel Aviv
- Foundation of research and working groups
- From WG's „Multiple Methods“ and „Adaptive Designs“ to the ADMTP Working Group

Important early developments in multiple testing

- Fisher's LSD test (1935)
- Tukey (1953)
- Lehmann (1957)
- Textbook by R.G.Miller jr. (1966)
- Gabriel (1969)
- multiple comparisons: Ryan (1960), Einot/Gabriel (1975), Welsch (1978)
„regwq“
- Marcus, Peritz and Gabriel, Biometrika 1976
- Holm, Scand.J.Stat. 1979

History of MCP's (in German speaking countries)

Oberwolfach conference 1980 (L.Edler):
extensive discussions about Holm's
procedure

Start of research by E.Sonnemann

→ ROeS conference Bad Ischl (1981):
special session

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Biometrisches Seminar der Region
Österreich-Schweiz
der internationalen biometrischen Gesellschaft
Bad Ischl (A), 28.9.–2.10.1981

Simultane Hypothesenprüfungen

Bad Ischl, 29. September 1981

Mit Beiträgen von:

E. Sonnemann (Dortmund)
P. Berchier (Basel)
K. Schiller (Karlsruhe)
U. Ferner (Basel)
W. Maurer (Basel)
N. Victor (Giessen)

History of MCP's (in German speaking countries) I

Oberwolfach conference 1980 (L.Edler):
extensive discussions about Holm's
procedure

Start of research by E.Sonnemann

→ ROeS conference Bad Ischl (1981):
special session

1982: Publication by E.Sonnemann
(„Allgemeine Lösungen multipler
Testprobleme“)

Translation by H.Finner (Biom. J. 2008)

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History of MCP's (in German speaking countries) II

1985: Peter Bauer became director of IMDS Cologne

1987: Symposium „Multiple hypotheses testing“ (Gerolstein)

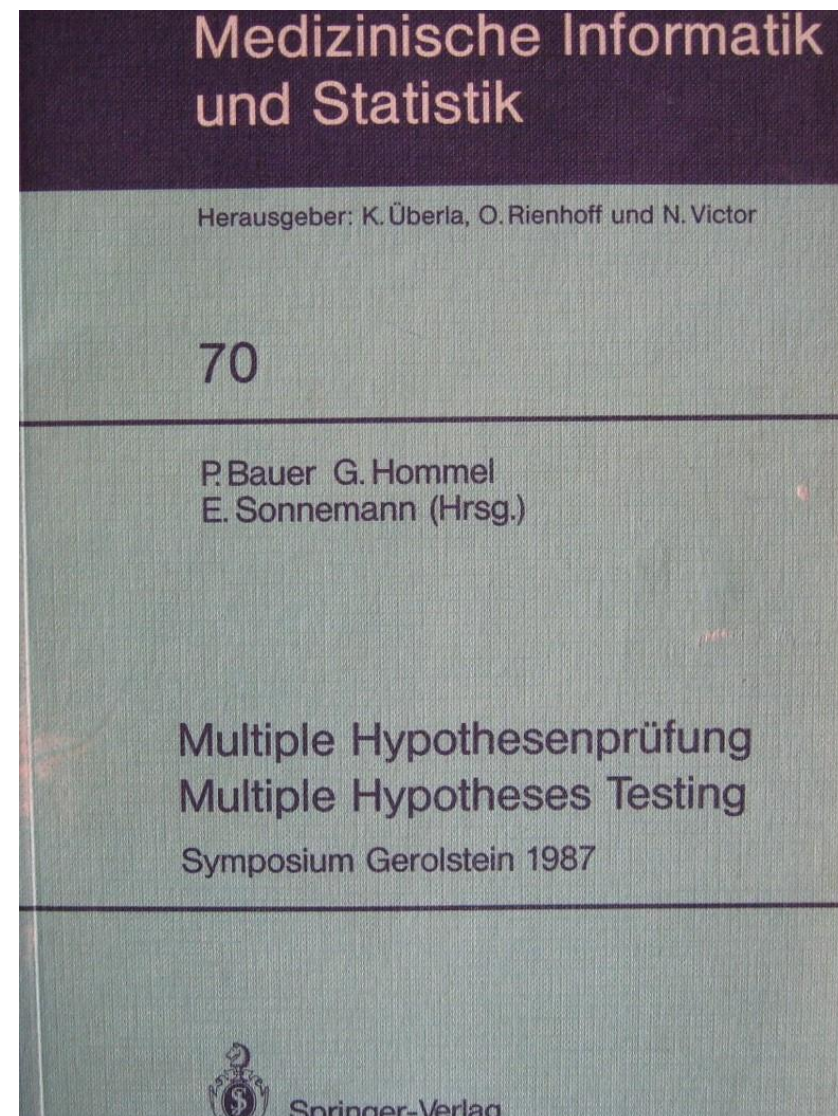
1988: Proceedings Gerolstein published (bilingual)

History of MCP's (in German speaking countries) II

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hypotheses testing“ (Gerolstein)

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published (bilingual)



Selected papers from Gerolstein proceedings

- Finner, H.: Multiple tests and directional errors
- Maurer, W., Mellein, B.: On new multiple tests based on independent p-values and the assessment of their power
- Sonnemann, E., Finner, H.: Complete class theorems for testing multiple hypotheses
- Hommel, G., Hoffmann, T.: Controlled uncertainty
- Bauer, P.: Sequential multiple testing for the elimination of inferior populations

Contemporary:

Hochberg, Y., Tamhane, A.C.: Multiple Comparison Procedures.

(not aware of research in Germany)

Adaptive designs (P. Bauer)

Gerolstein; JSPI 1989: sequential elimination of inferior populations

Biom.J. 1989: Planning of consecutive trials

EDV Med.Biol.1989: independent stages → combination of independent p-values
inverse normal / Fisher's combination test

“selective test procedure”

choice of α_1 and α_0 → Bauer/Köhne 1994

Proschan/Hunsberger 1995: data-dependent recalculation of sample size

Bauer/Röhmel 1995: dose-response relationship

Lehmacher/Wassmer 1999: inverse normal

Bauer/Kieser 1999: phase II/III

Müller/Schäfer 1999: unplanned interim analysis

Forth to „globalization“

Since late eighties: more international contacts (especially with Y.Hochberg, J.P. Shaffer, C.W. Dunnett) → 1996: First MCP conference in Tel Aviv





1st International Conference on MCP's Tel Aviv, June 23-26, 1996

65 participants from 13 countries

Selection of participants:

- R.K. Gabriel, P.K. Sen, Y. Benjamini, S. Holm, J.-C. Lemarié, W. Liu, R. Marcus, E. Peritz, J.F. Troendle
- 12 participants from D/A/CH

35 talks, 9 talks from D/A/CH

1 selected talk:

- W. Lehmacher, M. Kieser, L.A. Hothorn: Adaptive interim and multiple testing for dose-response analysis.

The Working Group „Multiple Methods“

- Initiated by Ludwig Hothorn
 - Preparing session: Munich, March 1997
 - First working session: Hannover, Oct.13/14, 1997
35 participants, 18 talks
 - Receipts: 710.– DM
 - Accepted as WG of the German Region of IBS
- Speakers: 1997 – 2000: L.A. Hothorn
2000 – 2003: G. Hommel
2003 – 2006: G. Wassmer

Sessions of the WG „Multiple Methods“

- 1997: Hannover, Oct. 13/14
- 1998: Cologne, Oct. 12/13
- 1999: Mainz, Oct. 7/8
- 2000: Berlin, during the 2nd MCP, June 25-28
- 2001: Göttingen, Oct. 1/2, together with WG Nonparametrics
- 2002: Düsseldorf, Oct. 10/11
- 2003: Magdeburg, Oct. 16/17
- 2004: Hannover, Oct. 7/8
- 2005: Basel, Oct. 6/7, together with WG „Adaptive Designs“

Invited Speakers of WG „Multiple Methods“

- 1998: T. Hayter (Atlanta)
- 1999: P. Westfall (Lubbock/Texas)
- 2001: J.F. Troendle (Bethesda)
- 2002: Y. Benjamini (Tel Aviv)
- 2003: C. Jennison (Bath/ UK)
- 2004: C.R. Genovese (Pittsburgh)

Surplus from MCP Berlin: 9000.– DM → no financial problems

The way to the unification with WG „Adaptive Designs“

- Decreasing interest in WG „Multiple Methods“
- Basel 2005: Resolution of dissolving
- Cancelled from formal reasons
- 2006: Converted into a WG of ROeS and German Region
- MCP Vienna 2007: unification with „loose“ WG „Adaptive Designs“
- From 2007: **ADMTP** WG (under the wings of ROeS and German Region of the IBS)



Workshops of the ADMTP Working Group

- (2007: Vienna)
- 2008: Mainz
- 2009: Warwick
- 2010: Vienna (on the honour of Peter Bauer)
- 2011: Lancaster
- 2012: Heidelberg
- (2013: MCP Southampton)
- 2014: Basel 2023: Basel