

PDF FREE CHAPTER 9 HYPOTHESIS TESTS MULTIPLE CHOICE FULL PDF

GENOMICS LOTS OF DATA LOTS OF HYPOTHESIS TESTS A TYPICAL MICROARRAY EXPERIMENT MIGHT RESULT IN PERFORMING 10000 SEPARATE HYPOTHESIS TESTS IF WE USE A STANDARD P VALUE CUT OFF OF 0.05 WE D EXPECT 500 GENES TO BE DEEMED SIGNIFICANT BY CHANCE WHY MULTIPLE TESTING MATTERS CLASSIFICATION OF MULTIPLE HYPOTHESIS TESTS THE FOLLOWING TABLE DEFINES THE POSSIBLE OUTCOMES WHEN TESTING MULTIPLE NULL HYPOTHESES SUPPOSE WE HAVE A NUMBER M OF NULL HYPOTHESES DENOTED BY H_1, H_2, \dots, H_M USING A STATISTICAL TEST WE REJECT THE NULL HYPOTHESIS IF THE TEST IS DECLARED SIGNIFICANT THE SECOND LINE OF CODE IS FINDING THE P VALUES FOR A HYPOTHESIS TEST ON EACH VALUE OF X THE HYPOTHESIS BEING TESTED IS THAT THE VALUE OF X IS NOT DIFFERENT FROM 0 GIVEN THE ENTRIES ARE DRAWN FROM A STANDARD NORMAL DISTRIBUTION THE ALTERNATE IS A ONE SIDED TEST CLAIMING THAT THE VALUE IS LARGER THAN 0 DEFINITION THE MULTIPLE HYPOTHESIS TESTING PROBLEM OCCURS WHEN A NUMBER OF INDIVIDUAL HYPOTHESIS TESTS ARE CONSIDERED SIMULTANEOUSLY IN THIS CASE THE SIGNIFICANCE OR THE ERROR RATE OF INDIVIDUAL TESTS NO LONGER REPRESENTS THE ERROR RATE OF THE COMBINED SET OF TESTS DO THE M TESTS GIVING P VALUES Q_1, \dots, Q_M TAKE THE ORDER STATISTICS OF THE Q_j GIVING $Q_{(1)} \leq Q_{(2)} \leq \dots \leq Q_{(M)}$ LET R BE THE LARGEST i SUCH THAT $Q_{(i)} \leq \alpha$ OR $Q_{(M-i+1)} \geq 1-\alpha$ IF THERE IS NO SUCH i THEN REJECT H_0 IF AND ONLY IF $Q_{(R)} \leq \alpha$ SO R WILL BE THE NUMBER OF HYPOTHESES REJECTED WE THEREFORE NEED A MULTIPLE TESTING CORRECTION PROCEDURE TO ADJUST OUR STATISTICAL CONFIDENCE MEASURES BASED ON THE NUMBER OF TESTS PERFORMED CORRECTING FOR MULTIPLE HYPOTHESIS TESTS MULTIPLE TESTING REFERS TO ANY INSTANCE THAT INVOLVES THE SIMULTANEOUS TESTING OF MORE THAN ONE HYPOTHESIS IF DECISIONS ABOUT THE INDIVIDUAL HYPOTHESES ARE BASED ON THE UNADJUSTED MARGINAL P VALUES THEN THERE IS TYPICALLY A LARGE PROBABILITY THAT SOME OF THE TRUE NULL HYPOTHESES WILL BE REJECTED ECE 830 FALL 2011 STATISTICAL SIGNAL PROCESSING INSTRUCTOR R NOWAK LECTURE 12 MULTIPLE HYPOTHESIS TESTING INTRODUCTION IN MANY APPLICATIONS WE CONSIDER MULTIPLE HYPOTHESIS TEST AT THE SAME TIME EXAMPLE 1 FMRI FUNCTIONAL MAGNETIC RESONANCE IMAGING FIGURE 1 BRAIN IMAGE BY FMRI WITH M VOXELS EXAMPLE 2 MICROARRAYS FIGURE 2 GENE TEST PLOT THERE ARE 5 MAIN STEPS IN HYPOTHESIS TESTING STATE YOUR RESEARCH HYPOTHESIS AS A NULL HYPOTHESIS AND ALTERNATE HYPOTHESIS H_0 AND H_A OR H_1 COLLECT DATA IN A WAY DESIGNED TO TEST THE HYPOTHESIS PERFORM AN APPROPRIATE STATISTICAL TEST DECIDE WHETHER TO REJECT OR FAIL TO REJECT YOUR NULL HYPOTHESIS BEFORE DIVING INTO MULTIPLE TESTING LET S QUICKLY GO OVER 4 STEPS TO FOLLOW WHEN DOING HYPOTHESIS TESTING TABLE 1 BELOW IS A REMINDER OF THE TWO TYPES OF ERRORS ONE CAN MAKE WHEN TESTING A HYPOTHESIS THE TYPE I ERROR OR FALSE POSITIVE RATE AND THE TYPE II ERROR OR FALSE NEGATIVE RATE IF WE WOULD CONDUCT 100 HYPOTHESIS TESTS AT A 0.05 A LEVEL WHERE THE NULL HYPOTHESES ARE REALLY TRUE WE WOULD EXPECT TO REJECT THE NULL AND MAKE A TYPE I ERROR IN ABOUT 5 OF THOSE TESTS LATER IN THIS COURSE YOU WILL LEARN ABOUT SOME STATISTICAL PROCEDURES THAT MAY BE USED INSTEAD OF PERFORMING MULTIPLE TESTS HYPOTHESIS TESTING MULTIPLE TESTING PROBLEM WHAT IS THE MULTIPLE TESTING PROBLEM IF YOU RUN A HYPOTHESIS TEST THERE S A SMALL CHANCE USUALLY ABOUT 5 THAT YOU LL GET A BOGUS SIGNIFICANT RESULT IF YOU RUN THOUSANDS OF TESTS THEN THE NUMBER OF FALSE ALARMS INCREASES DRAMATICALLY WE WILL NOW EXPLORE MULTIPLE HYPOTHESIS TESTING OR WHAT HAPPENS WHEN MULTIPLE TESTS ARE CONDUCTED ON THE SAME FAMILY OF DATA WE WILL SET THINGS UP AS BEFORE WITH THE FALSE POSITIVE RATE $\alpha = 0.05$ AND FALSE NEGATIVE RATE $\beta = 0.20$ LIBRARY PWR LIBRARY GGLOT2 SET SEED 1 MDE 0 1 MINIMUM DETECTABLE EFFECT HYPOTHESIS TESTING HAS US ASK THIS IF WE SUPPOSE SOME NULL HYPOTHESIS IS TRUE HOW LIKELY IS IT THAT WE WOULD HAVE OBTAINED THIS RESULT FROM RANDOM SAMPLING WE REJECT THE NULL HYPOTHESIS IF WE DETERMINE OUR ESTIMATE IS UNLIKELY THE PROBABILITY IS LESS THAN α A SMALL NUMBER GIVEN THE NULL MULTIPLE HYPOTHESIS TESTING THERE IS ALWAYS A MINIMUM OF TWO DIFFERENT HYPOTHESES NULL HYPOTHESIS AND ALTERNATIVE HYPOTHESIS THE HYPOTHESIS COULD BE ANYTHING BUT THE MOST COMMON ONE IS THE ONE I PRESENTED BELOW NULL HYPOTHESIS H_0 THERE IS NO RELATIONSHIP BETWEEN THE VARIABLES MULTIPLE TESTING REFERS TO SITUATIONS WHERE A DATASET IS SUBJECTED TO STATISTICAL TESTING MULTIPLE TIMES EITHER AT MULTIPLE TIME POINTS OR THROUGH MULTIPLE SUBGROUPS OR FOR MULTIPLE END POINTS THIS AMPLIFIES THE PROBABILITY OF A FALSE POSITIVE FINDING MULTIPLE HYPOTHESIS TESTS IS A TOPIC WHICH HAS RECENTLY SHOWN A MAJOR EXPANSION MAINLY DUE TO THE EXPANSION OF THE METHODOLOGY DEVELOPED IN CONNECTION WITH GENOMICS THESE NEW METHODS ALLOW SCIENTISTS TO HANDLE SIMULTANEOUSLY THOUSANDS OF NULL HYPOTHESES 2013 MULTIPLE HYPOTHESIS TESTING A METHODOLOGICAL OVERVIEW AUTHORS ANTHONY ALMUDEVAR 1 SHOW MORE DETAILS CITATIONS 2 PDF FULL TEXT ABSTRACT THE PROCESS OF SCREENING FOR DIFFERENTIALLY EXPRESSED GENES USING MICROARRAY SAMPLES CAN USUALLY BE REDUCED TO A LARGE SET OF STATISTICAL HYPOTHESIS TESTS

LECTURE 10 MULTIPLE TESTING UNIVERSITY OF WASHINGTON *MAY 02 2024*

GENOMICS LOTS OF DATA LOTS OF HYPOTHESIS TESTS A TYPICAL MICROARRAY EXPERIMENT MIGHT RESULT IN PERFORMING 10000 SEPARATE HYPOTHESIS TESTS IF WE USE A STANDARD P VALUE CUT OFF OF 0.05 WE'D EXPECT 500 GENES TO BE DEEMED SIGNIFICANT BY CHANCE WHY MULTIPLE TESTING MATTERS

MULTIPLE COMPARISONS PROBLEM WIKIPEDIA *APR 01 2024*

CLASSIFICATION OF MULTIPLE HYPOTHESIS TESTS THE FOLLOWING TABLE DEFINES THE POSSIBLE OUTCOMES WHEN TESTING MULTIPLE NULL HYPOTHESES SUPPOSE WE HAVE A NUMBER M OF NULL HYPOTHESES DENOTED BY H_1, H_2, \dots, H_M USING A STATISTICAL TEST WE REJECT THE NULL HYPOTHESIS IF THE TEST IS DECLARED SIGNIFICANT

1 WHY IS MULTIPLE TESTING A PROBLEM *FEB 29 2024*

THE SECOND LINE OF CODE IS FINDING THE P VALUES FOR A HYPOTHESIS TEST ON EACH VALUE OF X THE HYPOTHESIS BEING TESTED IS THAT THE VALUE OF X IS NOT DIFFERENT FROM 0 GIVEN THE ENTRIES ARE DRAWN FROM A STANDARD NORMAL DISTRIBUTION THE ALTERNATE IS A ONE SIDED TEST CLAIMING THAT THE VALUE IS LARGER THAN 0

MULTIPLE HYPOTHESIS TESTING SPRINGERLINK *JAN 30 2024*

DEFINITION THE MULTIPLE HYPOTHESIS TESTING PROBLEM OCCURS WHEN A NUMBER OF INDIVIDUAL HYPOTHESIS TESTS ARE CONSIDERED SIMULTANEOUSLY IN THIS CASE THE SIGNIFICANCE OR THE ERROR RATE OF INDIVIDUAL TESTS NO LONGER REPRESENTS THE ERROR RATE OF THE COMBINED SET OF TESTS

TESTING MULTIPLE HYPOTHESES MIT MATHEMATICS *DEC 29 2023*

DO THE M TESTS GIVING P VALUES Q_1, \dots, Q_M TAKE THE ORDER STATISTICS OF THE Q_j GIVING $Q_{(1)}, \dots, Q_{(M)}$ LET R BE THE LARGEST i SUCH THAT $Q_{(i)} \leq \alpha$ OR $Q_{(M-i+1)} \geq 1 - \alpha$ IF THERE IS NO SUCH i THEN REJECT H_0 IF AND ONLY IF $Q_{(R)} \leq \alpha$ SO R WILL BE THE NUMBER OF HYPOTHESES REJECTED

HOW DOES MULTIPLE TESTING CORRECTION WORK NATURE *NOV 27 2023*

WE THEREFORE NEED A MULTIPLE TESTING CORRECTION PROCEDURE TO ADJUST OUR STATISTICAL CONFIDENCE MEASURES BASED ON THE NUMBER OF TESTS PERFORMED CORRECTING FOR MULTIPLE HYPOTHESIS TESTS

MULTIPLE TESTING UNIVERSITY OF CHICAGO *OCT 27 2023*

MULTIPLE TESTING REFERS TO ANY INSTANCE THAT INVOLVES THE SIMULTANEOUS TESTING OF MORE THAN ONE HYPOTHESIS IF DECISIONS ABOUT THE INDIVIDUAL HYPOTHESES ARE BASED ON THE UNADJUSTED MARGINAL P VALUES THEN THERE IS TYPICALLY A LARGE PROBABILITY THAT SOME OF THE TRUE NULL HYPOTHESES WILL BE REJECTED

LECTURE 12 MULTIPLE HYPOTHESIS TESTING *SEP 25 2023*

ECE 830 FALL 2011 STATISTICAL SIGNAL PROCESSING INSTRUCTOR R NOWAK LECTURE 12 MULTIPLE HYPOTHESIS TESTING INTRODUCTION IN MANY APPLICATIONS WE CONSIDER MULTIPLE HYPOTHESIS TEST AT THE SAME TIME EXAMPLE 1 FMRI FUNCTIONAL MAGNETIC RESONANCE IMAGING FIGURE 1 BRAIN IMAGE BY FMRI WITH M VOXELS EXAMPLE 2 MICROARRAYS FIGURE 2 GENE TEST PLOT

HYPOTHESIS TESTING A STEP BY STEP GUIDE WITH EASY EXAMPLES *AUG 25 2023*

THERE ARE 5 MAIN STEPS IN HYPOTHESIS TESTING STATE YOUR RESEARCH HYPOTHESIS AS A NULL HYPOTHESIS AND ALTERNATE HYPOTHESIS H_0 AND H_A OR H_1 COLLECT DATA IN A WAY DESIGNED TO TEST THE HYPOTHESIS PERFORM AN APPROPRIATE STATISTICAL TEST DECIDE WHETHER TO REJECT OR FAIL TO REJECT YOUR NULL HYPOTHESIS

MULTIPLE TESTING HOW CAN YOU ADJUST BY KHALIL ZLAOUI *JUL 24 2023*

BEFORE DIVING INTO MULTIPLE TESTING LET'S QUICKLY GO OVER 4 STEPS TO FOLLOW WHEN DOING HYPOTHESIS TESTING TABLE 1 BELOW IS A REMINDER OF THE TWO TYPES OF ERRORS ONE CAN MAKE WHEN TESTING A HYPOTHESIS THE TYPE I ERROR OR FALSE POSITIVE RATE AND THE TYPE II ERROR OR FALSE NEGATIVE RATE

6.3 ISSUES WITH MULTIPLE TESTING STAT 200 STATISTICS ONLINE *JUN 22 2023*

IF WE WOULD CONDUCT 100 HYPOTHESIS TESTS AT A 0.05 LEVEL WHERE THE NULL HYPOTHESES ARE REALLY TRUE WE WOULD EXPECT TO REJECT THE NULL AND MAKE A TYPE I ERROR IN ABOUT 5 OF THOSE TESTS LATER IN THIS COURSE YOU WILL LEARN ABOUT SOME STATISTICAL PROCEDURES THAT MAY BE USED INSTEAD OF PERFORMING MULTIPLE TESTS

MULTIPLE TESTING PROBLEM MULTIPLE COMPARISONS STATISTICS *MAY 22 2023*

HYPOTHESIS TESTING MULTIPLE TESTING PROBLEM WHAT IS THE MULTIPLE TESTING PROBLEM IF YOU RUN A HYPOTHESIS TEST THERE'S A SMALL CHANCE USUALLY ABOUT 5% THAT YOU'LL GET A BOGUS SIGNIFICANT RESULT IF YOU RUN THOUSANDS OF TESTS THEN THE NUMBER OF FALSE ALARMS INCREASES

DRAMATICALLY

MULTIPLE HYPOTHESIS TESTING IN R R VIEWS RSTUDIO APR 20 2023

WE WILL NOW EXPLORE MULTIPLE HYPOTHESIS TESTING OR WHAT HAPPENS WHEN MULTIPLE TESTS ARE CONDUCTED ON THE SAME FAMILY OF DATA WE WILL SET THINGS UP AS BEFORE WITH THE FALSE POSITIVE RATE $\alpha = 0.05$ AND FALSE NEGATIVE RATE $\beta = 0.20$ LIBRARY PWR LIBRARY GGLOT2 SET SEED 1 MDE 0.1 MINIMUM DETECTABLE EFFECT

MULTIPLE HYPOTHESIS TESTING THE F TEST MATT BLACKWELL MAR 20 2023

HYPOTHESIS TESTING HAS US ASK THIS IF WE SUPPOSE SOME NULL HYPOTHESIS IS TRUE HOW LIKELY IS IT THAT WE WOULD HAVE OBTAINED THIS RESULT FROM RANDOM SAMPLING WE REJECT THE NULL HYPOTHESIS IF WE DETERMINE OUR ESTIMATE IS UNLIKELY THE PROBABILITY IS LESS THAN A SMALL NUMBER GIVEN THE NULL

MULTIPLE HYPOTHESIS TESTING CORRECTION FOR DATA SCIENTIST FEB 16 2023

MULTIPLE HYPOTHESIS TESTING THERE IS ALWAYS A MINIMUM OF TWO DIFFERENT HYPOTHESES NULL HYPOTHESIS AND ALTERNATIVE HYPOTHESIS THE HYPOTHESIS COULD BE ANYTHING BUT THE MOST COMMON ONE IS THE ONE I PRESENTED BELOW NULL HYPOTHESIS H_0 THERE IS NO RELATIONSHIP BETWEEN THE VARIABLES

COMMON PITFALLS IN STATISTICAL ANALYSIS THE PERILS OF JAN 18 2023

MULTIPLE TESTING REFERS TO SITUATIONS WHERE A DATASET IS SUBJECTED TO STATISTICAL TESTING MULTIPLE TIMES EITHER AT MULTIPLE TIME POINTS OR THROUGH MULTIPLE SUBGROUPS OR FOR MULTIPLE END POINTS THIS AMPLIFIES THE PROBABILITY OF A FALSE POSITIVE FINDING

MULTIPLE HYPOTHESIS TESTS A BAYESIAN APPROACH SPRINGERLINK DEC 17 2022

MULTIPLE HYPOTHESIS TESTS IS A TOPIC WHICH HAS RECENTLY SHOWN A MAJOR EXPANSION MAINLY DUE TO THE EXPANSION OF THE METHODOLOGY DEVELOPED IN CONNECTION WITH GENOMICS THESE NEW METHODS ALLOW SCIENTISTS TO HANDLE SIMULTANEOUSLY THOUSANDS OF NULL HYPOTHESES

MULTIPLE HYPOTHESIS TESTING A METHODOLOGICAL OVERVIEW NOV 15 2022

2013 MULTIPLE HYPOTHESIS TESTING A METHODOLOGICAL OVERVIEW AUTHORS ANTHONY ALMUDEVAR 1 SHOW MORE DETAILS CITATIONS 2 PDF FULL TEXT ABSTRACT THE PROCESS OF SCREENING FOR DIFFERENTIALLY EXPRESSED GENES USING MICROARRAY SAMPLES CAN USUALLY BE REDUCED TO A LARGE SET OF STATISTICAL HYPOTHESIS TESTS

- [COMPREHENSIVE GUIDE TO CANADIAN PUBLIC SERVICE EXAMS FREE DOWNLOAD COPY](#)
- [SHADES OF MIDNIGHT BREED 7 LARA ADRIAN \(PDF\)](#)
- [JUSTICE AND REMEMBRANCE INTRODUCING THE SPIRITUALITY OF IMAM ALI REZA SHAH KAZEMI FULL PDF](#)
- [MANUAL CANON G10 PORTUGUES \(READ ONLY\)](#)
- [THE BEST SCHOOL YEAR EVER HERDMANS 2 BARBARA ROBINSON \(2023\)](#)
- [AGRICULTURAL SCIENCE CONTROL TEST FOR GRADE 11 QUESTION PAPER 18 03 2014 FULL PDF](#)
- [CAT DISSECTION RESPIRATORY SYSTEM LABORATORY REPORT ANSWERS FULL PDF](#)
- [FOUNDATIONS OF MACROECONOMICS 6TH EDITION TEST BANK \(READ ONLY\)](#)
- [LONGMAN NSS EXAM PRACTICE SET 4 ANSWER \[PDF\]](#)
- [CHAPTER 10 IMPERIALISM AMERICA POWERPOINT FULL PDF](#)
- [SOLUTIONS OF A GRAPH \[PDF\]](#)
- [MITOSIS MEIOSIS WEBQUEST 1 ANSWER KEY COPY](#)
- [THE LIVES OF A CELL NOTES BIOLOGY WATCHER LEWIS THOMAS \(PDF\)](#)
- [THE KEEPERS OF HOUSE SHIRLEY ANN GRAU COPY](#)
- [KAMUS BAHASA KAWI INDONESIA PURWADI \(2023\)](#)
- [RESEARCH PAPER FAMILY VALUES COPY](#)
- [NEST OF SERPENTS WEREWORLD 4 CURTIS JOBLING \(PDF\)](#)
- [133 PRECISION MEASURING ANSWER KEY \(2023\)](#)
- [ARGUMENT PAPERS ON ABORTION \(READ ONLY\)](#)
- [APUSH LESSON 29 HANDOUT 32 ANSWER KEY \(PDF\)](#)