Mixed ANOVA

Psychology 3256

Introduction

- So far we have talked about
- simple between and within
- factorial between and within
- What about combinations?
- Why of course, let's!

Ummm, why?

- There are cases when we might want one or more between and one or more within
- say oh, species and learning
- sex differences
- etc

An example

	5 min	1 hr	24 hr
Implicit	G1	G1	G1
Explicit	G2	G2	G2

- There may be some concern about the implicit test being contaminated
- We still want a decay function

What are the sources of variation?

- test type
- retention interval
- subjects(test type)
- "subjects nested with in test type"

	5 min	1 hr	24 hr
I	G1	G1	G1
E	G2	G2	G2

G1 = S1-S10 G2 = S11 - S20

Build the ANOVA table

- How do you know what to test with what?
- Yates' order says use the first term below with subjects and the variable we want to test

SV	df
test	1 (test-1)
S(test)	18 (n-1)test
RI	2 (ri-1)
RIxTest	2 (ri-1)(Test-1)
RIxS(Test)	36 (ri-1)(n-1)(test)
TOTAL	59 N-1

To review

- Between
- Subjects
- Within
- Do the interactions
- Then just figure out the error terms
- This assumes everything is fixed and subjects are random

Another example (n=5)

- E
  s
  v
- B
- V
  a

	B1	B1	B2	B2	B3	B3
	C1	C2	C1	C2	C1	C2
A1	G1	G1	G1	G1	G1	G1
A2	G2	G2	G2	G2	G2	G2

en -> a

n -> B

sv	df	test
A	(a-1)= 1	S(A)
S(A)	(n-1)a= 8	
C	(c-1)= 1	CS(A)
CA	(c-1)(a-1)= 1	CS(A)
CS(A)	(c-1)(n-1)a= 8	
B	(b-1)= 2	BS(A)
BA	(b-1)(a-1)= 2	BS(A)
BS(A)	(b-1)(a-1)n= 16	
BC	(b-1)(c-1)= 2	BCS(A)
BCA	(b-1)(c-1)(a-1)= 2	BCS(A)
BCS(A)	(b-1)(c-1)(a-1)n= 16	
TOTAL	N-1= 59	

Yet another one...

- T
  A
  b en
- S
- n er group

	C1	C1	C2	C2	C3	C3
	A1	A2	A1	A2	A1	A2
B1	G1	G3	G1	G3	G1	G3
B2	G2	G4	G2	G4	G2	G4

sv	df	test
A	a-1 = 1	S(AB)
B	b-1 = 1	S(AB)
AB	(a-1)(b-1) = 1	S(AB)
S(AB)	(n-1)ab = 20	
C	c-1 = 2	CS(AB)
CA	(a-1)(c-1) = 2	CS(AB)
CB	(b-1)(c-1) = 2	CS(AB)
CAB	(a-1)(b-1)(c-1) = 2	CS(AB)
CS(AB)	(c-1)(n-1)ab = 40	
TOTAL	N-1 = 71	