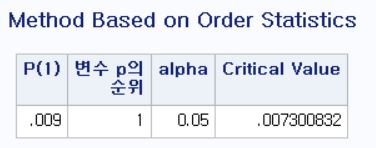
생명과학 데이터분석 과제5

2014150137 통계학과

박 정진

8-1.

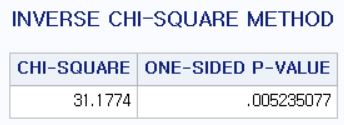
1. 순서 통계량



P(1) = 0.009 > 1-(1-0.05)^(1/7) = 0.0073

이므로 유의수준 =0.05 하에서 귀무가설을 기각할 수 없다.

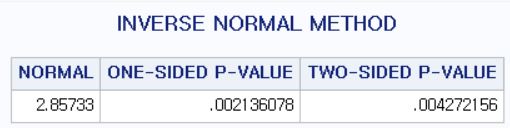
1. 역카이제곱법



31.1774 > =26.11895

이므로, 유의수준 =0.05 하에서 귀무가설을 기각한다.

1. 역정규법



2.85733 >

이므로, 유의수준 =0.05 하에서 귀무가설을 기각한다.

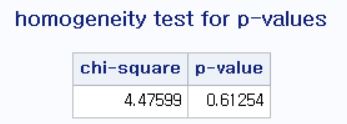
1. 로짓방법



-2.95774 <

이므로, 유의수준 =0.05 하에서 귀무가설을 기각한다.

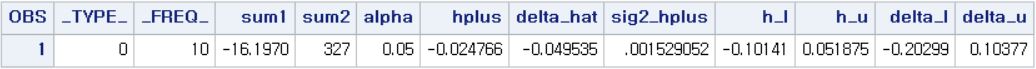
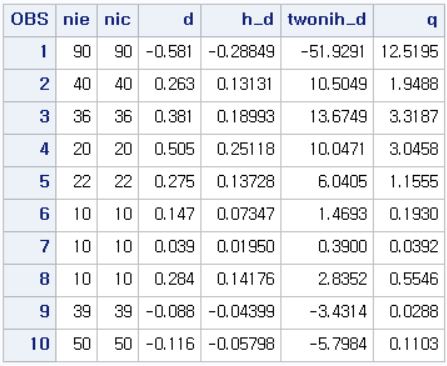
8-2.



Q = 4.47599 < =12.59159

이므로, 유의수준 =0.05 하에서 귀무가설을 기각하지 못한다.

8-5



h+ = -0.024766

= -0.049535

Confidence interval of h = (-0.10141, 0.051875)

Confidence interval of = (-0.20299, 0.10377)

8-6



Q = 22.9143218 > =16.91898

이므로, 유의수준 =0.05 하에서 귀무가설을 기각한다. 즉 각 연구에서 유효 크기는 동일하지 않으며, 유효크기의 결합을 해서는 안된다.

/\*8-1\*/

**DATA** A;

INPUT p @@;

CARDS;

0.025 0.31 0.009 0.28 0.345 0.42 0.06

;

/\*ORDER STATISTICS\*/

**PROC** **RANK** DATA=A OUT=ord; VAR p; RANKS ORDER;

**RUN**;

**DATA** order; SET ord;

k=**7**; alpha=**0.05**;

if ORDER ^= **1** then delete;

signi = **1**-(**1**-alpha)\*\*(**1**/k);

keep alpha order p signi;

label signi='Critical Value'

p ='P(1)';

title "Method Based on Order Statistics";

**PROC** **PRINT** label noobs; **RUN**;

/\*Inverse Chi-squre Method\*/

**DATA** B;

INPUT p @@;

logp=-**2**\*log(p);

label logp='-2LOG(P)';

CARDS;

0.025 0.31 0.009 0.28 0.345 0.42 0.06

;

**PROC** **MEANS** DATA=B noprint;

OUTPUT OUT=i\_chi SUM=sum;

VAR logp;

**DATA** inv\_chi; set i\_chi;

chi=sum;

chi\_p=**1**-probchi(chi, **2**\*\_freq\_, **0**);

keep chi chi\_p;

label chi\_p='ONE-SIDED P-VALUE'

chi='CHI-SQUARE';

title 'INVERSE CHI-SQUARE METHOD';

**PROC** **PRINT** label noobs DATA=inv\_chi;

**RUN**;

/\*INVERSE NORMAL METHOD\*/

**DATA** C;

INPUT p @@;

z\_i=probit(**1**-p);

CARDS;

0.025 0.31 0.009 0.28 0.345 0.42 0.06

;

title;

**PROC** **PRINT** label; **RUN**;

**PROC** **MEANS** DATA=C noprint;

OUTPUT OUT=i\_nor SUM=sum;

VAR z\_i;

**DATA** inv\_nor; SET i\_nor;

nor=sum/sqrt(\_freq\_);

if nor>**0** then nor\_p=**1**-probnorm(nor);

else nor\_p=probnorm(nor);

nor\_p2=**2**\*nor\_p;

keep nor nor\_p nor\_p2;

label nor\_p='ONE-SIDED P-VALUE'

nor\_p2='TWO-SIDED P-VALUE'

nor='NORMAL';

title 'INVERSE NORMAL METHOD';

**PROC** **PRINT** label noobs; **RUN**;

/\*LOGIT METHOD\*/

**DATA** D;

INPUT p @@;

logit=log(p/(**1**-p));

CARDS;

0.025 0.31 0.009 0.28 0.345 0.42 0.06

;

**PROC** **MEANS** DATA=D noprint;

OUTPUT OUT=prelogit SUM=sum;

VAR logit;

**DATA** logit; SET prelogit;

pi=**3.141592154**;

l=sum\*sqrt((**3**\*(**5**\*\_freq\_+**4**))/((pi\*\***2**)\*\_freq\_\*(**5**\*\_freq\_+**2**)));

if l>**0** then log\_p=**1**-probt(l, **5**\*\_freq\_+**4**, **0**);

else log\_p=probt(l, **5**\*\_freq\_+**4**,**0**);

log\_p2=**2**\*log\_p;

keep l log\_p log\_p2;

label log\_p = 'ONE-SIDED P-VALUE'

log\_p2 = 'TWO-SIDED P-VALUE'

l='L\*';

title 'LOGIT METHOD';

**PROC** **PRINT** label noobs; **RUN**;

**proc** **means** data=C;

var z\_i;

**run**;

**data** homo;

set C;

st\_z=(z\_i+**1.0799709**)\*\***2**;

**run**;

**proc** **means** data=homo;

var st\_z;

output out=homo1 sum=sum;

**run**;

**data** homo\_test;

set homo1;

val=**1**-probchi(sum, \_freq\_-**1**,**0**);

keep sum val;

label sum='chi-square' val='p-value';

title 'homogeneity test for p-values';

**run**;

**proc** **print** data=homo\_test noobs label;

**run**;

/\*8-5\*/

**DATA** mix;

INPUT nie nic d @@;

h\_d=sqrt(**2**)\*arsinh(d/(**2**\*sqrt(**2**)));

twonih\_d=**2**\*nie\*h\_d;

CARDS;

90 90 -0.581 40 40 0.263 36 36 0.381 20 20 0.505 22 22 0.275

10 10 0.147 10 10 0.039 10 10 0.284 39 39 -0.088 50 50 -0.116

;

**RUN**;

**PROC** **PRINT** DATA=mix;

TITLE;

**RUN**;

**PROC** **MEANS** DATA=mix SUM;

OUTPUT OUT=mmean SUM=sum1 sum2;

VAR twonih\_d nie;

**RUN**;

**DATA** mix1; set mmean;

alpha=**0.05**;

hplus=sum1/(**2**\*sum2);

delta\_hat=**2**\*sqrt(**2**)\*sinh(hplus/sqrt(**2**));

sig2\_hplus=**1**/(**2**\*sum2);

h\_l=hplus-probit(**1**-alpha/**2**)\*sqrt(sig2\_hplus);

h\_u=hplus+probit(**1**-alpha/**2**)\*sqrt(sig2\_hplus);

delta\_l=**2**\*sqrt(**2**)\*sinh(h\_l/sqrt(**2**));

delta\_u=**2**\*sqrt(**2**)\*sinh(h\_u/sqrt(**2**));

**RUN**;

**PROC** **PRINT** DATA=mix1;

**RUN**;

/\*8-6\*/

**DATA** mix2;

SET mix;

q=**2**\*nie\*((h\_d+**0.024766**)\*\***2**);

**RUN**;

**PROC** **PRINT** DATA=mix2;

**RUN**;

**PROC** **MEANS** DATA=mix2 SUM;

VAR q;

**RUN**;