Re: Rank correlation

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- *From*: "Gaj Vidmar" <gaj.vidmar@xxxxxxxxxxx>

- *Date*: Wed, 28 Feb 2007 20:50:26 +0100

This is a "non−technical" recipe−type of reply, beacuse your level of knowledge of the subject matter seems to be rather ...

Please, before or at least immediately after "doing" the statistics mentioned, read about them and try to understand them or at least try to find a qualified somebody to explain things to you!

First, you can test if the "people" tend to agree about the rank−order of preference for the topics with Kendall's coefficient of concordance (W).

Your data is already arranged properly for that − in the SPSS dialogue (Analyze −> Nonparametric Tests −> Several Related Samples) just put in all the variables (i.e., the five of them, one for each topic).

If the Exact button apears in the dialog (which means that you have the Exct module in your SPSS installation), press it and set the option from Asymptotic to Exact. Otherwise, you'll have to settle for the asymtotic p.

If W is significantly different from 0 (i.e., your p is below 0.05), it might make sense to reorder the topics by average rank if they are not already in such order (so first compute those averages if you haven't yet; and drag columns left/right in the Data Editor to achieve the desired order) and then test the significance of this order using Page's test. SPSS doesn't have it "canned", but it's really easy to compute it with a spreadsheet, or even by hand. You even don't have to read a textbook on nonparametric statistics (such as Siegel & Castellan, or Conover, though it wouldn't hurt you), let alone dig up the original reference −− nowadays you just "consult" Wikipedia:

http://en.wikipedia.org/wiki/Page's_trend_test

All you'll need is the critical value of the chi−squared distribution for 1 degree of freedom. I'll tell you it's 1.96 sqared, which makes ... (again, if you care to find out why so, it won't hurt you, but if you don't care, so be it).

BTW, your dataset (10 cases by 5 vars) is roughly on the boundaries that the rules of thumb state for validity of the chi−squared approximation of the distribution of the test statistic. But judging by your post, you won't

investigate that too deeply, so "just do it".

Lastly, I suggest you to forget about the "pairwise ranking" stuff. If the Page test "yields" p<0.05, you have all the information for a useful conclusion ("people agree that the topics can be ordered by preference as follows: <order of topics by mean rank>").

If not, but W is significant (which is unlikely to happen), just judge by mean ranks and conclude something like (> meaning "is preferred" over)

Topic 1 > Topics 2,3,4 > Topic 5.

If you want to do "advanced things" (which I doubt, but nevertheless), read Legendre, P. (2005). Species Associations: The Kendall Coefficient of Concordance Revisited. Journal of Agricultural, Biological, and Environmental Statistics, Volume 10, Number 2, Pages 226−245. Then download his software (trivial to use, DOS−type executable, prepare data in ASCII file −− evrything explaind on the website) and run the permutation test for W and the a−posteriori tests.

Regards,

Gaj Vidmar
University of Ljubljana, Faculty of Medicine, Institute of Biomedical Informatics

"mpb" <mpb.vu2@xxxxxxxxx> wrote in message
news:1172654703.938565.161550@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

> Hi,
>
> I have conducted a ranking survey on 10 people to rank 5 topics 1 to
> 5, 1 is the most important and 5 is the least according to thier view;
> i got followin data−
>
> People topic1 topic2 topic3 topic4 topic5
>
> people1 1 2 4 3 5
> p2 2 1 3 5 4
> p3 1 3 4 5 2
> p4 2 5 1 3 4
>
> and so on to
>
> p10 4 2 3 5 1
>
> how can i analyze these ranking using SPSS? how can i test
> significance and compute pairwise ranking?
>
> regards,

mpb

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