EINFÜHRUNG IN STATISTIK
PROF. PIA KNOEFERLE

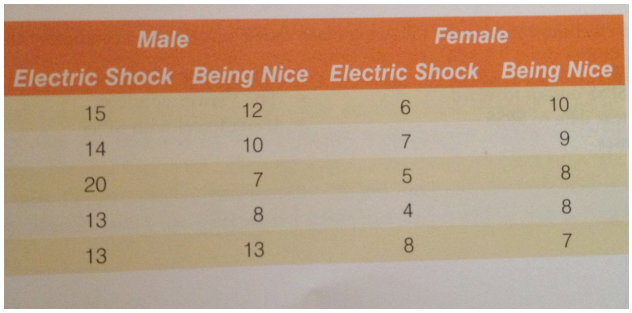
PRACTICE SESSION I

Name: _____

Matrikelnr.:_____

Task 1
Please enter the data shown in Figure 1 into a new data sheet. These data present scores (out of 20) for 20 different students; some of them are male and some female. Some of them were trained using positive reinforcement (the experiment was nice to them) while others received nasty feedback (electric shock). You will need to think about how to structure the data (it should not be entered in the same way that they are laid out in Fig. 1).

Figure 1: Data from a training experiment (scores out of 20)



Male		Female	
Electric Shock	Being Nice	Electric Shock	Being Nice
15	12	6	10
14	10	7	9
20	7	5	8
13	8	4	8
13	13	8	7

Task 2
In an experiment, 10 male and 10 female participants each take three tests. The first test takes place in the first week of term; the second in the 5th week of term and the third in the last week of term. The test consists of reduced relative clause sentences and main clause sentences that the students are asked to read. We measure their reading times.

1. Type of design: _____
2. Number of independent factors _____
3. Name and levels of the independent factor(s)_____
4. Name of the dependent factor(s)_____
5. What type of data do we measure? _____
6. What type of data would we have if we ranked the students according to their reading time from 1 to 20?

_____

Task 3
Using the data set *Data with which to play.sav*, plot the following graphs and include them (in small on the handout):

1. A bar chart including error bars (95% Cis) of the mean number of friends for students and lecturers
    - What results pattern does the graph show in your own words?

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2. A bar chart including error bars (95% Cis) of the mean alcohol consumption for students and lecturers
    - What results pattern does the graph show in your own words?

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Task 4

The data set for task 4 comes from an eye-tracking reading study in which we manipulated 2 factors within participants. A first factor was 'parallelism', that is whether two clauses had parallel or non-parallel word order (both clauses have object-subject word order; one clause has subject-object word order while the other clause has object-subject word order). A second factor was conjunction (whether the conjunction that linked the 2 clauses was 'und' or 'während')

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• You can find the data in the file data *QuestionSet1.sav*

• In the file 'np' in the variable names refers to 'non-parallel word order' and 'pa' refers to parallel word order. The variable names identify the four conditions.

• Expectations: It's been shown that reading times during the second clause of coordinate structures are faster when the structure of the first and second clause are similar relative to when they differ. This has been dubbed 'parallelism facilitation'. If this finding replicates, we should see that clauses with parallel word order should be read faster than clauses with non-parallel word order. It's also interesting to ask whether it's purely repetition of structure that procures faster reading times, or whether the conjunction plays a role. 'And' expresses that two things are similar and might thus heighten effects of parallelism (coordination of 'like' structures). 'Während' by contrast, can be used with a temporal but also with contrastive meaning and if the conjunction plays a role in parallelism facilitation, a conjunction that is not expressing similarity of things may rather reduce parallelism facilitation.

1. Please produce a bar graph that illustrates the interaction effect of parallelism and conjunction. The graph should plot the 4 conditions and also plot the error bars (95 % confidence intervals). Include the graph.

2. Describe how you created the adjusted means in SPSS (recall we must adjust them since SPSS otherwise plots the error bar incorrectly for a repeated measures design)

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3. What are the standard deviations for each condition before and after the adjustment?

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