

Chapter 8: Exercises – answers

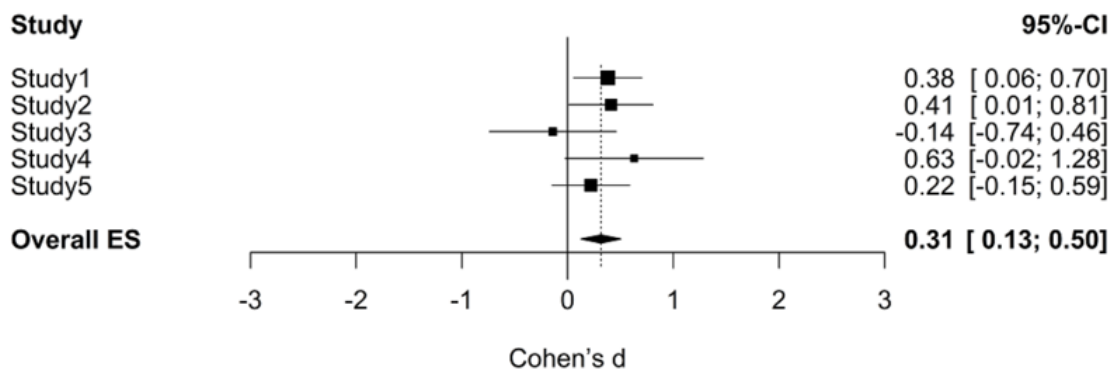
- 1) What is the most important thing you have learnt from this book? Write this down in the space below.

Author’s note: There are many things that I have learnt writing this book – things about language, statistics and myself. Putting all pieces of information together, carrying out mini-studies, thinking about examples and exercises as well as programming the stats website (Lancaster Stats Tolls online) was a long process I embarked on in 2014. So, what would be the most important thing I have learnt? I think it would be the fact that learning statistics in corpus linguistics is really something within everyone’s reach; all it takes is to think critically about the linguistic evidence we have and passionately engage with the data – the rest will follow!

- 2) Provide transformations of the following effect size measures:

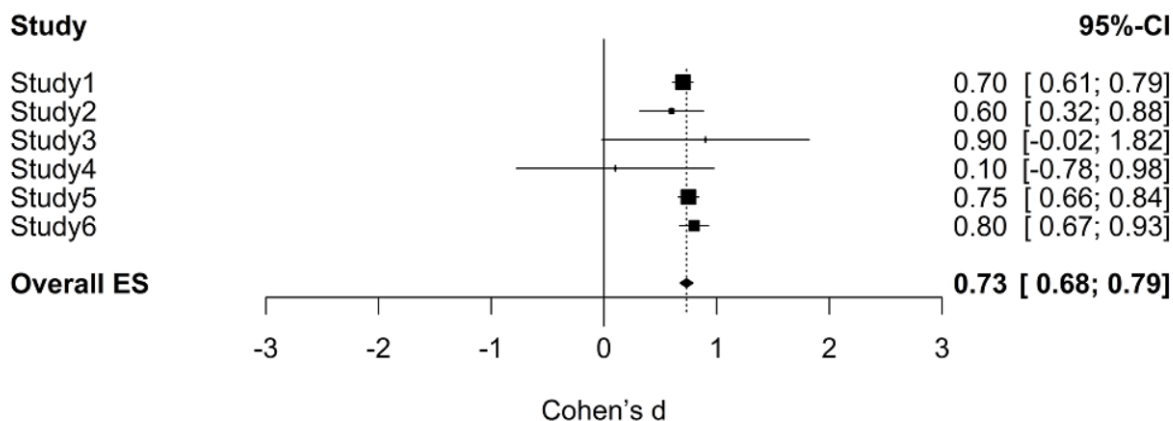
Input	Output (transformation)
$r = 0.9$	Cohen’s $d = 4.13$
Cohen’s $d = 1.3$	$r = 0.54$
$\eta^2 = 0.05$	Cohen’s $d = 0.46$
$\ln(\text{OR}) = 0.2$	Cohen’s $d = 0.11$
$t = 2; n_1 = 100; n_2 = 100$	Cohen’s $d = 0.28$
$F = 10; n_1 = 100; n_2 = 100$	Cohen’s $d = 0.45$

- 3) Interpret the following forest plots.



Forrest plot: example 1

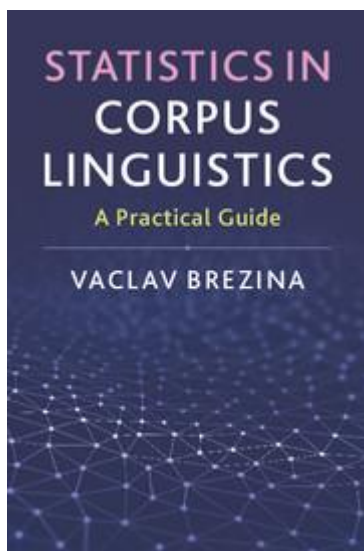
The overall effect size in example 1 ($d = .31$, 95% CI [.13, .5]) is small. The large confidence interval in Studies 3 and 4 in particular suggests that they were carried out with a small samples. Note also that three 95% CIs include zero (Studies 3, 4 and 5), showing a possibility of zero effect in the population.



Forrest plot: example 2

The overall effect size in example 2 ($d = .73$, 95% CI [.68, .79]) is medium; Two studies (Studies 3 and 4) have large confidence intervals including zero (i.e. no effect). This is due to small samples used in these studies. Hence, they contribute only in a limited way to the overall picture. On the other hand, two studies in particular (Study 1 and Study 5), showing medium effect, have very small 95% CIs; they are based on large samples and the evidence they provide is robust.

- 4) Select a research question and carry out a meta-analysis based on studies in corpus linguistics and/or related disciplines (psychology, sociology etc.)



Brezina, V. (2018). [Statistics in Corpus Linguistics: A Practical Guide](#). Cambridge: Cambridge University Press.

Do you use language corpora in your research or study, but find that you struggle with statistics? This practical introduction will equip you to understand the key principles of statistical thinking and apply these concepts to your own research, without the need for prior statistical knowledge. The book gives step-by-step guidance through the process of statistical analysis and provides multiple examples of how statistical techniques can be used to analyse and visualise linguistic data. It also includes a useful selection of discussion questions and exercises which you can use to check your understanding.

The book comes with a Companion website, which provides additional materials (answers to exercises, datasets, advanced materials, teaching slides etc.) and [Lancaster Stats Tools online](#), a free click-and-analyse statistical tool for easy calculation of the statistical measures discussed in the book.