Suspicious coincidences revisited

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Abstract

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Intro

What is the suspicious coincidence effect?

(Spencer, Perone, Smith, & Samuelson, 2011; F. Xu & Tenenbaum, 2007; Fei Xu & Tenenbaum, 2007)

Why is it important?

Spencer et al. paper

Methodological differences:

- simultaneous vs. sequential
- 3-1 vs. 1-3
- blocking
- same label vs. different label

other evidence relevant on this replication

Our current paper reports 10 pre-registered experiments. We recover the suspicious coincidence effect with a large effect size in both sequential and simultaneous presentation conditions. The effect only occurs, however, in experiments where the trial with one exemplar is presented *before* the key trial with three subordinate-consistent exemplars (the "suspicious coincidence"). We attribute this difference to participants' awareness of the possibility of subordinate generalizations following the three-exemplar trial; in these conditions, we see a high level of subordinate generalizations even for the one-exemplar trial (leading to the absence of a difference between conditions). In sum, and contra SPSS, the "suspicious coincidence" effect is robust to sequential presentation. The effect is sensitive to some features of the general experimental context, however, suggesting a potential interpretation in terms of the pragmatics of the task.

Methods

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

Participants

Material

Procedure

Data analysis

We used R (3.4.1, R Core Team, 2017) and the R-packages *bindrcpp* (0.2, Müller, 2017), *broom* (0.4.2, Robinson, 2017), *compute.es* (0.2.4, Re, 2013), *dplyr* (0.7.2, Wickham, Francois, Henry, & Müller, 2017), *forcats* (0.2.0, Wickham, 2017a), *ggplot2* (2.2.1, Wickham, 2009), *jsonlite* (1.5, Ooms, 2014), *knitr* (1.17, Xie, 2015), *langcog* (0.1.9001, Braginsky, Yurovsky, & Frank, n.d.), *Matrix* (1.2.10, Bates & Maechler, 2017), *metafor* (2.0.0, Viechtbauer, 2010), *papaja* (0.1.0.9492, Aust & Barth, 2017), *png* (0.1.7, Urbanek, 2013), *purrr* (0.2.3, Henry & Wickham, 2017), *readr* (1.1.1, Wickham, Hester, & Francois, 2017), *rmarkdown* (1.6, Allaire et al., 2017), *stringr* (1.2.0, Wickham, 2017b), *tibble* (1.3.3, Müller & Wickham, 2017), *tidyr* (0.6.3, Wickham, 2017c), and *tidyverse* (1.1.1, Wickham, 2017d) for all our analyses.

Results

Means plot

Effect size plot

Calculate effect sizes from previous experiments. Here are the means and sd based on SPSS table 1.

Calculate previous effect sizes from literature.

MA effect sizes

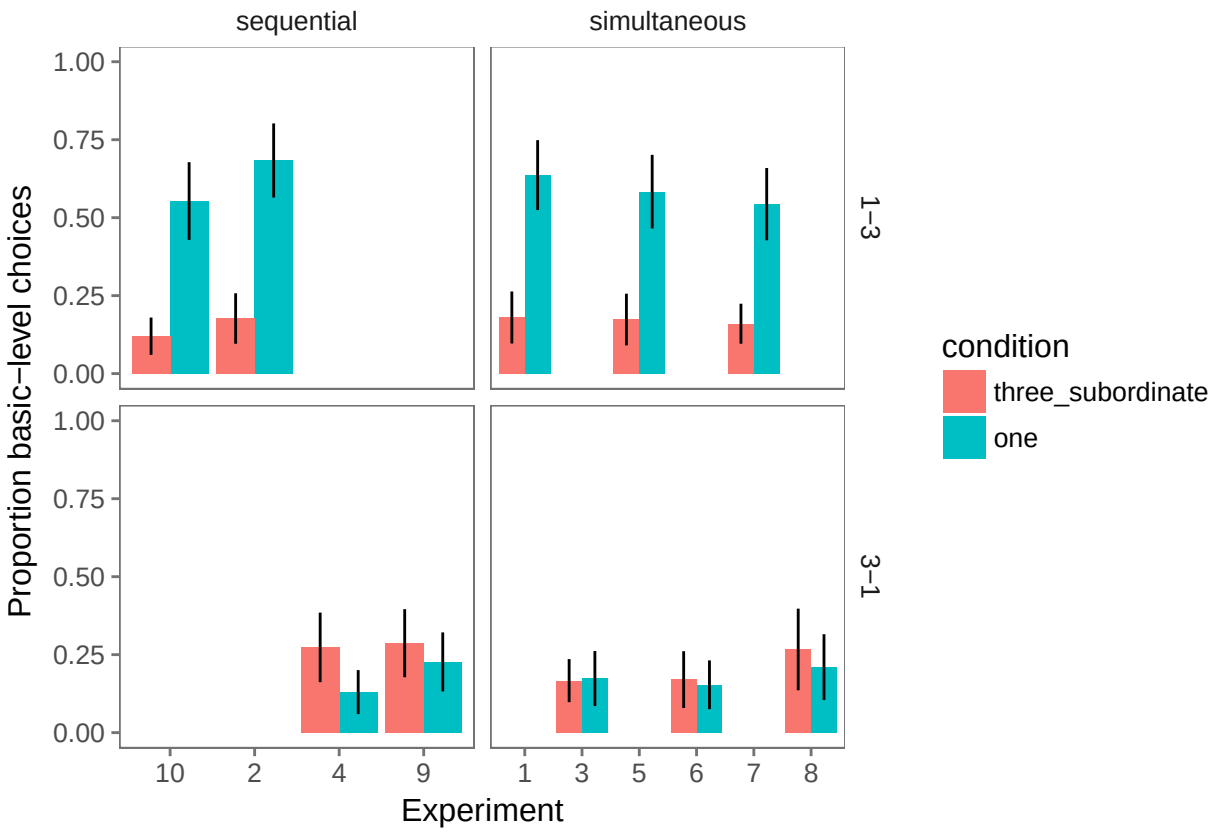

Figure 1

Fixed effect	beta	z-value	p-value
Intercept	1.33 [1,1.66]	7.90	0.00
Sequential vs. simultaneous timing	-0.18 [-0.47,0.11]	-1.24	0.21
3-1 vs. 1-3 condition order	-1.4 [-1.66,-1.15]	-10.77	0.00
Same vs. different label	0.07 [-0.2,0.34]	0.51	0.61
Random vs. blocked trial order	-0.09 [-0.44,0.27]	-0.49	0.63

Discussion

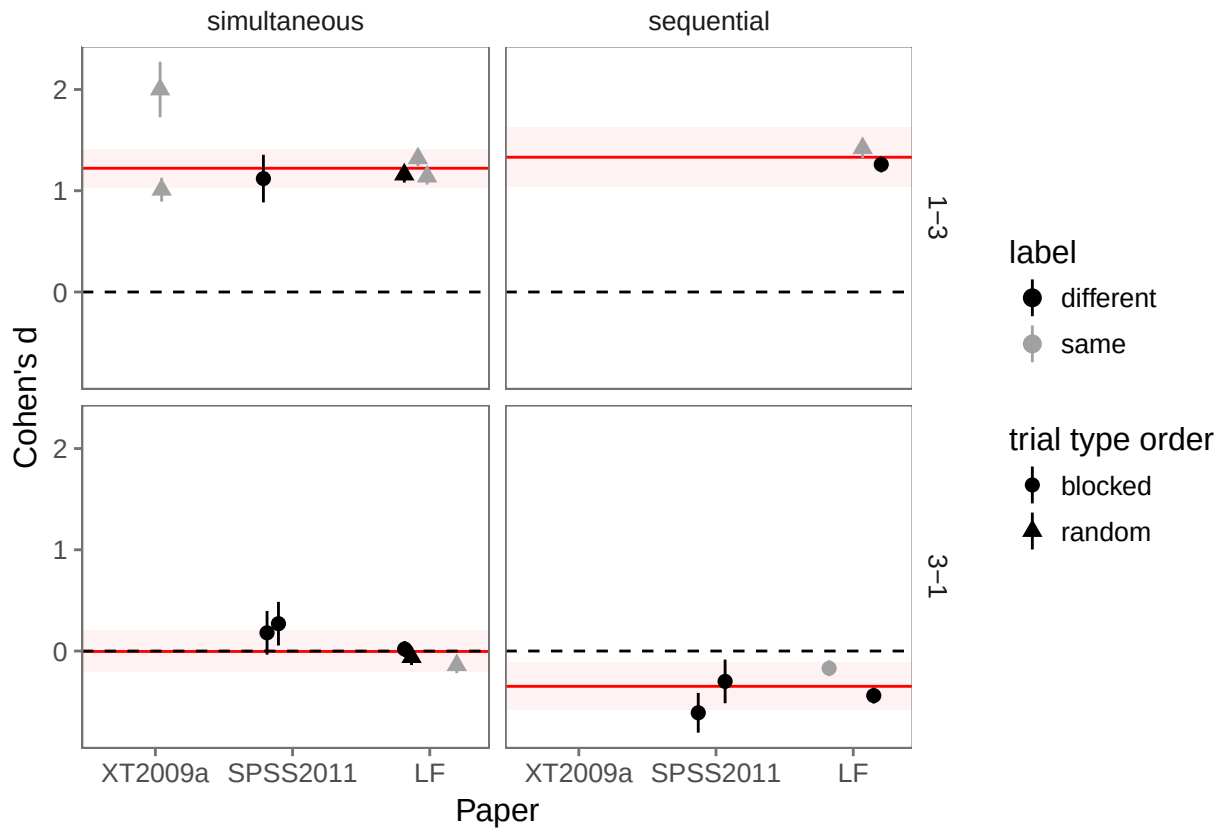

Figure 2. same vs. different refers to whether the one and 3 subordinate trials recieved the same lable. 3-1 and 1-3 refers to the relative order of the one and 3 subordinate trials.

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