Pathway elicitation survey

Start of Block: Default Question Block

Introduction Dear researcher, Thank you for agreeing to participate in our study. In this study, we would like to ask you to describe the data-processing steps you would take (if any) before conducting an analysis to answer a particular research question. Before continuing, please take a moment to read and fill in the informed consent form [INSERT INFORMED CONSENT].

End of Block: Default Question Block

Start of Block: Block 8

Eligibility 1 Do you have experience analyzing response latency/reaction time data?

* Yes (1)
* No (2)

Eligibility 2 Do you have experience with semantic priming research?

* Yes (1)
* No (2)

End of Block: Block 8

Start of Block: Block 1

Goal In this survey, we will ask you to describe how you would process a certain dataset in order to answer a particular research question. You don’t have to process the data yourself (though you are welcome to try out your suggested steps, if any, on a different dataset). The analysis itself is already determined, so we ask you about any (complementary) data-processing steps you might take. First, we will briefly explain the research question, the study’s procedure, and the analysis. Please read these carefully. You have the option to navigate between the information by using the arrow buttons at the bottom of the screen. Next, we will ask you to describe the data-processing steps you consider most suitable.

End of Block: Block 1

Start of Block: Block 2

Research question *Research question*  
 The study revolves around semantic priming. In general, people are faster to recognize a target (e.g., *dog*), when it is preceded by a related prime (e.g., *cat*) compared to an unrelated prime (e.g., *car*). It is often assumed that the magnitude of the priming effect varies depending on how strongly the prime (*cat* in the above example) and target (*dog* in the example) are related. For instance, *cat*-*dog* may be a more strongly related pair compared to *finger*-*toe*. In this study, we seek to examine whether such item-level priming effects are stable across languages. More specifically, if items exhibit a strong priming effect in English, do they also exhibit a strong priming effect in German, and vice versa for items yielding weak priming effects? We will only focus on priming effects in terms of response time, not accuracy.

End of Block: Block 2

Start of Block: Block 3

Study procedure *Study procedure*  
  
  
 To answer this question, we will rely on data from a recent (ongoing) study by Buchanan et al. (2022) which is currently investigating semantic priming across 10+ languages using equivalent, translated stimuli. Participants (adults) had to perform a so-called continuous lexical decision task. On each trial, participants saw a letter string, which either formed an existing word in the language of the participant or a nonword. Participants needed to decide as quickly and accurately as possible whether the letter string was an existing word by pressing either Z or / on a QWERTY keyboard (or similar pattern on the native language keyboard). When no response was provided within 3 seconds, the trial was automatically terminated.   
  
  
  
Participants got 10 practice trials followed by a total of 800 test trials, split up in blocks of 100, using an intertrial interval of 500 ms. After each block, participants could take a break. There were 400-word trials and 400-nonword trials. 150-word trials involved a critical target (e.g., *dog*), half of which were preceded by a related prime trial (e.g., *cat*), and the other half by an unrelated prime trial (e.g., *car*). The other trials were fillers. Participants saw a particular stimulus (filler, prime, or target) only once during the study, and whether a given target was preceded by its related or unrelated prime was determined at random. If you require additional information, feel free to contact us, or you can also consult Buchanan et al.’s paper here: [https://osf.io/q4fjy/](http://osf.io/q4fjy/)  
  
 To reiterate, we will ask you what you consider to be the most appropriate way to process the data. When it comes to the analysis as such, we already have an approach in mind, so the idea is that you focus on data-processing. However, you will also get the opportunity to comment on the proposed analysis if you deem it suboptimal or inappropriate. Note that data-processing steps (if any) can occur before or in between the analysis steps outlined next.

End of Block: Block 3

Start of Block: Block 4

Analysis *Analysis*  
   
  
 Response times to the critical targets will be z-transformed for each participant separately (i.e., every participant’s arithmetic mean response time to critical targets will be subtracted from their response time at each target trial and the result will be divided by the participant’s standard deviation again only using critical trials). Next, we will separate related and unrelated trials for each target, after which we subtract their arithmetic mean z-transformed response times (aggregated across participants), for example:   
This step will be completed for each target to create item-level priming effects. The resulting item-level priming effects based on the English data will be correlated (i.e., Pearson’s r) with the equivalent item-level priming effects based on the German data. The point estimate of the correlation coefficient and its 95% confidence interval as well as the p-value (H0: *rho* = 0; H1: *rho* > 0) will serve as the main outcome of interest to answer the research question.

End of Block: Block 4

Start of Block: Block 5

Q1 We now would like to ask you to provide the data-processing steps you would take (if any) before and/or in between the analysis steps to answer the research question. Please be as specific as possible and describe precisely how to perform a certain data-processing step. It should be possible for us to implement these steps based on your description, so please include information regarding measurement units, order of different steps (if you provide multiple steps), etcetera. If you think no data-processing is required, please mention that explicitly (do not leave the box blank). Note that you do not need to mention data formatting steps (e.g., converting the dataframe from wide to long) and other actions that have no impact on the data as such. Also, you can assume that there were no experiment errors (e.g., stimuli not being displayed correctly).

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End of Block: Block 5

Start of Block: Block 6

Q2 If you deem the proposed data-analysis suboptimal or inappropriate, please explain how it should be modified in your opinion. If you deem it appropriate, you can just answer "No modification".

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End of Block: Block 6

Start of Block: Block 7

Q3   
If you want to keep up to date with the project and potentially become a co-author, please provide your email address. Note that your email address will not be shared with anyone and will only be used to contact you again for a follow-up survey and, after participation in the follow-up survey, to link your answers and invite you to contribute to the manuscript. Only your answers to the previous questions [*this is the last question of the survey*] will be made available via the Open Science Framework for public verification and reusability purposes. All information you provide will have your email removed before storage. You can also opt to leave this box blank, but keep in mind that we cannot invite you to become a co-author in that case.

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End of Block: Block 7