

Cognitive deficits and enhancements in youth from adverse conditions. An integrative assessment using Drift Diffusion Modeling in the ABCD study

Stefan Vermeent^{1,2}
✉ p.c.vermeent@uu.nl
Ethan S. Young¹ Meriah L. DeJoseph³ Anna-Lena Schubert⁴ Willem. E. Frankenhuus^{1,2}

¹ Department of Psychology, Utrecht University
² Max Planck Institute for the Study of Crime, Security, and Law
³ Center on Early Childhood, Stanford University
⁴ Department of Psychology, University of Mainz

Introduction

Childhood adversity can lead to cognitive deficits or enhancements, depending on many factors. Two challenges prevent us from integrating and better understanding these findings:

1. Using raw performance measures, which conflate different stages of processing.
2. Adversity may lower or improve performance because it affects general processes or abilities that are task-specific.

Approach

Registered Report (Stage 1 in-principle acceptance at *Developmental Science*) based on the ABCD sample. Investigate the effect of **household threat** and **material deprivation** on performance on four tasks measuring inhibition, attention shifting, mental rotation, and processing speed.

We address the challenges above in a two-step approach:

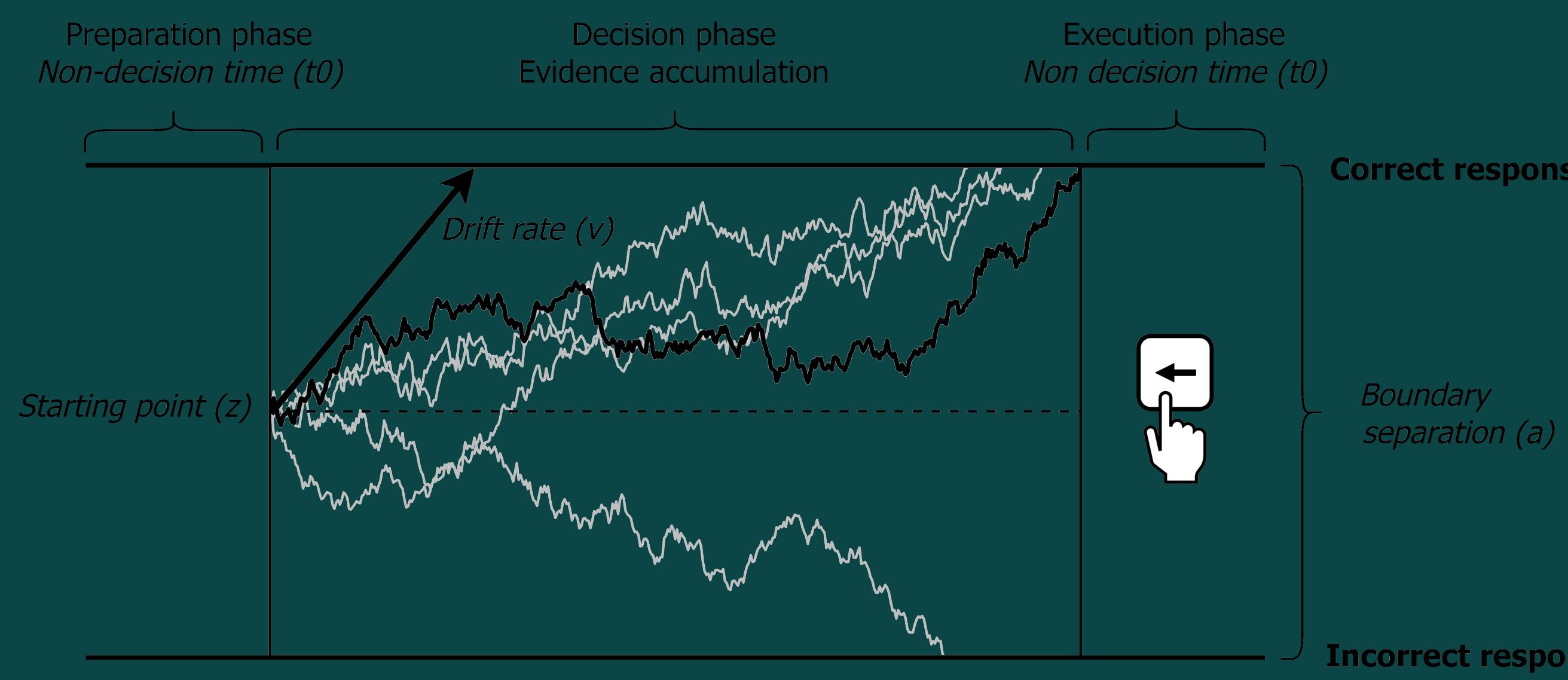
1. Use Drift Diffusion Modeling to isolate different cognitive processes.
2. Use SEM to differentiate between task-specific and task-general processes.

Objectives

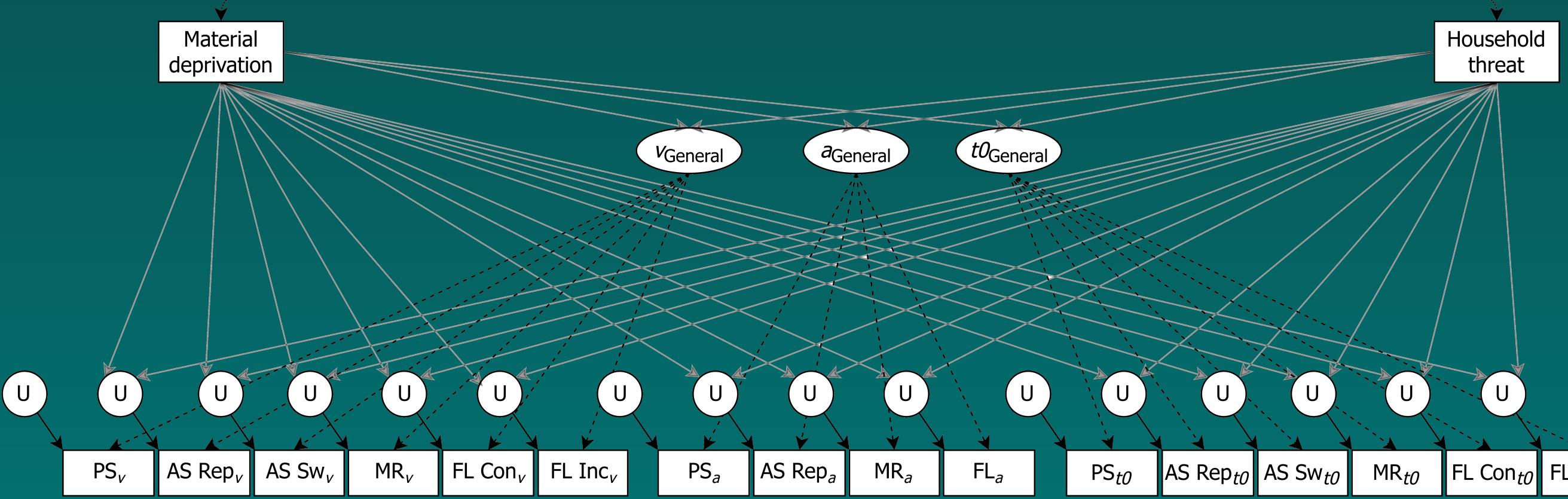


CODE & MATERIALS

1. Isolate cognitive processes using Drift Diffusion Modeling



2. Estimate whether adversity affects task-specific and task-general processes



3. Let posterdown do its thing!

Methods

I will show here how to include poster elements that may be useful, such as an equation using mathjax:

$$E = mc^2$$

To reference a citation you can add your `.bib` file to the working directory and name it in the YAML metadata or generate an automated one as done here, then you only need to reference the label value in the `.bib` file. For example this package is built on top of the wonderful `{pagedown}` package and I will cite it at the end of this sentence using this in the rmd `[@R-pagedown]` (Xie et al. 2022).

To get a better understanding of how to include features like these please refer to the `{posterdown}` wiki.

Now on to the results!

Results

Here you may have some figures to show off, below I have made a scatterplot with the infamous Iris dataset and I can even reference to the figure automatically like this, `Figure 1`.

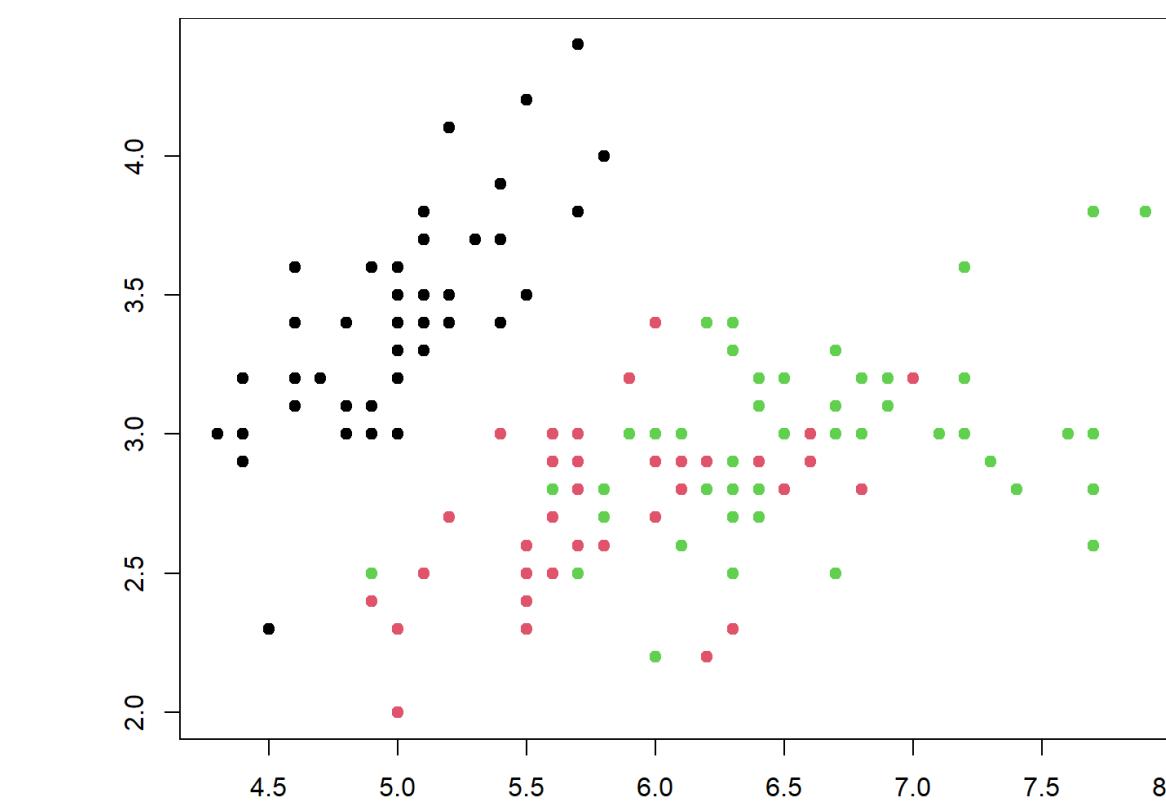


Figure 1: Here is a caption for the figure. This can be added by using the "fig.cap" option in the r code chunk options, see this [link](#) from the legend himself, Yihui Xie.

Maybe you want to show off some of that fancy code you spent so much time on to make that figure, well you can do that too! Just use the `echo=TRUE` option in the r code chunk options, Figure 2!