Proposed Reading List for Second-Year Project

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1 General description

For my 2ndYear project, I'd like to present a literature review of the study of Individual differences in Inhibition Control. If you feel I have missed critical references, please let me know.

2 Justification

Overall, the reading list here presented can be categorized in the following six big areas, described below:

2.1 The reliability paradox

This section constitutes a prelude to the discussion about individual differences. It contains a robust group of papers that explore the contrast between reliability at the level of overall performance vs individual differences, the differences between aggregate and individual-level effects: Enkavi et al. (2019), Draheim, Mashburn, Martin, & Engle (2019), Hedge, Powell, & Sumner (2018), Paap & Sawi (2016); Logie, Sala, Laiacona, Chalmers, & Wynn (1996).

2.2 Overview of the study of individual differences in Psyschology

This set of papers were selected to present a general idea of what differential Psychology is (Rouder & Haaf (2019), Revelle, Wilt, & Condon (2011), Lee & Webb (2005)), its developments (Baayen, Tweedie, & Schreuder (2002), Semmes, Davison, & Close (2011), Schweizer, Moosbrugger, Schermelleh-engel, & M (2003)) and a few examples of different areas where it has been applied (Cretenoud, Grzeczkowski, Kunchulia, & Herzog (2021), Ito et al. (2015)) and the difficulties associated with the use of response times as dependent measures (Draheim, Hicks, & Engle (2016), Draheim et al. (2019)).

2.3 Inhibition control

As a prelude to the the study of individual differences in inhibition control, we include these set of papers that contain valuable information about the nature of Inhibition control (Logan & Cowan (1984), Salthouse (1996)) and the role it plays as an Executive Function (Miyake et al. (2000),

Tsukahara, Harrison, Draheim, Martin, & Engle (2020)) and relevant descriptions of the tasks designed to measure it (Stroop (1935), MacLeod (1991), Uttl & Graf (1997), Unsworth, Schrock, & Engle (2004), Meier, Smeekens, Silvia, Kwapil, & Kane (2018), Flowers & Wilcox (1982)).

2.4 Individual differences in Inhibition control

Following immediately from the previous section, we have a set of papers that specifically deal with the study of individual differences in inhibition control, either at the level of single tasks (Unsworth et al. (2004), Meier et al. (2018)), their relationship with other processes such as working memory (Kane, Bleckley, Conway, & Engle (2001)) or, of particular interest to us, the relationships between the scores obtained across different tasks designed to measure inhibition control (Whitehead, Brewer, & Blais (2019), Ridderinkhof, Scheres, Oosterlaan, & Sergeant (2005), Xiao et al. (2022)), often done with the interest of exploring the dimensionality of inhibition control (Friedman & Miyake (2004), Rey-Mermet, Gade, & Oberauer (2018)).

2.5 General: Methods

This set of papers include relevant information for the data analysis derived from this project, particularly in terms of Bayes Factors (Morey, Rouder, Pratte, & Speckman (2011), Rouder, Haaf, & Vandekerckhove (2018)), latent variable analyses such as CFA or PCA (Bollen (1989), Tipping & Bishop (1999), Oh & Kim (2010), Merkle & Wang (2018)) and few other (Spearman (1904))

2.6 Future directions: General speed

Last but not least, we have the most recent section added to the reading list. Given the difficulties associated when difference scores are used to study individual differences in inhibition control -which we assume to be due to the small variability in these data, Rouder, Kumar, & Haaf (2019)-, we have decided to take one step back and study general speed instead. The reading list for this specific list is quite short as of today, but we expect it to keep growing as we make progress: Salthouse (1996), Frischkorn, Schubert, & Hagemann (2019), Schubert & Frischkorn (2020), Cretenoud et al. (2021).

References

Abdi, H., & Williams, L. J. (2010). Principal component analysis: Principal component analysis. *WIREs Comp Stat*, *2*(4), 433–459. doi:10.1002/wics.101

Baayen, R. H., Tweedie, F. J., & Schreuder, R. (2002). The Subjects as a Simple Random Effect Fallacy: Subject Variability and Morphological Family Effects in the Mental Lexicon. *Brain and Language*, *81*(1-3), 55–65. doi:10.1006/brln.2001.2506

Basanovic, J., Myles, O., & MacLeod, C. (2020, October). Do the eyes have it? A comparison of eye-movement and attentional-probe based approaches to indexing attentional control within the anti-saccade paradigm. PsyArXiv. doi:10.31234/osf.io/ursbj

Bollen, K. A. (1989). *Structural Equations with Latent Variables*. John Wiley & Sons.

Cretenoud, A. F., Grzeczkowski, L., Kunchulia, M., & Herzog, M. H. (2021). Individual differences in the perception of visual illusions are stable across eyes, time, and measurement methods. *Journal of Vision*, *21*(5), 26. doi:10.1167/jov.21.5.26

Draheim, C., Harrison, T. L., Embretson, S. E., & Engle, R. W. (2018). What item response theory can tell us about the complex span tasks. *Psychological Assessment*, *30*(1), 116–129. doi:10.1037/pas0000444

Draheim, C., Hicks, K. L., & Engle, R. W. (2016). Combining Reaction Time and Accuracy: The Relationship Between Working Memory Capacity and Task Switching as a Case Example. *Perspect Psychol Sci*, *11*(1), 133–155. doi:10.1177/1745691615596990

Draheim, C., Mashburn, C. A., Martin, J. D., & Engle, R. W. (2019). Reaction time in differential and developmental research: A review and commentary on the problems and alternatives. *Psychological Bulletin*, *145*(5), 508–535. doi:10.1037/bul0000192

Enkavi, A. Z., Eisenberg, I. W., Bissett, P. G., Mazza, G. L., MacKinnon, D. P., Marsch, L. A., & Poldrack, R. A. (2019). Large-scale analysis of test–retest reliabilities of self-regulation measures. *PNAS*, *116*(12), 5472–5477. doi:10.1073/pnas.1818430116

Fischer, B., & Weber, H. (1997). Effects of stimulus conditions on the performance of antisaccades in man: *Exp Brain Res*, *116*(2), 191–200. doi:10.1007/PL00005749

Flowers, J. H., & Wilcox, N. (1982). The effect of flanking context on visual classification: The joint contribution of interactions at different processing levels. *Perception & Psychophysics*, *32*(6), 581–591. doi:10.3758/BF03204214

Friedman, N. P., & Miyake, A. (2004). The Relations Among Inhibition and Interference Control Functions: A Latent-Variable Analysis. *Journal of Experimental Psychology: General*, *133*(1), 101–135. doi:10.1037/0096-3445.133.1.101

Frischkorn, G. T., Schubert, A.-L., & Hagemann, D. (2019). Processing speed, working memory, and executive functions: Independent or inter-related predictors of general intelligence. *Intelligence*, *75*, 95–110. doi:10.1016/j.intell.2019.05.003

Hedge, C., Powell, G., & Sumner, P. (2018). The reliability paradox: Why robust cognitive tasks do not produce reliable individual differences. *Behav Res*, *50*(3), 1166–1186. doi:10.3758/s13428-017-0935-1

Ito, T. A., Friedman, N. P., Bartholow, B. D., Correll, J., Loersch, C., Altamirano, L. J., & Miyake, A. (2015). Toward a comprehensive understanding of executive cognitive function in implicit racial bias. *Journal of Personality and Social Psychology*, *108*(2), 187–218. doi:10.1037/a0038557

Kane, M. J., Bleckley, M. K., Conway, A. R. A., & Engle, R. W. (2001). A controlled-attention view of working-memory capacity. *Journal of Experimental Psychology: General*, *130*(2), 169–183. doi:10.1037/0096-3445.130.2.169

Lee, M. D., & Webb, M. R. (2005). Modeling individual differences in cognition. *Psychonomic Bulletin & Review*, *12*(4), 605–621. doi:10.3758/BF03196751

Logan, G. D., & Cowan, W. B. (1984). On the ability to inhibit thought and action: A theory of an act of control. *Psychological Review*, *91*(3), 295–327. doi:10.1037/0033-295X.91.3.295

Logie, R. H., Sala, S. D., Laiacona, M., Chalmers, P., & Wynn, V. (1996). Group aggregates and individual reliability: The case of verbal short-term memory. *Memory & Cognition*, *24*(3), 305–321. doi:10.3758/BF03213295

MacLeod, C. M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin*, *109*(2), 163–203. doi:10.1037/0033-2909.109.2.163

Meier, M. E., Smeekens, B. A., Silvia, P. J., Kwapil, T. R., & Kane, M. J. (2018). Working memory capacity and the antisaccade task: A microanalytic–macroanalytic investigation of individual differences in goal activation and maintenance. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *44*(1), 68–84. doi:10.1037/xlm0000431

Merkle, E. C., & Wang, T. (2018). Bayesian latent variable models for the analysis of experimental psychology data. *Psychon Bull Rev*, *25*(1), 256–270. doi:10.3758/s13423-016-1016-7

Miyake, A., & Friedman, N. P. (2012). The Nature and Organization of Individual Differences in Executive Functions: Four General Conclusions. *Curr Dir Psychol Sci*, *21*(1), 8–14. doi:10.1177/0963721411429458

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The Unity and Diversity of Executive Functions and Their Contributions to Complex "Frontal Lobe" Tasks: A Latent Variable Analysis. *Cognitive Psychology*, *41*(1), 49–100. doi:10.1006/cogp.1999.0734

Morey, R. D., Rouder, J. N., Pratte, M. S., & Speckman, P. L. (2011). Using MCMC chain outputs to efficiently estimate Bayes factors. *Journal of Mathematical Psychology*, *55*(5), 368–378. doi:10.1016/j.jmp.2011.06.004

Oh, H. S., & Kim, D.-G. (2010). Bayesian principal component analysis with mixture priors. *Journal of the Korean Statistical Society*, *39*(3), 387–396. doi:10.1016/j.jkss.2010.04.001

Oravecz, Z., Muth, C., & Vandekerckhove, J. (2016). Do People Agree on What Makes One Feel Loved? A Cognitive Psychometric Approach to the Consensus on Felt Love. *PLOS ONE*, *11*(4), e0152803. doi:10.1371/journal.pone.0152803

Paap, K. R., & Sawi, O. (2016). The role of test-retest reliability in measuring individual and group differences in executive functioning. *Journal of Neuroscience Methods*, *274*, 81–93. doi:10.1016/j.jneumeth.2016.10.002

Pratte, M. S., Rouder, J. N., Morey, R. D., & Feng, C. (2010). Exploring the differences in distributional properties between Stroop and Simon effects using delta plots. *Attention, Perception, & Psychophysics*, *72*(7), 2013–2025. doi:10.3758/APP.72.7.2013

Revelle, W., Wilt, J., & Condon, D. M. (2011). Individual differences and differential psychology: A brief history and prospect. In *The Wiley-Blackwell handbook of individual differences* (pp. 3–38). Hoboken, NJ, US: Wiley Blackwell. doi:10.1002/9781444343120

Rey-Mermet, A., Gade, M., & Oberauer, K. (2018). Should we stop thinking about inhibition? Searching for individual and age differences in inhibition ability. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *44*(4), 501–526. doi:10.1037/xlm0000450

Ridderinkhof, K. R., Scheres, A., Oosterlaan, J., & Sergeant, J. A. (2005). Delta Plots in the Study of Individual Differences: New Tools Reveal Response Inhibition Deficits in AD/HD That Are Eliminated by Methylphenidate Treatment. *Journal of Abnormal Psychology*, *114*(2), 197–215. doi:http://dx.doi.org/10.1037/0021-843X.114.2.197

RINDSKOPF, D. (1984). Structural Equation Models: Empirical Identification, Heywood Cases, and Related Problems. *Sociological Methods & Research*, *13*(1), 109–119. doi:10.1177/0049124184013001004

Roberts, R. J., Hager, L. D., & Heron, C. (1994). Prefrontal cognitive processes: Working memory and inhibition in the antisaccade task. *Journal of Experimental Psychology: General*, *123*(4), 374–393. doi:10.1037/0096-3445.123.4.374

Rouder, J. N., & Haaf, J. M. (2019). A psychometrics of individual differences in experimental tasks. *Psychon Bull Rev*, *26*(2), 452–467. doi:10.3758/s13423-018-1558-y

Rouder, J. N., Haaf, J. M., & Vandekerckhove, J. (2018). Bayesian inference for psychology, part IV: Parameter estimation and Bayes factors. *Psychon Bull Rev*, *25*(1), 102–113. doi:10.3758/s13423-017-1420-7

Rouder, J., Kumar, A., & Haaf, J. M. (2019, March). Why Most Studies of Individual Differences With Inhibition Tasks Are Bound To Fail. PsyArXiv. doi:10.31234/osf.io/3cjr5

Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychol Rev*, *103*(3), 403–428. doi:10.1037/0033-295x.103.3.403

Schmiedek, F., Oberauer, K., Wilhelm, O., Süß, H.-M., & Wittmann, W. W. (2007). Individual differences in components of reaction time distributions and their relations to working memory and

intelligence. *Journal of Experimental Psychology: General*, *136*(3), 414–429. doi:10.1037/0096-3445.136.3.414

Schubert, A.-L., & Frischkorn, G. T. (2020). Neurocognitive Psychometrics of Intelligence: How Measurement Advancements Unveiled the Role of Mental Speed in Intelligence Differences. *Curr Dir Psychol Sci*, *29*(2), 140–146. doi:10.1177/0963721419896365

Schubert, A.-L., Nunez, M. D., Hagemann, D., & Vandekerckhove, J. (2019). Individual Differences in Cortical Processing Speed Predict Cognitive Abilities: A Model-Based Cognitive Neuroscience Account. *Comput Brain Behav*, *2*(2), 64–84. doi:10.1007/s42113-018-0021-5

Schweizer, K., Moosbrugger, H., Schermelleh-engel, K., & M, F. A. (2003). Models for Hierarchical Structures in Differential Psychology.

Semmes, R., Davison, M. L., & Close, C. (2011). Modeling Individual Differences in Numerical Reasoning Speed as a Random Effect of Response Time Limits. *Applied Psychological Measurement*, *35*(6), 433–446. doi:10.1177/0146621611407305

Spearman, C. (1904). *The Proof and Measurement of Association Between Two Things* (p. 58). East Norwalk, CT, US: Appleton-Century-Crofts. doi:10.1037/11491-005

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, *18*(6), 643–662. doi:10.1037/h0054651

Tipping, M. E., & Bishop, C. M. (1999). Probabilistic Principal Component Analysis. *Journal of the Royal Statistical Society. Series B (Statistical Methodology)*, *61*(3), 611–622.

Tsukahara, J. S., Harrison, T. L., Draheim, C., Martin, J. D., & Engle, R. W. (2020). Attention control: The missing link between sensory discrimination and intelligence. *Atten Percept Psychophys*, *82*(7), 3445–3478. doi:10.3758/s13414-020-02044-9

Unsworth, N., Robison, M. K., & Miller, A. L. (2021). On the relation between working memory capacity and the antisaccade task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*. doi:10.1037/xlm0001060

Unsworth, N., Schrock, J. C., & Engle, R. W. (2004). Working Memory Capacity and the Antisaccade Task: Individual Differences in Voluntary Saccade Control. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *30*(6), 1302–1321. doi:10.1037/0278-7393.30.6.1302

Uttl, B., & Graf, P. (1997). Color-Word Stroop test performance across the adult life span. *Journal of Clinical and Experimental Neuropsychology*, *19*(3), 405–420. doi:10.1080/01688639708403869

Vandekerckhove, J. (2014). A cognitive latent variable model for the simultaneous analysis of behavioral and personality data. *Journal of Mathematical Psychology*, *60*, 58–71. doi:10.1016/j.jmp.2014.06.004

von Bastian, C. C., Souza, A. S., & Gade, M. (2015). No evidence for bilingual cognitive advantages: A test of four hypotheses. *Journal of Experimental Psychology: General*, *145*(2), 246–258. doi:10.1037/xge0000120

Whitehead, P. S., Brewer, G. A., & Blais, C. (2019). Are cognitive control processes reliable? *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *45*(5), 765–778. doi:10.1037/xlm0000632

Xiao, Y., Chou, C.-C., Cosgrove, G. R., Crone, N. E., Stone, S., Madsen, J. R., ... Kreiman, G. (2022, January). Task-specific neural processes underlying conflict resolution during cognitive control. bioRxiv. doi:10.1101/2022.01.16.476535