

Vencislav Popov

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5000 Forbes Ave, Baker Hall, Rm 345G, Pittsburgh, PA

Education

- 2015 - 2020 Ph.D., Psychology, Carnegie Mellon University
Adviser: Lynne M. Reder | Committee: John Anderson, Marlene Behrmann, Marc Coutanche
- 2015 B.A., Psychology, New Bulgarian University

Scholarships and Awards

- 2017 **Cognitive Science Society Travel Award** (for an outstanding student paper)
Robert J. Glushko and Pamela Samuelson Foundation
- 2015 - 2016 **Presidential Fellowship in the Life Sciences**
Richard King Mellon Foundation
- 2012 - 2015 **Full academic scholarship**
Sofia University 'St. Kliment Ohridsky' (2012-2014) & New Bulgarian University (2014-2015)
- 2013 - 2015 **Fifteen research excellency awards**
European Social Fund, European Union & The Ministry of Education and Science of Bulgaria
- 2012 - 2015 **Academic excellence scholarships**
European Social Fund, European Union & The Ministry of Education and Science of Bulgaria

Publications

(* = co-first author; † = corresponding author)

Journal publications

- 2018 **Popov, V.[†]**, Ostarek, M. & Tenison, C. (2018). Practices and Pitfalls in Inferring Neural Representations. *NeuroImage*. 174(1), 340-351

Shen, Z.*, **Popov, V.* (co-first authors)**, Delahay, A., & Reder, L. (2018). Item Strength Affects Working Memory Capacity. *Memory & Cognition*. 46(2), 204-215.
- 2017 **Popov, V.[†]**, Hristova, P., & Anders, R. (2017). The Relational Luring Effect: Retrieval of relational information during associative recognition. *Journal of Experimental Psychology: General*. 146(5), 722-745

Manelis, A.*[†], **Popov, V.*[†] (co-first authors)**, Paynter, C., Walsh, M., Wheeler, M., Vogt, K., & Reder, L.[†] (2017). Cortical Networks Involved in Memory for Temporal Order. *Journal of Cognitive Neuroscience*. 29(7), 1253-1266.
- 2016 Reder, L. M., Liu, X. L., Keinath, A., **Popov, V.** (2016). Building knowledge requires bricks, not sand: The critical role of familiar constituents in learning. *Psychonomic Bulletin & Review*. 23(1), 271-277.
- 2015 **Popov, V.[†]** & Hristova, P. (2015). Unintentional and efficient relational priming. *Memory & Cognition*, 46(6), 866-878.

Manuscripts in progress(preprints available on <http://venpopov.com/publications/>)

Popov, V.*, Marevic, I.*, Rummel, J., & Reder, L. (revise and resubmit). Forgetting is a Feature, not a Bug: Intentionally Forgetting Some Things Helps Us Remember Others by Freeing up Working Memory Resources. *Psychological Science*

Zhang, Q.*, **Popov, V.* (co-first authors)**, Koch, G., Halloway, R. & Coutanche, M. (under review). Fast Memory Integration Facilitated by Schema Consistency. *Psychonomic Bulletin & Review*

Popov, V. & Reder, M. (under review). On the interplay between item strength, working memory and knowledge formation: A resource-limited theory of memory. *Psychological Review*

Popov, V., Pavlova, M., & Hristova, P. (in preparation). Semantic Relations Vary in the Strength, Typicality and Accessibility of their Representations in Long-Term Memory.

Refereed full conference papers

- 2018 **Popov, V.**, Pavlova, M., & Hristova, P. (Forthcoming). Role vs Relational Similarity in Analogical Processing. In C. Kalish, M. Rau, J. Zhu, T. Rogers (Eds.), *Proceedings of the 40th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Zhang, Q.*, **Popov, V.* (co-first authors)**, Koch, G., Halloway, R. & Coutanche, M. (Forthcoming). Fast Memory Integration Facilitated by Schema Consistency. In C. Kalish, M. Rau, J. Zhu, T. Rogers (Eds.), *Proceedings of the 40th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

- 2017 **Popov V.**, Ostarek, M., & Tenison, C. (2017). Inferential Pitfalls in Decoding Neural representations. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 961-966). Austin, TX: Cognitive Science Society.

Popov V., & Reder, L. (2017). Repetition improves memory by strengthening existing traces: Evidence from paired-associate learning under midazolam. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 2913-2918). Austin, TX: Cognitive Science Society.

Popov V., & Reder, L. (2017). Target-to-distractor similarity can help visual search performance. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 968-973). Austin, TX: Cognitive Science Society.

- 2014 **Popov, V.** & Hristova, P. (2014). Automatic analogical reasoning underlies structural priming in comprehension of ambiguous sentences. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 1192-1197). Austin, TX: Cognitive Science Society.

Popov, V. & Petkov, G. (2014). The level of processing affects the magnitude of induced retrograde amnesia. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 2787-2792). Austin, TX: Cognitive Science Society.

Journal publications (in Bulgarian)

- 2016 **Popov, V.**, Nedelchev, D., Peneva, E., Psederska, E., Georgieva, V., Vasilev, G., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Buss-Warren Aggression Questionnaire (BWAQ). *Clinical and Consulting Psychology*, 4(30), 37-53.

Nedelchev, D., **Popov, V.**, Psedarska, E., Bozgunov, K., Vasliev, G., Peneva, E., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Wender Utah Rating Scale (WURS-25) for ADHD. *Clinical and Consulting Psychology, 8*(2), 3-17 (in Bulgarian)

Popov, V., Psedarska, E., Peneva, E., Bozgunov, K., Vasilev, G., Nedelchev, D., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Toronto Alexithymia Scale (TAS-20). *Psychological Research, 19*(2), 25-42. (in Bulgarian)

2015 **Popov, V.**, Bozgunov, K., Vasilev, G., & Vassileva, J. (2015). Psychometric Characteristics of the Bulgarian Version of Levenson's Self-report Psychopathy Scale. *Bulgarian Journal of Psychology, 1-4*, 253-278. (in Bulgarian)

Abstracts

2017 **Popov, V.** & Reder, L. (2017). Greater discrimination difficulty during visual search training leads to stronger and more distinct representations. *Abstracts of the 58th Annual Meeting of the psychonomic Society*. Vancouver, BC, Canada

Reder, L. & **Popov, V.** (2017). Manipulation of Stimulus Familiarity: Effects on Working Memory Resources, Performance in Complex Cognitive Tasks, and Knowledge Formation. *Abstracts of the 58th Annual Meeting of the psychonomic Society*. Vancouver, BC, Canada

Popov, V., Pavlova, M., & Hristova, P. (2017). Semantic Relations Vary in the Strength, Typicality and Accessibility of their Representations in Long-Term Memory. *Proceedings of the 4th Analogy Conference*. Paris, France

Popov V., & Hristova, P. (Forthcoming). The Relational Luring Effect: False Recognition via Relational Similarity. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp.). Austin, TX: Cognitive Science Society.

Nedelchev, D., **Popov, V.**, Psedarska, E., Bozgunov, K., Vasilev, G., Peneva, E., & Vassileva, J. (2016). Psychometric characteristics of the Bulgarian version of the Wender Utah Rating Scale for ADHD. *2nd National Congress of Clinical Psychology*. Sofia, Bulgaria.

Bozgunov, K., **Popov, V.**, Psedarska, E., Vasilev, G., Nedelchev, D., & Vassileva, J. (2017). Psychometric characteristics of the Bulgarian version of the Toronto Alexithymia Scale (TAS-20). *7th International Congress of Psychologists of Slovenia - Applied Neuropsychology: Between Small and Big Networks*. Kranjska Gora, Slovenia.

2016 **Popov, V.** & Reder, L. (2016). Semantic-episodic interactions during memory retrieval. In *Abstracts of the 57th Annual Meeting of the Psychonomic Society*. Boston, Massachusetts

Shen, Z., Reder, L., **Popov, V.**, & Delahay, A. (2016). Symbol Familiarity Interacts With Working Memory Demands During Mathematical Problem-Solving. In *Abstracts of the 57th Annual Meeting of the Psychonomic Society*. Boston, Massachusetts

Vogt, K., Ibinson, J., Tremel, J., **Popov, V.**, Reder, L., & Fiez, J. (2016). Variability in the Effect of Experimental Pain on Longterm Memory During Sedation with Dexmedetomidine & Midazolam. In *Abstracts of the Anesthesiology 2016 Annual Meeting*. Chicago, IL

Reder, L. M., Liu, X. L., Keinath, A. & **Popov, V.** (2015). Knowledge construction requires bricks, not sand: The critical role of familiar constituents in learning. *International Meeting of the Psychonomic Society*. Granada, Spain

- 2015 **Popov, V.**, Hristova, P. & Anders, R. (2015). Retrieval of relational information during associative recognition. In *Abstracts of the 56th Annual Meeting of the Psychonomic Society*. Chicago, IL
- Reder, L. M., Liu, X. L., Keinath, A. & **Popov, V.** (2015). Building knowledge requires bricks, not sand: The critical role of familiar constituents in learning. In *Abstracts of the 56th Annual Meeting of the Psychonomic Society*. Chicago, IL
- Popov, V.** (2015). A spreading-activation model of associates retrieval in a discrete free association task. In N. Taatgen, M. van Vugt, J. Borst, & K. Mehlhorn (Eds.), *Proceedings of the 13th International Conference on Cognitive Modeling*. Groenigen: Rijksuniversiteit Groenigen
- 2014 **Popov, V.** & Hristova, P. (2014). Unconscious, unintended and efficient analogies in lexical decision under dual-task conditions. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
- Popov, V.** & Hristova, P. (2014). Priming thematic structure during sentence comprehension in the absence of syntactic repetition. In *Abstracts of the VI. Dubrovnik Conference on Cognitive Science*. Dubrovnik, Croatia.
- Popov, V.** (2014). Malleability of the basic level effect in categorical induction for biological categories. In *Abstracts of the VI. Dubrovnik Conference on Cognitive Science*. Dubrovnik, Croatia.
- 2013 **Popov, V.** (2013). Fixation on Failure: Failing to Solve a Problem Hinders Subsequent Problem-Solving Ability. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (p. 4080). Austin, TX: CSS.

Presentations

Invited talks

- 2016 Workshop on Memory and Skill, Duke University, Durham, North Carolina, April 2016.
Not knowing what we know: A call for a theory-neutral database for empirical results in psychology.

Departmental talks

- 2017 CNBC Brain Bag series, Center for the Neural Basis of Cognition, Pittsburgh, Nov 2017.
Inferential Pitfalls in Decoding Neural Representations.
- Pecerpption, Action and Learning (PAL) series, Carnegie Mellon University, Pittsburgh, Feb 2017.
The Mortar of Cognition: Semantic relations play a crucial role in memory, language comprehension and analogical reasoning..

Conference talks

- 2017 Inferential Pitfalls in Decoding Neural Representations. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.
- The Relational Luring Effect: False Recognition via Relational Similarity. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.
- Target-to-distractor similarity can help visual search performance. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.

The Relational Luring Effect: Retrieval of relational information during associative recognition. *Oral presentation at the 16th Annual Summer Interdisciplinary Conference (ASIC 2017)*. Interlaken, Switzerland.

- 2015 Unintentional relational priming. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Kazanlak, Bulgaria

- 2014 Priming of relations: Unintended, unconscious and efficient. *Oral presentation during the European Campus of Excellence Summer School in Memory and Mind: Perspectives from Philosophy and Neuroscience*. Germany, Bochum: Ruhr University Bochum

Automatic analogical reasoning underlies structural priming in comprehension of ambiguous sentences. *Oral presentation at the 36th Annual Conference of the Cognitive Science Society*. Quebec City, Canada.

Retrograde amnesia as a function of the level of processing. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Belmeken, Bulgaria: NBU

Automatic analogies in language comprehension. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Belmeken, Bulgaria: NBU

- 2013 Demonstrating automatic analogies in structural ambiguity comprehension. *Oral presentation at a participant symposium during the 20th International Summer School in Cognitive Science*. Sofia, Bulgaria: New Bulgarian University

Experiencing failure increases problem-solving time in current performance. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Ribaritz, Bulgaria: NBU

Conference posters

- 2017 Greater discrimination difficulty during visual search training leads to stronger and more distinct representations. *Poster presented at the 58th Annual Meeting of the Cognitive Science Society*. Vancouver, BC, Canada

Repetition improves memory by strengthening existing traces: Evidence from paired-associate learning under midazolam. *Poster presented at the 39th Annual Conference of the Cognitive Science Society*. London, UK.

- 2016 Semantic-Episodic Interactions During Memory Retrieval. *Poster presented at Psychonomic Society's 57th Annual Meeting*. Boston, Massachusetts

- 2015 Retrieval of relational information during associative recognition. *Poster presented at Psychonomic Society's 56th Annual Meeting*. Chicago, Illinois

Retrieval of relational information during associative recognition. *Poster presented at the Center for the Neural Basis of Cognition Annual Retreat*. Pittsburgh, PA.

A spreading-activation model of associates retrieval in a discrete free association task. *Poster presented at the 13th International Conference on Cognitive Modeling*. Groenigen, Germany

- 2014 The level of processing affects the magnitude of induced retrograde amnesia. *Poster presented at the 36th Annual Conference of the Cognitive Science Society*. Quebec City, Canada.

Unconscious, unintended and efficient analogies in lexical decision under dual-task conditions. *Poster presented at the 36th Annual Conference of the Cognitive Science Society*. Quebec City, Canada.

Malleability of the basic level effect in categorical induction for biological categories. *Poster presented at the VI. Dubrovnik Conference on Cognitive Science.* Dubrovnik, Croatia.

Priming thematic structure during sentence comprehension in the absence of syntactic repetition. *Poster presented at the VI. Dubrovnik Conference on Cognitive Science.* Dubrovnik, Croatia.

- 2013 Fixation on Failure: Failing to Solve a Problem Hinders Subsequent Problem-Solving Ability. *Poster presented at the 35th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.

Professional activities

Memberships

Cognitive Neuroscience Society, student member
 Psychonomic Society, student member
 Cognitive Science Society (CSS), student member

Ad hoc Reviewer

NeuroImage; Psychological Review; Psychonomic Bulletin & Review, Quarterly Journal of Experimental Psychology; Attention, Perception & Psychophysics; Developmental Psychology; Cognition; Cognitive Processing; Cognitive Science Society Conference

Departmental and professional service

- 2017 Graduent student host for invited speaker, Department of Psychology Colloquium series
 Carnegie Mellon University
 2016 - 2017 Graduent student representative, Faculty meetings, Carnegie Mellon University

Research and work experience

- 06.2015 - current Ph.D. student, Memory Lab, Carnegie Mellon University
 Director: Lynne M. Reder, Ph.D.
 01.2015 - 08.2015 Data Analyst, Bulgarian Addictions Institute
 Directors: Jasmin Vassileva, Ph.D., & Georgi Vasilev, M.D.
 03.2013 - 12.2014 Researcher, Experimental Psychology Lab, NBU
 Director: Assist. Prof. Penka Hristova
 09.2013 - 09.2014 Lab coordinator, Experimental psychology laboratory, NBU
 Director: Assist. Prof. Penka Hristova

Teaching experience

Teaching assistant

- 2018 Introduction to Psychology (Instructor: Danniell Oppenheimer)
- 2018 Data Science for Psychology & Neuroscience (Instructor: Timothy Verstynen)
- *I thought a parallel weekly tutorial series* (Materials available @ <https://git.io/vpx4L>)
- 2017 Introduction to Parallel Distributed Processing (Instructor: David Plaut)

Guest lectures

- 2018 Approaches to studying memory (Memory. Instructor: Lynne Reder)
- 2018 Introduction to classifiers (Data Science for Psychology & Neuroscience. Instructor: Timothy Verstynen)
- 2015 Working Memory (Memory. Instructor: Penka Hristova)
- 2014 Working Memory (Memory and meaning. Instructor: Encho Gerganov)

Additional education and professional training

European Campus of Excellence Summer School, Memory and Mind: Perspectives from Philosophy and Neuroscience. Germany, Bochum: Ruhr University Bochum, 7-21 September (2014)

20th International Summer School in Cognitive Science. Sofia, Bulgaria: NBU (2013)

19th International Summer School in Cognitive Science. Sofia, Bulgaria: NBU (2012)

Research interests

Neural mechanisms of memory formation, consolidation and retrieval. Representation of semantic knowledge in the brain. Computational modeling of neural and psychological mechanisms. Other topics: brain-computer interfaces, relational reasoning, concepts and categorization, problem-solving, cognitive modeling, connectionism, philosophy of science

Other information

Technical competencies

Data analysis, modeling and visualization with R (lme4, ggplot, R2jags, rube, RMarkdown, etc)

Matlab (SPM12), Python (nipype), Freesurfer

SPSS, LaTeX, Advanced MS OFFICE skills

E-prime 2.0, OpenSesame, Python

Basic knowledge in PHP, HTML, MYSQL, Photoshop