

Lilly Roth

Contact Information

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Open Science Framework <https://osf.io/y2xt7/>

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Academic Education and Career

2024 Six-month lab visit in Cognitive Development Lab (supervised by Prof. Dr. Susan C. Levine), University of Chicago, USA

2021 – 2026 Ph.D. in Psychology, University of Tübingen, Germany (supervised by Prof. Dr. Hans-Christoph Nuerk, Prof. Dr. Ulf-Dietrich Reips, and Assoc. Prof. Dr. Krzysztof Cipora)

10/2025: Submission of doctoral thesis entitled “Resolving Controversies About Spatial-Numerical Associations” (reviewed by Prof. Dr. Hans-Christoph Nuerk, Prof. Dr. Ulf-Dietrich Reips, and Assoc. Prof. Dr. Michele Vicovaro)

02/2026: Oral Ph.D. defense (examined by Prof. Dr. Hans-Christoph Nuerk, Prof. Dr. Ulf-Dietrich Reips, Prof. Dr. Martin V. Butz, and Prof. Dr. Volker H. Franz)

04/2026: Publication of doctoral thesis (available at <http://dx.doi.org/10.15496/publikation-119623>) and award of a Ph.D. degree – highest distinction, ‘summa cum laude’

2020 – 2021 M.Sc. in Psychology, University of Tübingen, Germany – grade 1.14

2016 – 2020 B.Sc. in Psychology, University of Tübingen, Germany – grade 1.56

2012 – 2013 School year “Seconde” abroad, Lycée de la Méditerranée in La Ciotat, France

2007 – 2015 High-school degree “Abitur“, Hebel-Gymnasium in Schwetzingen, Germany

Professional Experience and Volunteering

2021 – 2025	Volunteering: Dance instructor for children and adolescents at the Spiel- und Sportclub (SSC) Tübingen, Germany
2019 – 2020	Internship: Psychiatry “Hospital Nacional en Red Especializado en Salud Mental y Adicciones”, Buenos Aires, Argentina
2017 – 2018	Part-time job: Student research assistant at the Leibniz-Institut für Wissensmedien, Tübingen, Germany
2016	Volunteering: Support in school for disabled students in Santiago, Chile
2016	Volunteering: Homework support in German and maths for refugee children, Schwetzingen, Germany
2015 – 2016	Volunteering: Activities in orphanage and English classes in middle school, Antananarivo, Madagascar
2015	Full-time job: Logistics Center of Decathlon in Schwetzingen, Germany

Computer and Language Skills

Computer	Statistical computing language R (advanced) Microsoft Office (advanced) Document formatting software LaTeX (basic) Computing language Python (basic)
Languages	German (fluent) English (fluent) French (fluent) Argentinian Spanish (advanced) Standard Arabic (basic)

Peer-Reviewed Publications

2025	Bulut, M., Roth, L., Bahreini, N., Cipora, K., Reips, U.-D., & Nuerk, H.-C. (2025). One direction? Cultural aspects of the mental number line beyond reading direction. <i>Psychological Research</i> , 89, Article 37. https://doi.org/10.1007/s00426-024-02038-4
2025	Roth, L., Caffier, J., Reips, U.-D., Cipora, K., Braun, L., & Nuerk, H.-C. (2025). True colors SNARC: Semantic number processing is highly automatic. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 51(12), 1875–1908. https://doi.org/10.1037/xlm0001431
2025	Roth, L., Caffier, J., Reips, U.-D., Nuerk, H.-C., Overlander, A. T., & Cipora, K. (2025). One and only SNARC? Spatial-Numerical Associations are not fully flexible and depend on both relative and absolute number magnitude. <i>Royal Society Open Science</i> , 12(1), Article 241585. https://doi.org/10.1098/rsos.241585
2025	Roth, L., Huber, J., Kronenthaler, S., van Dijck, J.-P., Cipora, K., Butz, M. V., & Nuerk, H.-C. (2025). Looks like SNARC spirit: Coexistence of short-

and long-term associations between letters and space. *Quarterly Journal of Experimental Psychology*, 78(10), 2110–2132. <https://doi.org/10.1177/17470218251324437>

- 2025 Roth, L., Nuerk, H.-C., Cramer, F., & Daroczy, G. (2025). Can't help processing numbers with text: Eye-tracking evidence for simultaneous instead of sequential processing of text and numbers in arithmetic word problems. *Psychological Research*, 89, 50. <https://doi.org/10.1007/s00426-024-02069-x>
- 2024 Roth, L., Jordan, V., Schwarz, S., Willmes, K., Nuerk, H.-C., van Dijck, J.-P., & Cipora, K. (2024). Don't SNARC me now! Intraindividual variability of cognitive phenomena – Insights from the Ironman paradigm. *Cognition*, 248, Article 105781. <https://doi.org/10.1016/j.cognition.2024.105781>

Preprints / Submitted Manuscripts

- 2026 D'Atri, F., Hohol, M., Fantoni, C., Egidi, L., Roth, L., & Cipora, K. (2026). *Powering Up Cognitive Psychology: Comparing Statistical Methods for Detecting the SNARC Effect via Virtual Experiments*. Open Science Framework. https://doi.org/10.31234/osf.io/jnpgc_v1
- 2025 Roth, L., Cipora, K., Overlander, A. T., Nuerk, H.-C., & Reips, U.-D. (2025). *Shape of SNARC: How task-dependent are Spatial-Numerical Associations? A highly powered online experiment* [preprint of stage-2 Registered Report]. <https://osf.io/jyrf3/overview>

Preregistrations for Running Projects

- 2025 D'Atri, F., Egidi, L., Fantoni, C., Hohol, M., Roth, L., & Cipora, K. (2025, November 12). *Powering Up Cognitive Research: Comparing Different Methods for detecting and estimating the SNARC effect via “virtual experiments” simulations* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/3S8CU>
- 2025 Albu, E., Scheiderer, J., Roth, L., Nuerk, H.-C., & Cipora, K. (2025, January 21). *Investigating long- and short-term associations between months and space* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/EBM6F>
- 2025 Albu, E., Slawinski, P., Roth, L., Nuerk, H.-C., & Cipora, K. (2025, January 21). *How does a direct task influence the coexistence of short- and long-term associations between letters and space?* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/B2Z9M>
- 2025 Cipora, K., Hohol, M., Grabner, R. H., Meier, M., Roth, L., Sroka, M., & Obidziński, M. (2024, November 6). *Professional Mathematicians – Automaticity* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/WFYQD>
- 2025 Roth, L., Findik, Y., Dilek, H., Bulut, M., Cipora, K., & Nuerk, H. (2025, June 27). *Influence of cultural factors and context on the SNARC effect in*

German-Turkish bilinguals [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/VCKMQ>

- 2024 Roth, L., Carr, D., Bromley-Perry, A., & Levine, S. (2024, November 16). *Do spatial skills and working memory capacity influence the effect of self-referencing when solving math word problems?* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/8KMHJ>
- 2023 Albu, E., Roth, L., Cipora, K., & Nuerk, H.-C. (2023, October 20). *Examining SNARC-like effects for continuous magnitudes* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/3TCEU>
- 2023 Cipora, K., Roth, L., Rossi, S., Gilmore, C., & Inglis, M. (2023, October 17). *Time after time - the Ironman follow-up* [preregistration]. Open Science Framework. <https://doi.org/10.17605/OSF.IO/74MUE>

Teaching Experience (University of Tübingen, Germany)

- Winter 2025/26 Bachelor's seminar: *Kulturelle, sprachliche und Geschlechtseinflüsse auf basale numerische Kognition* (together with Prof. Dr. Hans-Christoph Nuerk)
- Summer 2025 Co-supervision of two Master's theses in the project: *Influence of cultural factors and context on the SNARC effect in German-Turkish bilinguals*
- Winter 2023/24 Co-supervision of Master's student research project: *Intra-individual stability of cognitive phenomena*
- Summer 2022 Master's seminar: *Internet-based research* (together with Prof. Dr. Hans-Christoph Nuerk and Prof. Dr. Ulf-Dietrich Reips)
- Co-supervision of Master's student research project: *Automaticity of the SNARC effect*
- Winter 2021/22 Co-supervision of Master's student research project: *Intra-individual stability of the SNARC effect*
- Co-supervision of Master's student research project: *Task dependency of the SNARC effect*
- 2018 – 2021 Statistics tutor for Bachelor's students

Talks and Conference Contributions

- June 2026 (planned & accepted) Roth, L., Sroka, M., Obidziński, M., Meier, M., Grabner, R. H., Ranzini, M., Guiotto Nai Fovino, L., Cipora, K., & Hohol, M. (2026, June 23-25). How automatic is number processing in professional mathematicians? The SNARC effect in a color judgment task [symposium talk]. MCLS 2026, Padua. <https://www.the-mcls.org/conferences/mcls-2026-padua>

June 2025	Roth, L., Huber, J. F., Kronenthaler, S., van Dijck, J.-P., Cipora, K., Butz, M. V., & Nuerk, H.-C. (2025, June 10). <i>Spatial mental representations of ordinality based on long-term memory and working memory</i> [symposium talk]. MCLS 2025, Hong Kong. https://www.the-mcls.org/mcls-2025-hong-kong
April 2025	Cipora, K., & Roth, L. (2025, April 9). <i>Shape of SNARC: How task-dependent are Spatial-Numerical Associations?</i> Putting Numbers on the Map. Perspectives on Spatial-Numerical Associations. University of Trieste, Italy.
June 2024	Roth, L., Overlander, A. T., Caffier, J., Reips, U.-D., Nuerk, H.-C., & Cipora, K. (2024, June 27). <i>One and Only SNARC? Spatial-Numerical Associations are partly flexible, relying on both absolute and relative magnitude</i> [symposium talk]. MCLS 2024, Washington DC, USA. https://www.the-mcls.org/conferences/mcls-2024-washington-dc
April 2024	Cipora, K., van Dijck, J.-P., & Roth, L., (2024, April 12). <i>Time after time: what can we learn about cognitive phenomena by looking into their temporal stability with the Ironman paradigm?</i> [workshop session]. Workshop "Relations between space, language, and numbers", Tübingen, Germany. https://uni-tuebingen.de/de/256925
June 2023	Roth, L., Caffier, J., Reips, U.-D., Cipora, K., & Nuerk, H.-C. (2023, June 8). <i>True colors SNARCing: Automaticity of the SNARC effect observed in color judgment tasks</i> [symposium talk]. MCLS 2023, Loughborough, UK. https://www.the-mcls.org/mcls-2023
October 2022	Roth, L., Knödler, V., Schwarz, S., Van Dijck, J.-P., Willmes, K., Nuerk, H.-C., & Cipora, K. (2022, October 19). <i>The Ironman SNARC: Intra-individual stability of (numerical) cognition phenomena</i> [invited talk]. Seminar of the Department of Mathematics Education, Loughborough University, UK. https://www.lboro.ac.uk/departments/maths-education/
June 2022	Roth, L., Knödler, V., Schwarz, S., Van Dijck, J.-P., Willmes, K., Nuerk, H.-C., & Cipora, K. (2022, June 1). <i>The Ironman SNARC: Intra-individual Stability of the SNARC Effect</i> [symposium talk]. MCLS 2022, Antwerp, Belgium. https://www.the-mcls.org/conferences/mcls-2022
	Roth, L., Caffier, J., Reips, U.-D., Nuerk, H.-C., & Cipora, K. (2022, June 1). <i>How Flexible are Spatial-Numerical Associations? A Registered Replication Report</i> [poster session]. MCLS 2022, Antwerp, Belgium. https://www.the-mcls.org/conferences/mcls-2022

Received Fundings and Scholarships

2026	Conference Travel Program by the DAAD (German Academic Exchange Service) for the MCLS conference in Padua, Italy
2025 – 2026	Start-Up Grant by the DFG Research Unit FOR2718 for a five-months-long post-doc position at University of Tübingen
2024	Fundings (4,966 euros) by the Excellence Strategy (Federal Ministry of Education and Research, and Ministry of Science, Research, and Arts of

Baden-Württemberg) for the interdisciplinary Workshop “Space, Language, and Numbers” at University of Tübingen

2019 – 2020 PROMOS (Program to increase the mobility of German university students) scholarship by the DAAD (German Academic Exchange Service) for a five-months-long internship in Buenos Aires, Argentina

Academic Involvement

2026 Main organizer of the “Tagung experimentell arbeitender Psychologen (TeaP)” conference at University of Tübingen (2026, March 15-18; approx. 730 participants). <https://coms.app/teap26/>

2024 Main organizer of the “Relations between space, language, and numbers” workshop at University of Tübingen (2024, April 10-12; approx. 80 participants). <https://uni-tuebingen.de/de/256925>

2022 – 2024 Elected “Diversity, Equity, and Inclusion chair” on the Trainee Board of the Mathematical Cognition and Learning Society. <https://mclstrainee.weebly.com/trainee-board.html>

2022 Co-organizer of the “Promoting transparency and replicability in research” workshop at University of Tübingen (2022, September 19-22; approx. 35 participants). <https://uni-tuebingen.de/de/234953>