



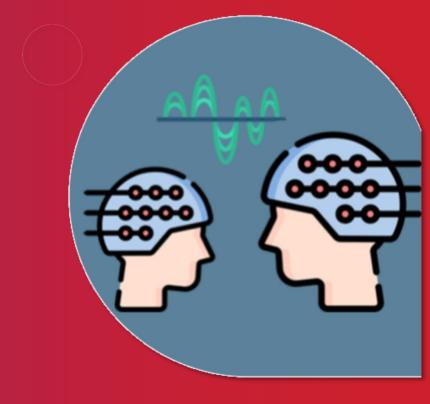
Relational Neuroscience:

Insights from Functional Near-Infrared Spectroscopy Hyperscanning on Child Development and the Parent-Child Relationship



Dr Pascal Vrticka

Associate Professor in Psychology p.vrticka@essex.ac.uk









SoNeAt Lab (University of Essex)



International Collaboration Partners

Lars White et al. (University of Bremen, Germany)

Stefanie Hoehl et al. (University of Vienna, Austria)

Trinh Nguyen (University of Heidelberg, Germany)

Tsachi Ein-Dor et al. (Reichman University, Israel)

Willem Verbeke (Emeritus, Erasmus University Rotterdam, The Netherlands)

Melanie Kungl et al. (University of Erlangen-Nuremberg (Germany)

Veronika Engert et al. (University of Jena, Germany)

Miquel Castelo-Branco et al. (CIBIT, University of Coimbra, Portugal)

Sara Liane Kroll et al. (University of Zurich, Switzerland)

Ana Celia Silva Barbato et al. (Universidad de la República, Uruguay)

Tina Malti et al. (University of Leipzig, Germany)

Rebecca Boehme et al. (Linköping University, Sweden)







Founders / Supporters









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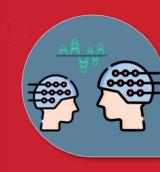


Swedish Research Council for Health, Working Life and Welfare

























What can we learn from such parentchild interactions about child development and the parent-child (and parent-parent) relationship?





How can we look beyond what is observable in parents' and children's behaviour and what they can / want to tell us about their interaction?





Neuroscience and Biobehavioral Reviews 169 (2025) 105979



Neuroscience and Biobehavioral Reviews

journal homepage: www.elsevier.com/locate/neubiorev







Relational neuroscience: Insights from hyperscanning research

Sara De Felice^a, Tara Chand^{b,c}, Ilona Croy^{c,d}, Veronika Engert^{d,e,f}, Pavel Goldstein⁸, Clay B. Holroyd h, Peter Kirsch i,j,k, Sören Krach l, Yina Ma m,n, Dirk Scheele o,p, Matthias Schurz^q, Stefan R. Schweinberger^{d,r}, Stefanie Hoehl^{s,*,1}, Pascal Vrticka^{t,1}

- ^a Department of Psychology, University of Cambridge, UK
- b Jindal Institute of Behavioural Sciences, O. P. Jindal Global University, Sonipat, Haryana, India
- ^c Department of Clinical Psychology, Friedrich-Schiller University Jena, Jena, Germany
- d German Center for Mental Health (DZPG), Site Jena-Magdeburg-Halle, Germany
- ^e Institute of Psychosocial Medicine, Psychotherapy and Psychooncology, Jena University Hospital, Jena, Germany
- f Center for Intervention and Research on adaptive and maladaptive brain Circuits underlying mental health (C-I-R-C), Jena-Magdeburg-Halle, Jena, Germany
- g Integrative Pain Laboratory, School of Public Health, University of Haifa, Haifa, Israel
- h Department of Experimental Psychology, Ghent University, Ghent, Belgium
- Department of Clinical Psychology, Central Institute of Mental Health, Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany
- Institute of Psychology, University of Heidelberg, Germany
- ^k German Center for Mental Health (DZPG), Site Mannheim-Heidelberg-Ulm, Germany
- Klinik für Psychiatrie und Psychotherapie, University of Lübeck, Lübeck, Germany
- m State Key Laboratory of Cognitive Neuroscience and Learning, IDG/McGovern Institute for Brain Research, Beijing Key Laboratory of Brain Imaging and Connectomics, Beijing Normal University, Beijing, China
- ⁿ Chinese Institute for Brain Research, Beijing, China
- O Department of Social Neuroscience, Faculty of Medicine, Ruhr University Bochum, Germany
- P Research Center One Health Ruhr of the University Alliance Ruhr, Ruhr University Bochum, Germany
- ^q Department of Psychology, Faculty of Psychology and Sport Science, and Digital Science Center (DiSC), University of Innsbruck, Innsbruck, Austria
- ^r Department of General Psychology, Friedrich Schiller University, Jena, Germany
- ^s Faculty of Psychology, University of Vienna, Vienna, Austria
- ^t Centre for Brain Science, Department of Psychology, University of Essex, Colchester, United Kingdom



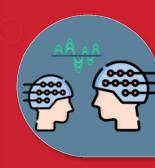












Relational Neuroscience



An interdisciplinary field that focuses on understanding how our brains and bodies function within the context of relationships.

Explores the dynamics of behavioural and neurophysiological patterns that underlie human connections, from immediate joint experiences to enduring social bonds.





From One Brain To Several Brains

PERSPECTIVES

Using second-person neuroscience to elucidate the mechanisms of social interaction

Elizabeth Redcay and Leonhard Schilbach

Abstract | Although a large proportion of our lives are spent participating in social interactions, the investigation of the neural mechanisms supporting these unfolding social interactions. Secondinteractions has largely been restricted to situations of social observation — that is, situations in which an individual observes a social stimulus without opportunity for interaction. In recent years, efforts have been made to develop a truly social, or 'second-person', neuroscientific approach to these investigations in which neural processes are examined within the context of a real-time reciprocal social interaction. These developments have helped to elucidate the behavioural will always take place in real time and be and neural mechanisms of social interactions; however, further theoretical and methodological innovations are still needed. Findings to date suggest that the neural mechanisms supporting social interaction differ from those involved in social observation and highlight a role of the so-called 'mentalizing network' as directly with the participant, which elicits a important in this distinction. Taking social interaction seriously may also be feeling of involvement with the other. Here, particularly important for the advancement of the neuroscientific study of different psychiatric conditions.

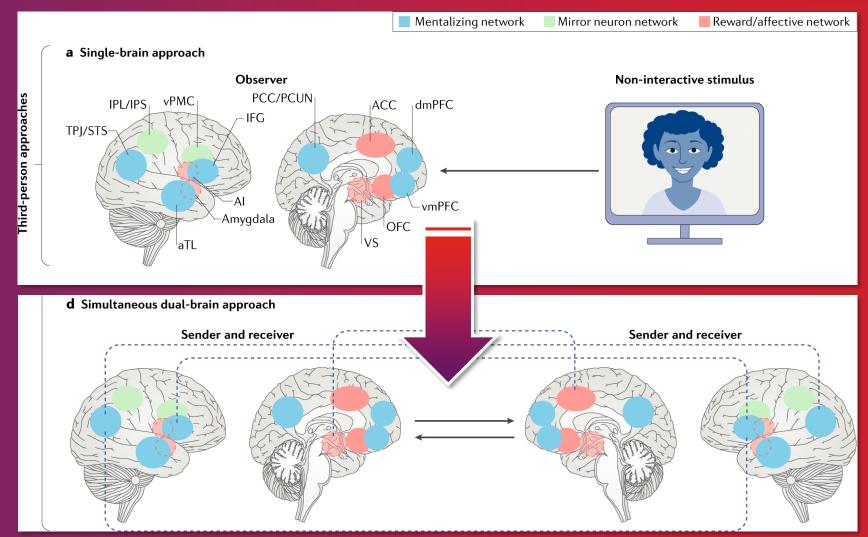
Second-person approaches

Second-person neuroscience is based on the assumption that social cognition during social interaction is fundamentally different to social cognition during social observation (also referred to as a third-person perspective) and that the same distinction is likely to apply to the underlying behavioural and neural mechanisms2. Therefore, in order to study the neurobiology underlying social interactions, it is necessary to use experimental paradigms that involve participants in structured or ideally - ecologically valid, dynamically person neuroscience approaches have been defined as studies in which individuals are participants in a social interaction and/or otherwise feel engaged with a social partner (reviewed in REE2). The interactions could be real or perceived; however, they reciprocal, such that one partner's actions affect the other and vice versa. Engagement is achieved through the perception that a social partner (or agent) is communicating refore refer to studies in which at least one of these criteria (real-time interaction or engagement) is met as second-person

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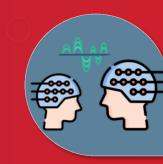












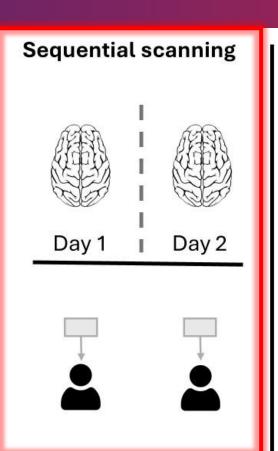
Sequential Versus Hyperscanning

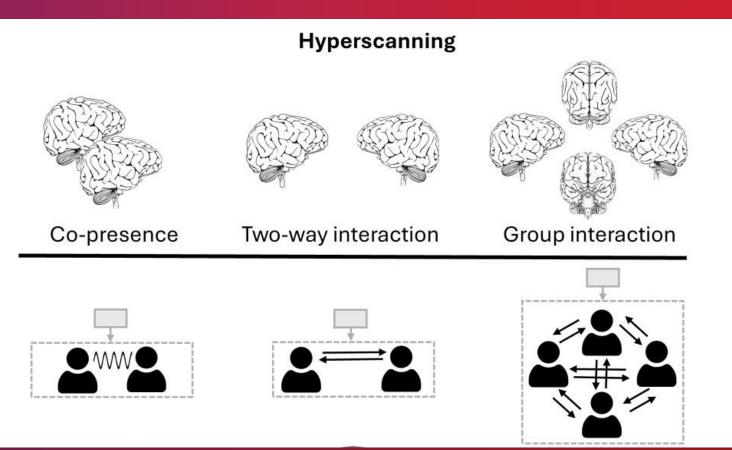
How?

Hyperscanning unlocks new avenues in Relational Neuroscience

Why? build mo

To build models of human sociality







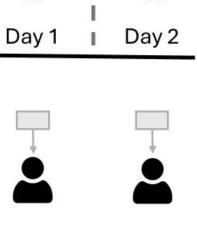


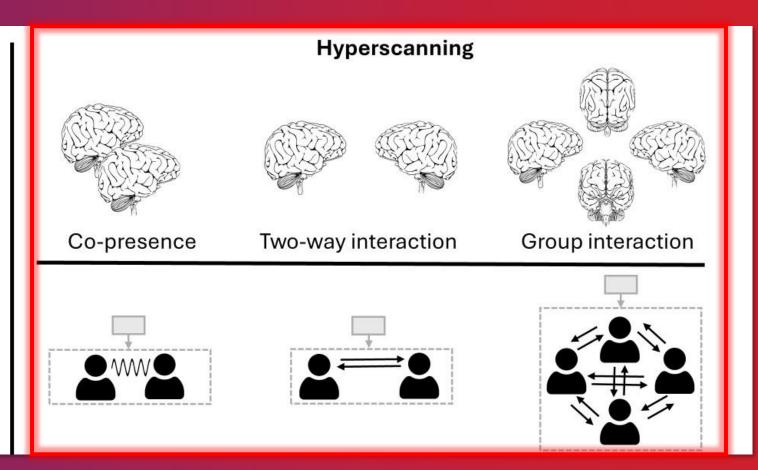


Sequential Versus Hyperscanning

How? Hyperscanning unlocks new avenues in Relational Neuroscience Sequential scanning I I I Day 2

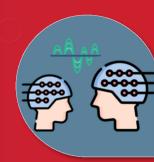




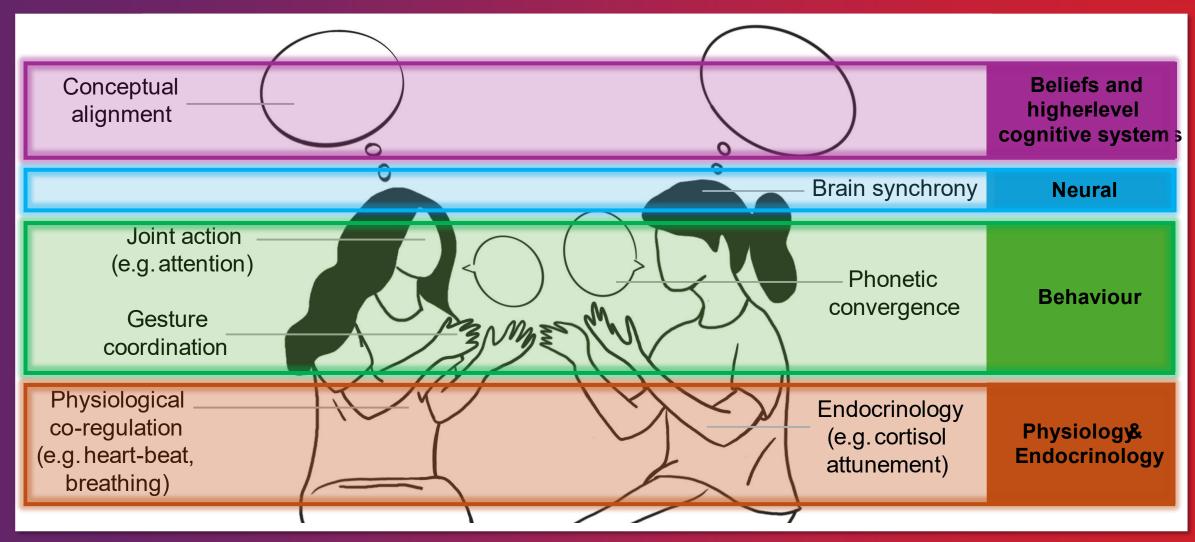








Beyond Brain Activity

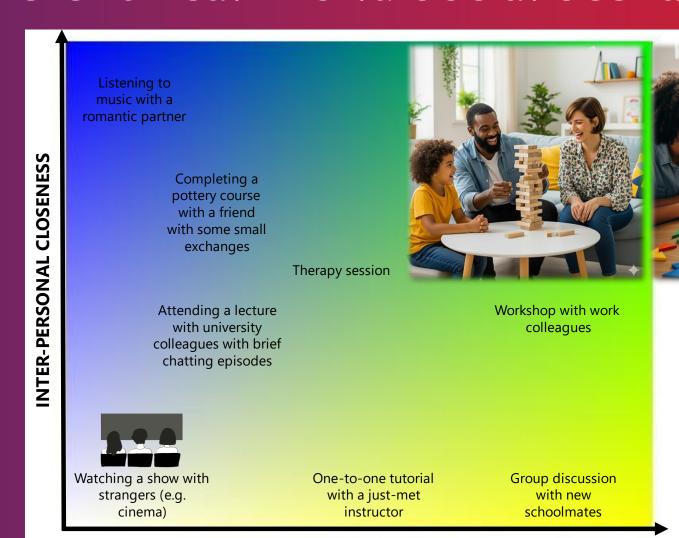








Different Real-World Social Scenarios



INTERACTIVITY







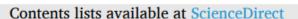








NeuroImage 280 (2023) 120354



NeuroImage

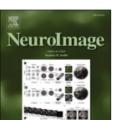
journal homepage: www.elsevier.com/locate/ynimg





Quantification of inter-brain coupling: A review of current methods used in haemodynamic and electrophysiological hyperscanning studies

U Hakim^{a,*}, S De Felice^{b,c}, P Pinti^{a,d}, X Zhang^e, J. A Noah^e, Y Ono^f, P.W. Burgess^b, A Hamilton b, J Hirsch a,e,g,h, I Tachtsidis a





a Department of Medical Physics and Biomedical Engineering, University College London, Malet Place Engineering Building, Gower Street, London WC1E 6BT, United Kingdom

^b Institute of Cognitive Neuroscience, University College London, London, United Kingdom

^c Department of Psychology, University of Cambridge, United Kingdom

d Centre for Brain and Cognitive Development, Birkbeck, University of London, London, United Kingdom

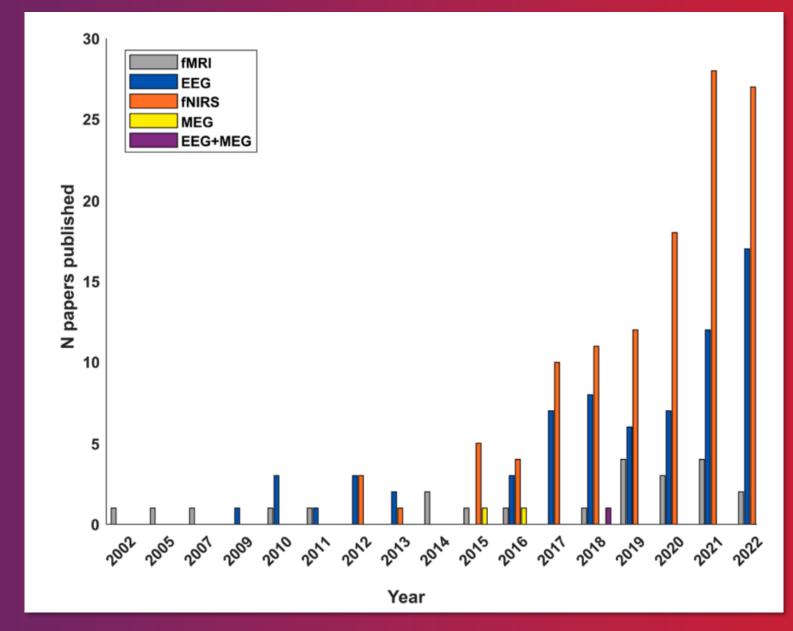
^e Department of Psychiatry, Yale School of Medicine, New Haven, CT, United States

f Department of Electronics and Bioinformatics, School of Science and Technology, Meiji University, Kawasaki, Kanagawa, Japan

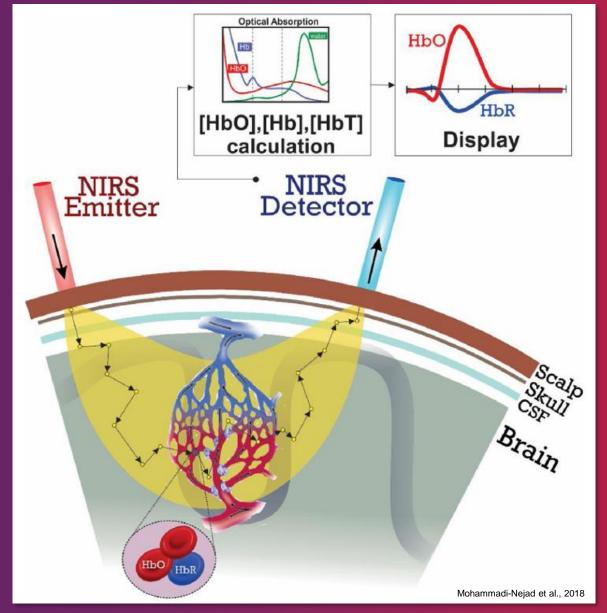
g Departments of Neuroscience and Comparative Medicine, Yale School of Medicine, New Haven, CT, United States

h Yale University, Wu Tsai Institute, New Haven, CT, United States



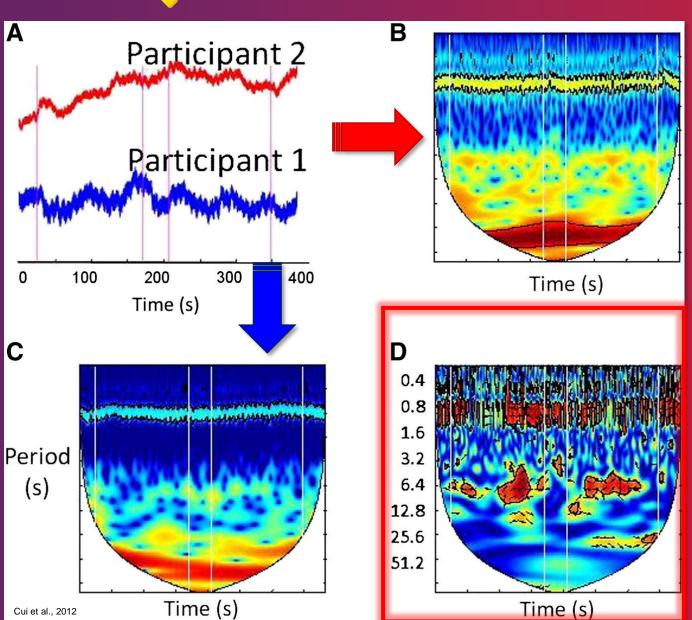




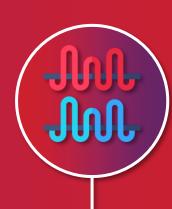




Cui et al., 2012







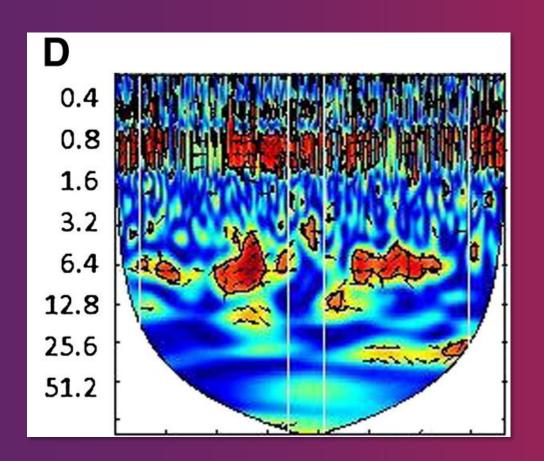
Wavelet Transform Coherence (WTC) Analysis







Wavelet Transform Coherence (WTC)



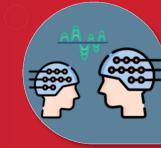
WTC measures how strongly two individual brain signals "correlate" at specific frequencies

WTC <u>doesn't distinguish between different phase</u> relationships (in-phase, shifted, opposite phase)

WTC therefore <u>cannot give good indication of</u> <u>leader-follower relationships</u>

WTC frequencies of interest are usually in the range of 10-50 period seconds (and thus rather "slow")







Communication

(Dumas, 2011; Hasson et al., 2012)



Social Learning

(Pan et al., 2020; Shamay-Tsoory, 2022)



Mutual Prediction

(Hamilton, 2021; Hoehl et al., 2021)



Attachment, Bonding & Co-Regulation

(Feldman, 2017; Atzil et al., 2018)











Neuron

NeuroView

Hyperscanning: Beyond the Hype

Antonia F. de C. Hamilton^{1,*}

¹Institute of Cognitive Neuroscience, University College London, London WC1E 6BT, UK

*Correspondence: a.hamilton@ucl.ac.uk

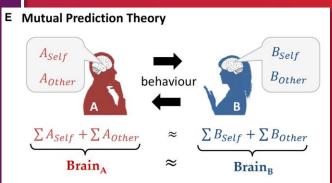
https://doi.org/10.1016/j.neuron.2020.11.008



Mutual Prediction Theory (Hamilton, 2020)

"The requirement to predict one's partner and perform one's own action is essential to a fluent social interaction."

"Each individual in a social interaction has **brain systems** that **control their own behavior** as well as brain systems that **predict the behavior of their partner**. When prediction mechanisms that operate within the brain of a single individual are engaged in **two people who mutually predict each other**, this can give rise to **signals that are coherent across the two brains**."











Social Cognitive and Affective Neuroscience, 2021, 5-18

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Interpersonal Synchrony Special Issue

Interactional synchrony: signals, mechanisms and benefits

Stefanie Hoehl,¹ Merle Fairhurst,^{2,3} and Annett Schirmer^{4,5,6}

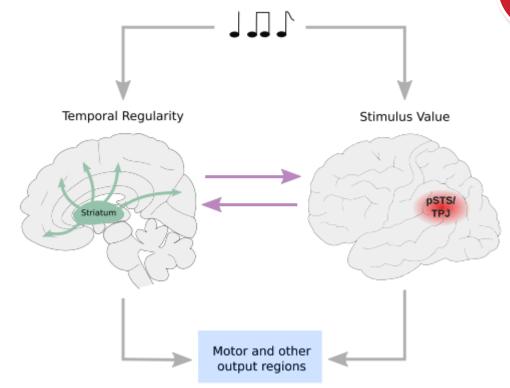
¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Liebiggases 5, 1010 Vienna, Austria, ²Institute for Psychology, Bundeswehr University Munich, Germany, ³Munich Center for Neuroscience, Ludwig Maximilian University, Germany, ⁴Department of Psychology, The Chinese University of Hong Kong, 3rd Floor, Sino Building, Shatin, N.T., Hong Kong, ⁵Brain and Mind Institute, The Chinese University of Hong Kong, 3rd Floor, Sino Building, Shatin, N.T., Hong Kong, and ⁶Center for Cognition and Brain Studies, The Chinese University of Hong Kong, 3rd Floor, Sino Building, Shatin, N.T., Hong Kong, 3rd Floor, Sino Building, Shatin, N.T.,

Correspondence should be addressed to Annett Schirmer, Department of Psychology, The Chinese University of Hong Kong, 3rd Floor, Sino Building, Shatin, N.T., Hong Kong, E-mail: schirmer@cuhk.edu.hk











Synchronizing benefits arise from an increased predictability of incoming signals and include many positive outcomes ranging from basic information processing at the individual level to the bonding of dyads and larger groups.



Why...?





PERSPECTIVE

https://doi.org/10.1038/s41562-018-0384-6

nature human behaviour

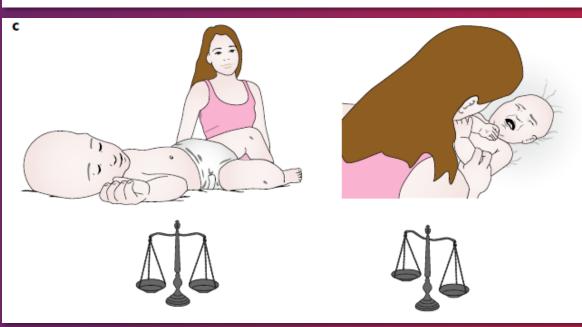
Corrected: Author correction

Growing a social brain

Shir Atzil 101*, Wei Gao2, Isaac Fradkin1 and Lisa Feldman Barrett3*

It has long been assumed that social animals, such as humans, are born with a brain system that has evolved to support social affiliation. However, the evidence does not necessarily support this assumption. Alternatively, social animals can be defined as those who cannot survive alone and rely on members from their group to regulate their ongoing physiology (or allostasis). The rather simple evolutionary constraint of social dependency for survival can be sufficient to make the social environment vitally salient, and to provide the ultimate driving force for socially crafted brain development and learning. In this Perspective, we propose a framework for sociality and specify a set of hypotheses on the mechanisms of social development and underlying neural systems. The theoretical shift proposed here implies that profound human characteristics, including but not limited to sociality, are acquired at an early age, while social interactions provide key wiring instructions that determine brain development.



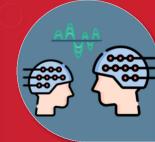






Why...?





REVIEW



In and out of synchrony—Behavioral and physiological dynamics of dyadic interpersonal coordination

Oded Mayo¹ | Ilanit Gordon^{1,2}

¹Department of Psychology, Bar-Ilan University, Ramat-Gan, Israel

²The Gonda Multidisciplinary Brain Research Center, Bar Ilan University, Ramat-Gan, Israel

Abstract

Interpersonal synchrony, the temporal coordination of actions, emotions, thoughts and physiological processes, is a widely studied ubiquitous phenomenon. Research has already established that more synchrony is not always more beneficial, especially

Psychological Review

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2025, Vol. 132, No. 3, 680-718 https://doi.org/10.1037/rev0000495



© 2024 The Author(s) ISSN: 0033-295X

A Theory of Flexible Multimodal Synchrony

Ilanit Gordon^{1, 2, 3}, Alon Tomashin², and Oded Mayo⁴

¹ Department of Psychology, Bar-Ilan University

² The Gonda Multidisciplinary Brain Research Center, Bar-Ilan University

³ The Child Study Center, Yale School of Medicine, Yale University

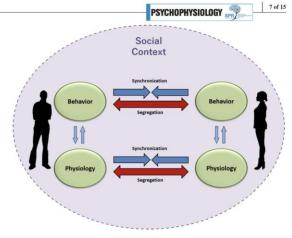
⁴ Department of Psychology, University of Haifa

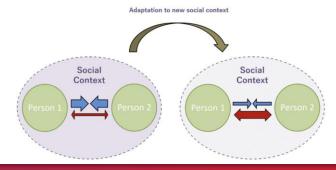
Dominant theoretical accounts of interpersonal synchrony, the temporal coordination of biobehavioral processes between several individuals, have employed a linear approach, generally considering synchrony as a positive state, and utilizing aggregate scores. However, synchrony is known to take on a dynamical form with continuous shifts in its timeline. Acting as one continuously, is not always the optimal state, due to an intrinsic tension between individualistic and synergistic forms of action that exist in many social situations. We propose an alternative theory of flexible multimodal synchrony which highlights context as a key component that defines "pulls" toward synchrony and "pulls" toward segregation inherent to the social situation. Traitlike individual differences and relationship variables then sensitize individuals to these contextual "pulls." In this manner, context, individual differences, and relationship variables provide the backdrop to the emergence of flexible and dynamical synchrony patterns, which we consider adaptive, in several modalities-behavioral, physiological, and neural. We point to three consequences of synchrony patterns: social-, task, and selforiented. We discuss multimodal associations that arise in different contexts considering the theory and delineate hypotheses that emanate from the theory. We then provide two empirical proofs-of-concept: First, we show how individual differences modulate the effect of context on synchrony's outcomes in a novel dyadic motor game. Second, we reanalyze previously reported data, to show how a "flexibility" approach to synchrony data analysis improves predictive ability when testing for synchrony's effects on social cohesion. We provide ways to standardize the characterization of context and guidelines for future synchrony research.

Keywords: interpersonal synchrony, multimodal synchrony, flexibility, context, individual differences



FIGURE 1 At the core of our model is the idea that two tendencies exist simultaneously, one to synchronize with others and another to move out of synchrony and act independently. The blue arrows represent synchrony whereas the red arrows represent segregation













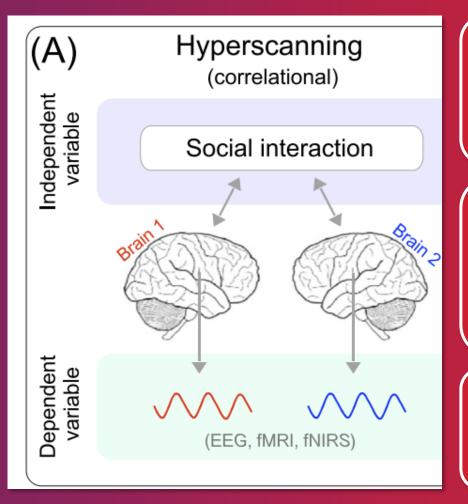
Forum

Hyperscanning Alone Cannot Prove Causality. Multibrain Stimulation Can

Giacomo Novembre^{1,2,*} and Gian Domenico Iannetti (1) 1,2,*



Brains that work together, couple together through interbrain synchrony. Does interbrain synchrony causally facilitate social interaction? This question cannot be answered by simply recording from multiple brains (hyperscanning). It instead requires causal protocols entailing their simultaneous stimulation (multibrain stimulation). We highlight promising findings and future horizons of this nascent field.

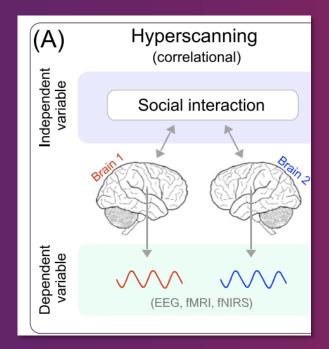


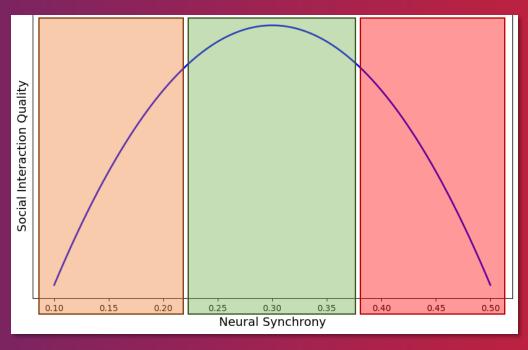
Due to the way (naturalistic) fNIRS hyperscanning experiments are set up, they are inherently correlational

We cannot (and should not) make any causal claims about the role of interbrain synchrony for human social interaction

Studying interbrain synis still chrony relevant, interesting and meaningful









The Optimum Midrange: Infant Research, Literature, and Romantic Attachment

Beatrice Beebe and Edward McCrorie

"Too low"

Lack of engagement, low quality interaction, poor mutual understanding

"Optimal"

Best amount of synchrony for reciprocal, mutual interactions with highest interaction outcomes

"Too high"

High intrusiveness, overstimulation and/or high (cognitive) effort needed for sustained interaction



Epsom

Ashtead

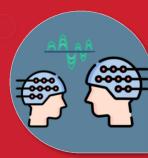
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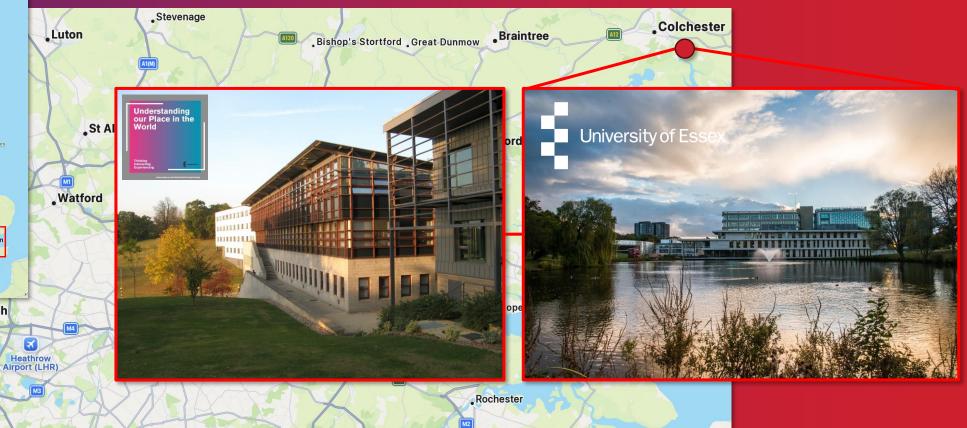
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.Oxted







Maidstone

Sittingbourne

Faversham



Social Neuroscience of Human Attachment Lab





ScienceDirect



Special Issue "Understanding Others": Research Report

The effects of interaction quality on neural synchrony during mother-child problem solving



Trinh Nguyen ",", Hanna Schleihauf b,c,d , Ezgi Kayhan ", Daniel Matthes f , Pascal Vrtička f and Stefanie Hoehl a,f

a Faculty of Psychology, University of Vienna, Vienna, Austria

- b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen,
- Department for Primate Cognition, Georg-August-University Göttingen, Göttingen, Germany **Social Origins Lab, Department of Psychology, University of California, Berkeley, CA, USA

 **Department of Developmental Psychology, University of Potsdam, Potsdam, Germany

 **Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Melanie Kungl (1) Friedrich-Alexander-University Erlangen-Nuremberg

Stefanie Hoehl (1) University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

CHILD DEVELOPMENT



Interpersonal Neural Synchrony During Father-Child Problem Solving: An fNIRS Hyperscanning Study

> Trinh Nguyen (6) University of Vienna

Hanna Schleihauf (6) German Primate Center - Leibniz Institute for Primate Research and Georg-August-University Goettingen and University of California, Berkeley

Ezgi Kayhan 📵 University of Potsdam and Max Planck Institute for Huma Cognitive and Brain Sciences

Pascal Vrtička 📵 Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex

Ivance Access Publication Date: 15 June 2020

Interpersonal Synchrony Special Issue

Neural synchrony in mother-child conversation: Exploring the role of conversation patterns

Trinh Nguyen, 1, Hanna Schleihauf, 2,3,4 Ezgi Kayhan, 5,6 Daniel Matthes, 6 Pascal Vrtička, 6,7 and Stefanie Hoehl^{1,6}

¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna 1010, Austria, ²Cognitive Ethology Laboratory, German Primate Center—Leibniz Institute for Primate Research, Göttingen 37077, Germany, ³Department for Primate Cognition, Georg-August-University Göttinge Göttingen 37073, Germany, ⁴Department of Psychology, Social Origins Lab, University of California, Berkeley, CA 94720-1650, USA, 5 Department of Developmental Psychology, University of Potsdam, Potsdam 14476, Germany, 6Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany and Department of Psychology, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, UK

Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psycholog inversity of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.

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DOI: 10.1111/desc.13504

RESEARCH ARTICLE



Visualizing the invisible tie: Linking parent-child neural synchrony to parents' and children's attachment representations

Trinh Nguyen^{1,2,3} (1) Melanie T. Kungl⁴ Stefanie Hoehl^{1,2} Lars O. White^{5,7} Pascal Vrtička^{1,6} ©















Social Cognitive and Affective Neuroscience, 2021, 93-102

doi: 10.1093/scan/nsaa079 Advance Access Publication Date: 15 June 2020 Original Manuscript

Interpersonal Synchrony Special Issue

Neural synchrony in mother-child conversation: Exploring the role of conversation patterns

Trinh Nguyen, $0^{1,*}$ Hanna Schleihauf, 2,3,4 Ezgi Kayhan, 5,6 Daniel Matthes, 6 Pascal Vrtička, 6,7 and Stefanie Hoehl 1,6

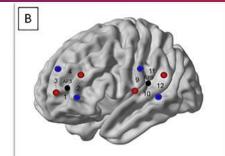
¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna 1010, Austria, ²Cognitive Ethology Laboratory, German Primate Center—Leibniz Institute for Primate Research, Göttingen 37077, Germany, ³Department for Primate Cognition, Georg-August-University Göttingen, Göttingen 37073, Germany, ⁴Department of Psychology, Social Origins Lab, University of California, Berkeley, CA 94720-1650, USA, ⁵Department of Pevelopmental Psychology, University of Potsdam, Potsdam 14476, Germany, ⁶Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany and ⁷Department of Psychology, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, UK

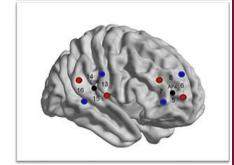
*Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.

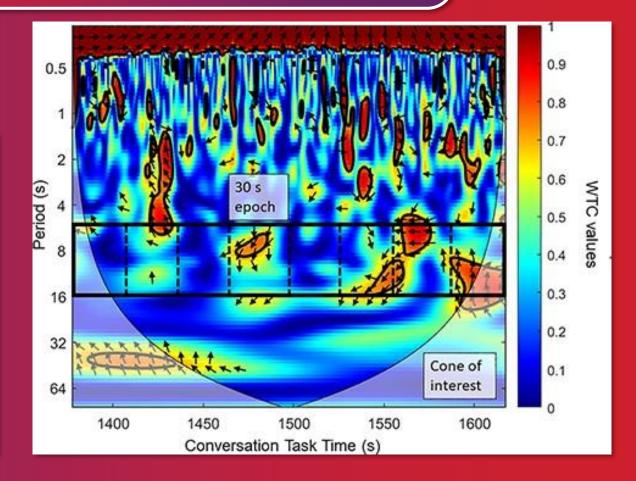
Participants: Forty mothers (mean age 36.37 years; SD = 4.51 years; range = 28–47 years) and their preschool children (20 boys and 20 girls; mean age 5;07 years; s.d. = 0;04 years; range = 4;11–6;01).















Social Cognitive and Affective Neuroscience, 2021, 93-102

doi: 10.1093/scan/nsaa079 Advance Access Publication Date: 15 June 2020 Original Manuscript

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Trinh Nguyen, ^{01,*} Hanna Schleihauf, ^{2,3,4} Ezgi Kayhan, ^{5,6} Daniel Matthes, ⁶ Pascal Vrtička, ^{6,7} and Stefanie Hoehl ^{1,6}

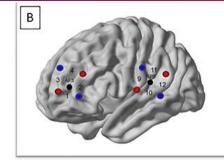
¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna 1010, Austria, ²Cognitive Ethology Laboratory, German Primate Center—Leibniz Institute for Primate Research, Göttingen 37077, Germany, ³Department for Primate Cognition, Georg-August-University Göttingen, Göttingen 37073, Germany, ⁴Department of Psychology, Social Origins Lab, University of California, Berkeley, CA 94720-1650, USA, ⁵Department of Developmental Psychology, University of Potsdam, Potsdam 14476, Germany, ⁶Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany and ⁷Department of Psychology, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, UK

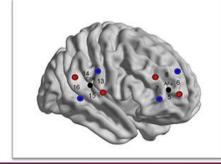
*Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.

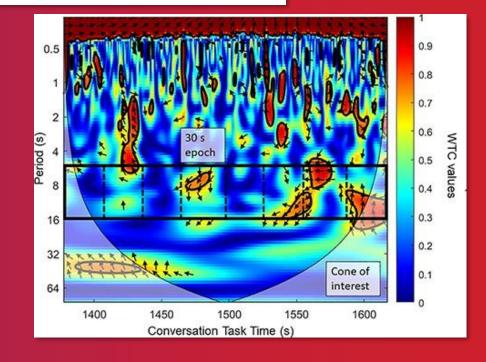
Category	Sub-category	Example
Turn-taking	Alternating turns: An utterance follows a turn by the other speaker	Child: 'It was such a fun game' Mother: 'Yes, what shape did you like building the most?'
	Long turns: One speaker follows up with another utterance after an utterance	Child: 'It was such a fun game. There were all these shapes and colors and I couldn't decide what to begin with.'

















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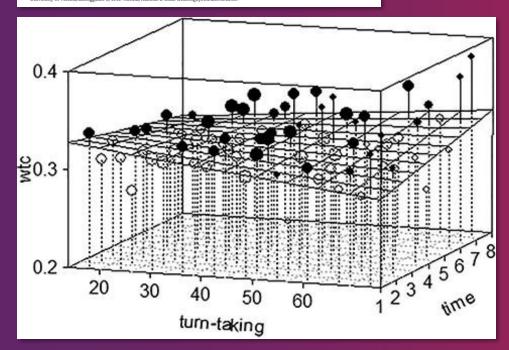
Interpersonal Synchrony Special Issue

Neural synchrony in mother-child conversation: Exploring the role of conversation patterns

Trinh Nguyen, 01.* Hanna Schleihauf, 2,3.4 Ezgi Kayhan, 5.6 Daniel Matthes, 6 Pascal Vrtička, 6,7 and Stefanie Hoehl 1.6

¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna 1010, Austria, ²Cognitive Ethology Laboratory, German Primate Center—Leibniz Institute for Primate Research, Göttingen 37077, Germany, ³Department for Primate Cognition, Georg-August-University Göttingen, Göttingen 37073, Germany, ⁴Department of Psychology, Social Origins Lab, University of California, Berkeley, CA 94720-1650, USA, ⁵Department of Developmental Psychology, University of Potsdam, Potsdam 14476, Germany, ⁶Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany and ⁷Department of Psychology, University of Essex, Wivenhoe Park, Colchester CO4 35Q, UK

*Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psychology University of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.





Mother-child dyads showed significant interpersonal neural synchrony during verbal conversation (compared to artificial dyads – control for spurious correlation).



Interpersonal neural synchrony in mother-child dyads increased with conversation duration. This may reflect constant resynchronisation processes.



Interpersonal neural synchrony increased most in those dyads who showed highest verbal turn-taking, implying a high level of mutual attention and adaptation.



Social Neuroscience of Human Attachment Lab





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Special Issue "Understanding Others": Research Report

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Trinh Nguyen ",", Hanna Schleihauf b,c,d , Ezgi Kayhan ", Daniel Matthes f , Pascal Vrtička f and Stefanie Hoehl a,f

a Faculty of Psychology, University of Vienna, Vienna, Austria

- b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen,
- Department for Primate Cognition, Georg-August-University Göttingen, Göttingen, Germany **Social Origins Lab, Department of Psychology, University of California, Berkeley, CA, USA

 **Department of Developmental Psychology, University of Potsdam, Potsdam, Germany

 **Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Melanie Kungl (1) Friedrich-Alexander-University Erlangen-Nuremberg

Stefanie Hoehl (1) University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

CHILD DEVELOPMENT



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Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psycholog inversity of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.

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RESEARCH ARTICLE



Visualizing the invisible tie: Linking parent-child neural synchrony to parents' and children's attachment representations

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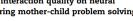
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^a Faculty of Psychology, University of Vienna, Vienna, Austria b Cognitive Ethology Laboratory, German Primate Center - Leibniz Institute for Primate Research, Göttingen,

- Department for Primate Cognition, Georg-August-University Göttingen, Göttingen, German
- Social Origins Lab, Department of Psychology, University of California, Berkley, CA, USA
 Department of Developmental Psychology, University of Potsdam, Potsdam, Germany
 Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

CHILD DEVELOPMENT

Child Development, July/August 2021, Volume 92, Number 4, Pages e565-e580

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> Trinh Nguyen (5) University of Vienna

Melanie Kungl (1)

Hanna Schleihauf (5)
German Primate Center - Leibniz Institute for Primate

Research and Georg-August-University Goettingen and University of California, Berkeley

Friedrich-Alexander-University Erlangen-Nuremberg

Stefanie Hoehl (5)

University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

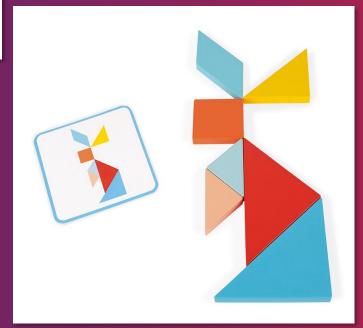
University of Potsdam and Max Planck Institute for Huma Cognitive and Brain Sciences

Pascal Vrtička (1)

Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex

Participants (two samples):

- 42 mothers (36.26+/-4.81, 28-46 years) and their preschool children (19 boys and 23 girls; 5;08 +/- 0;04 years; range = 5;00-6; 01).
- 66 fathers (39.2+/-5.17 years) and their preschool children (5.32+/-0.31 years; 31 girls)





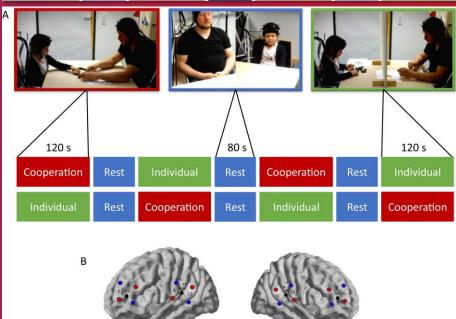






ounterbalaced	condition	sequences:

Cooperation	Rest	Individual	Rest	Cooperation	Rest	Individual
Cooperation	Rest	Individual	Rest	Individual	Rest	Cooperation
Individual	Rest	Cooperation	Rest	Individual	Rest	Cooperation
Individual	Rest	Cooperation	Rest	Cooperation	Rest	Individual











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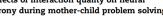
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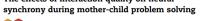




Special Issue "Understanding Others": Research Report

The effects of interaction quality on neural







Trinh Nguyen q,* , Hanna Schleihauf $^{b,\varsigma,d}$, Ezgi Kayhan $^{\varsigma,f}$, Daniel Matthes f , Pascal Vrtička f and Stefanie Hoehl a,f

- ^a Faculty of Psychology, University of Vienna, Vienna, Austria ^b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen,
- *Cognitive Ethology Laboratory, German Frimatic Center science smittee for Frimate Cognitive Option of Commany of Properties Cognition, Georg-August-University Octilingen, Gettingen, Gettingen, Germany *Social Origina Lab, Department of Psychology, University of California, Berkeley, CA, USA *Department of Developmental Psychology, University of Petadam, Fordam, Cermany *Max Fanch Sentate for Human Cognitive and Brain Science, Lelegia, Germany

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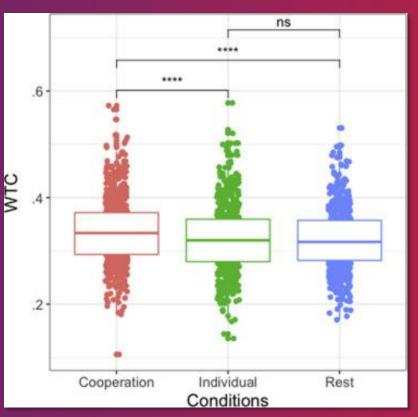
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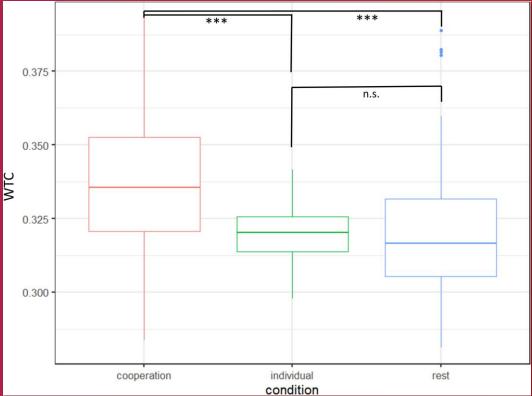
University of Potsdam and Max Planck Institute for Human Cognitive and Brain Sciences

Stefanie Hoehl 💿

University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

Pascal Vrtička (1) Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex









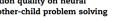


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^a Faculty of Psychology, University of Vienna, Vienna, Austria b Cognitive Ethology Laboratory, German Primate Center - Leibniz Institute for Primate Research, Göttingen,

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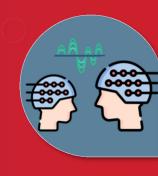
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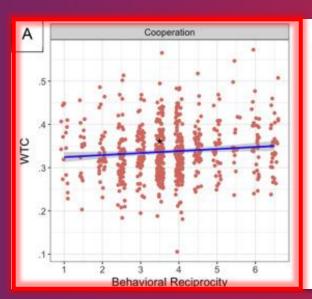
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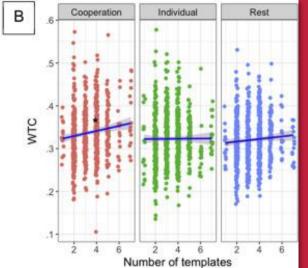
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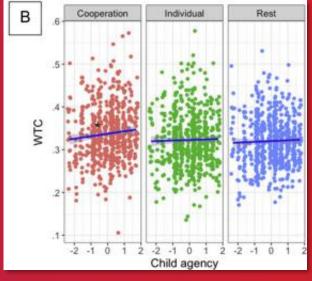
Pascal Vrtička (1) Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex











→ Mother-child interpersonal neural synchrony (WTC) positively correlated with the amount of turn-taking / behavioural reciprocity



Behavioral Reciprocity



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^a Faculty of Psychology, University of Vienna, Vienna, Austria

- b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen, Germany

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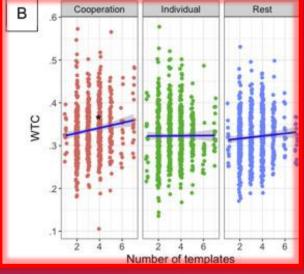
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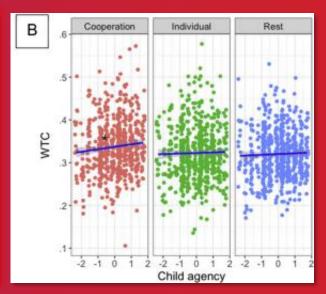
Stefanie Hoehl (5)

University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

Pascal Vrtička (1) Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex Cooperation







→ Mother-child interpersonal synchrony neural positively correlatd with behavioural cooperation success / number of puzzles solved



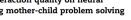
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Trinh Nguyen a,* , Hanna Schleihauf b,G,d , Ezgi Kayhan e,f , Daniel Matthes f , Pascal Vrtička f and Stefanie Hoehl a,f

- ^a Faculty of Psychology, University of Vienna, Vienna, Austria
- b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen,
- Germany

 **Popartment for Primate Cognition, Georg-August-University Göttingen, Göttingen, Germany

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Trinh Nguyen (5) University of Vienna

Hanna Schleihauf (5)
German Primate Center - Leibniz Institute for Primate Research and Georg-August-University Goettingen and University of California, Berkeley

Melanie Kungl (1) University of Potsdam and Max Planck Institute for Human Cognitive and Brain Sciences Friedrich-Alexander-University Erlangen-Nuremberg

fNIRS Hyperscanning Study

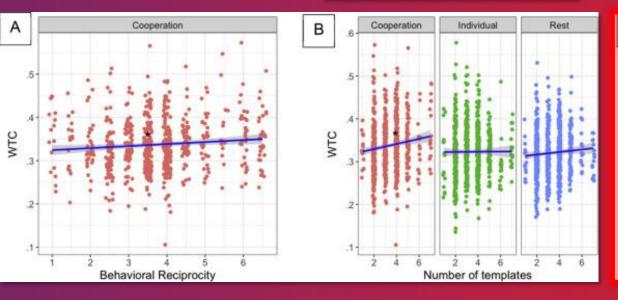
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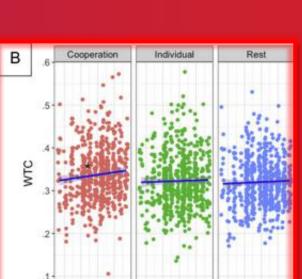
University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

Pascal Vrtička (1) Max Planck Institute for Human Cognitive and Brain Sciences and University of Essex









→ Mother-child interpersonal neural synchrony (WTC) positively correlated child agency / how much children were allowed to take the lead



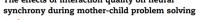


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Faculty of Psychology, University of Vienna, Vienna, Austria b Cognitive Ethology Laboratory, German Primate Center — Leibniz Institute for Primate Research, Göttingen

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Friedrich-Alexander-University Erlangen-Nuremberg University of Potsdam and Max Planck Institute for Huma Cognitive and Brain Sciences

Stefanie Hoehl 60

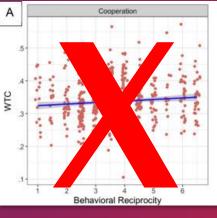
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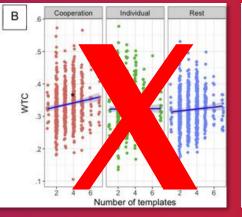
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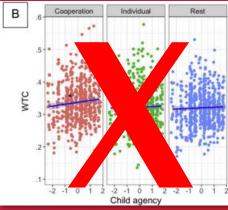
What about fatherchild dyads...?

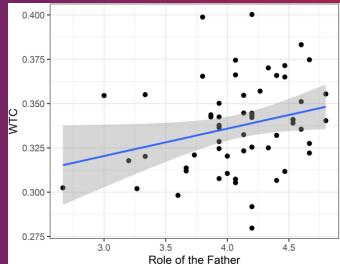












Interpersonal neural synchrony in father-child dyads was positively correlated with fathers' caregiving beliefs - suggesting a link to father involvement.



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Trinh Nguyen ",", Hanna Schleihauf b,c,d , Ezgi Kayhan ", Daniel Matthes f , Pascal Vrtička f and Stefanie Hoehl a,f

a Faculty of Psychology, University of Vienna, Vienna, Austria

- b Cognitive Ethology Laboratory, German Primate Center Leibniz Institute for Primate Research, Göttingen,
- Department for Primate Cognition, Georg-August-University Göttingen, Göttingen, Germany **Social Origins Lab, Department of Psychology, University of California, Berkeley, CA, USA

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 **Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Melanie Kungl (1) Friedrich-Alexander-University Erlangen-Nuremberg

Stefanie Hoehl (1) University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

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> Trinh Nguyen (6) University of Vienna

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¹Department of Developmental and Educational Psychology, Faculty of Psychology, University of Vienna, Vienna 1010, Austria, ²Cognitive Ethology Laboratory, German Primate Center—Leibniz Institute for Primate Research, Göttingen 37077, Germany, ³Department for Primate Cognition, Georg-August-University Göttinge Göttingen 37073, Germany, ⁴Department of Psychology, Social Origins Lab, University of California, Berkeley, CA 94720-1650, USA, 5 Department of Developmental Psychology, University of Potsdam, Potsdam 14476, Germany, 6Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig 04103, Germany and Department of Psychology, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, UK

Correspondence should be addressed to Trinh Nguyen, Department of Developmental and Educational Psychology, Faculty of Psycholog inversity of Vienna, Liebiggasse 5, 1010 Vienna, Austria. E-mail: trinh.nguyen@univie.ac.at.

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RESEARCH ARTICLE



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CHILD DEVELOPMENT



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Trinh Nguyen (b)

University of Vienna

Hanna Schleihauf

German Primate Center - Leibniz Institute for Primate Research and Georg-August-University Goettingen and University of California, Berkeley

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Friedrich-Alexander-University Erlangen-Nuremberg

Ezgi Kayhan (b)

University of Potsdam and Max Planck Institute for Human Cognitive and Brain Sciences

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University of Vienna and Max Planck Institute for Human Cognitive and Brain Sciences

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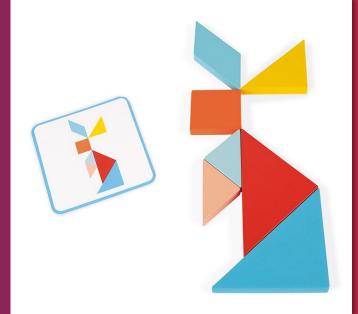
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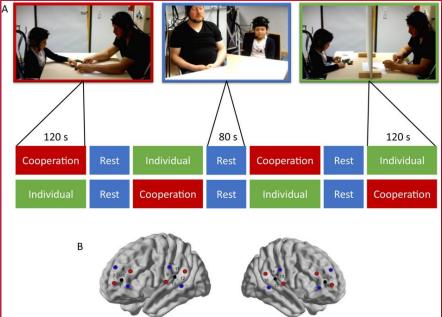
Participants:

One-hundred forty parents mothers; M=38.10 (74 years, SD=4.63 years) and biologically related their preschool children (60 girls; M=5.33SD=0.29 years, years)



Adult Attachment Interview and Picture Based Story Completion Task in Children

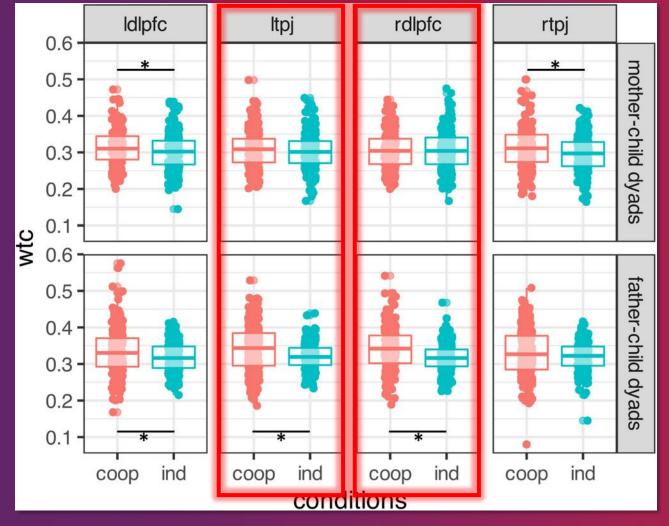














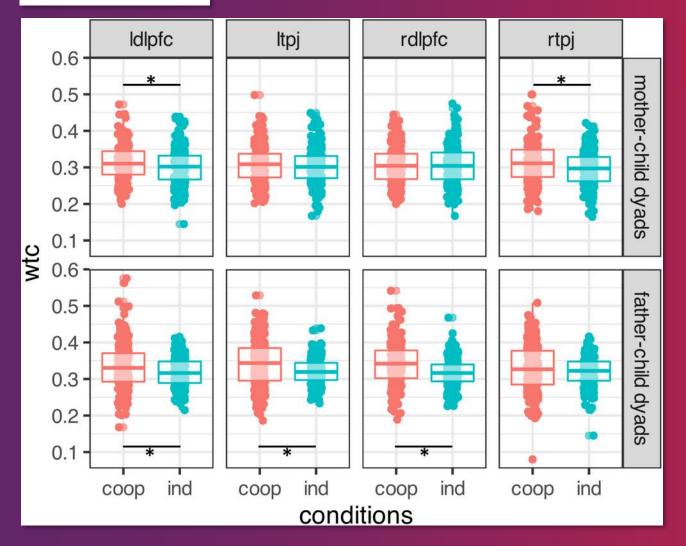




Father-child dyads showed higher interpersonal neural synchrony than mother-child dyads







	Behavioral Synchrony	
	father	mother
N	59	60
Mean	3.780	5.383
SD	1.820	1.878
Min	2	3
Max	9	11

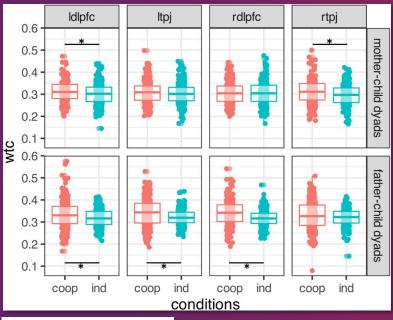


Father-child dyads showed lower behavioural synchrony (turn-taking) than mother-child dyads









	Behavioral S	Behavioral Synchrony	
	father	mother	
N	59	60	
Mean	3.780	5.383	
SD	1.820	1.878	
Min	2	3	
Max	9	11	



If synchrony in one interaction component is lower (behaviour), synchrony in another interaction component (brain activity) may need to be higher to "compensate".



For certain task (and, more broadly interaction and relationship) elements, such an adjustment may be necessary, adaptive and meaningful.



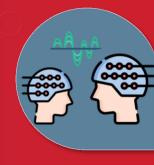
However, the increased interpersonal neural synchrony could also reflect increased cognitive effort and sustained attention needed to maintain the interaction.

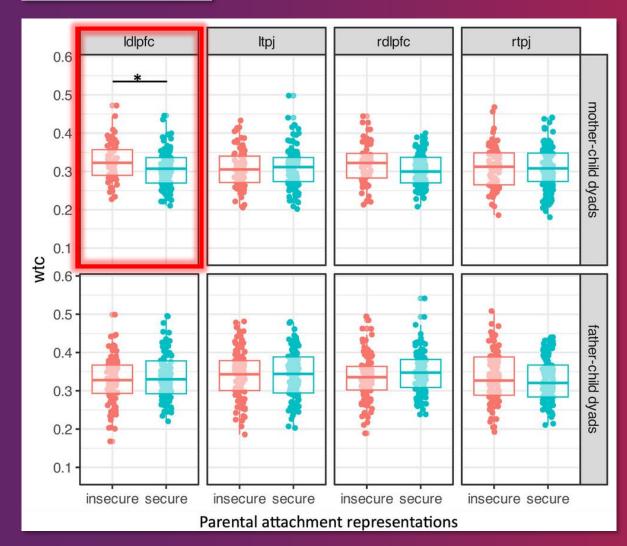






Adult Attachment Interview and Picture Based Story Completion Task in Children



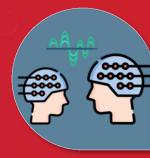






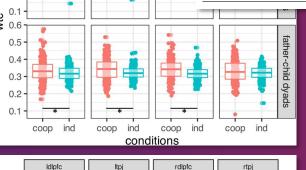
Mother-child dyads within which mothers were classified as insecure (versus secure) in their attachment representations showed higher interpersonal neural synchrony.

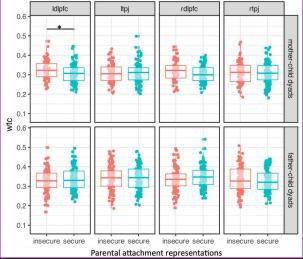






Y		Behavioral S	Behavioral Synchrony	
		father	mother	
	N	59	60	
llpfc	Mean	3.780	5.383	
	SD	1.820	1.878	
E	Min	2	3	
	Max	9	11	
		J 5/		







If synchrony in one interaction component is lower (behaviour, attachment security), synchrony in another interaction component (brain activity) may need to be higher to "compensate".



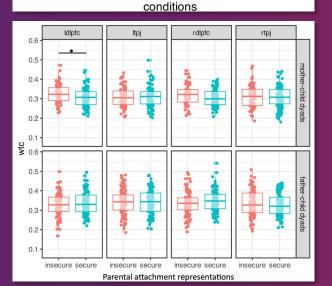
For certain tasks (and, more broadly interactions and relationship) elements, such an adjustment may be necessary, adaptive and meaningful.



However, the increased interpersonal neural synchrony could also reflect increased cognitive effort and sustained attention needed to maintain the interaction.









The Optimum Midrange: Infant Research, Literature, and Romantic Attachment

Beatrice Beebe and Edward McCrorie



More (interpersonal neural) synchrony may not always be better. It should not be our aim to increase synchrony indiscriminately and at all times.

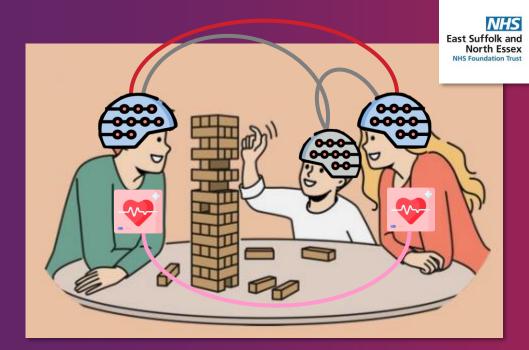




A quick outlook into the future







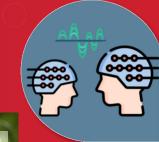
- Triadic synchrony (mum, dad, child)
- Neurodivergent children
- Children with experiences of early adversity, foster care & adoption













Dr Amanda Lucas Founding Director





- Cues
- History
- Attachment
- Talk
- Synchrony







- Cues
- History
- Attachment
- Talk
- Synchrony



Coordination and attunement of behaviour and physiological responses during interaction

Bio-Behavioural Synchrony

Fundamental behavioural and biological mechanism for emotion co-regulation and building block for the emergence of a sense of self and others as well as self-regulation capacities associated with children's secure attachment



- Cues
- History
- Attachment
- Talk
- Synchrony

Synchrony

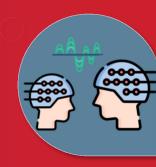
'Turn-taking' exchanges, involving eye contact, facial expressions, gestures and vocalisations

Initially parents structure and scaffold these 'conversations', leaving space for baby to respond.

By around 4-months-of-age, however, babies are increasingly able take the lead and become equal conversational partners.

There are three hallmarks of Synchrony that are linked to Secure Attachment and healthy brain development:

- becoming more positive together
- allowing baby to look away then reconnect
- mirroring baby's distress





- Cues
- History
- Attachment
- Talk
- Synchrony

Synchrony

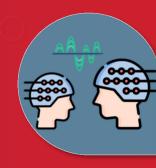
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Parental Sensitivity

Recognizing and understanding children's verbal and nonverbal cues (e.g., cries, facial expressions, and body language) and responding in a way that provides comfort, support, and reassurance

Parental Reflective Functioning

Understanding that oneself and others have mental states — thoughts, feelings, desires, and intentions — that drive behaviour. Helps children develop and understand their own mental states.







- Cues
- History
- Attachment
- Talk
- **S**ynchrony

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Mutual experiences connect parent & child, make interactions more predictable and enjoyable

Children learn to organise their own actions and reactions, and to gain control over their arousal levels (self-regulation)

Shows children that they can express their negative feelings, have them recognised, and feel better again with the parent



- Cues
- History
- Attachment
- Talk
- Synchrony

Synchrony

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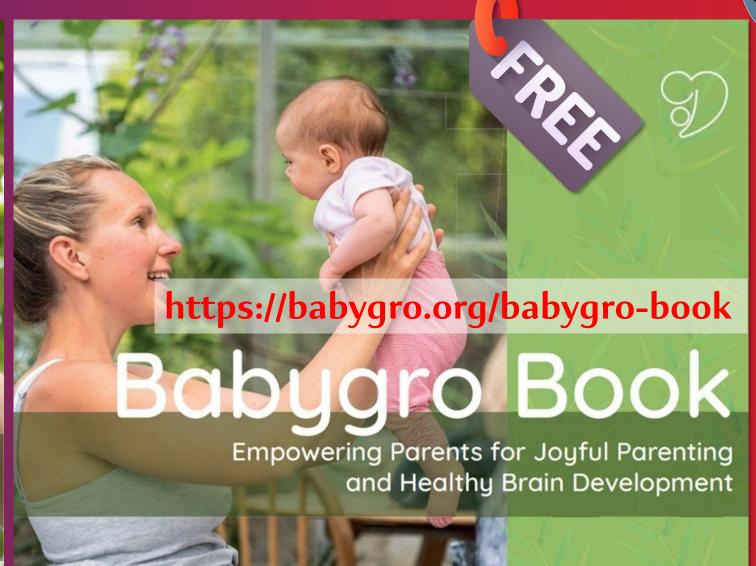


As we have seen earlier, synchrony is not about parents being constantly present and attuned to their children. Synchrony is a constant "social dance" of synchronisation, desynchronisation and resynchronisation, which builds children's skills.





- Cues
- History
- Attachment
- Talk
- Synchrony



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SIRG SONEAT -

https://pvrticka.com/

Dr Pascal Vrticka (PhD, FHEA)

Associate Professor* in Psychology

(* Senior Lecturer)

Welcome and thank you very much for your interest in Dr Pascal Vrticka's work.

Please feel free to explore the remaining sections of this website dedicated to Dr Vrticka's research.

If you have any questions, please do get in touch. You can also follow Dr Vrticka on various social media channels.

Below, you can find links to recent highlights followed by a complete website menu.

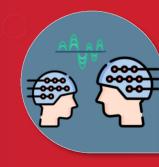




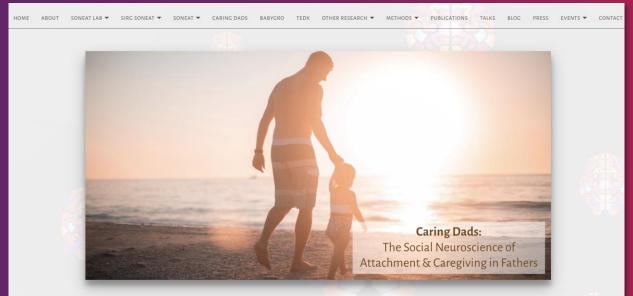




Additional resources















SCIENCE S





Dr Pascal Vrticka (PhD, FHEA)

Associate Professor in Psychology at the University of Essex, United Kingdom



Summaries of recent studies & theoretical perspectives on attachment

Icons from flaticon.com by Freepi

ATTACHMENT Q&A



Dr Pascal Vrticka (PhD. FHEA)

Associate Professor in Psychology at the University of Essex, United Kingdom

Do you have a question about current attachment theory and research?

- Unfortunately, there is lots of confusion and misinformation about attachment theory and research
- Obtain evidence-based information from a social neuroscience of attachment (SoNeAt) perspective
- Find out about easily accessible additional resources







Dr Pascal Vrticka (PhD, FHEA)

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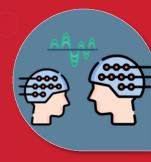


Examples of the most prevalent myths surrounding attachment theory and science as well as more accurate and up-to-date explanations.

Icons from flaticon.com by Freep



Additional resources









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ATTACHMENT Q&A





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List of Attachment Myth-Busting Topics

Topics #01 - #10

- #01 Insecure-disorganised adult attachment style
- #02 "Good" or bad, "weak" or "strong" attachment
- #03 Dads' role in attachment theory
- #04 Attachment and the lizard brain
- #05 Attachment & synchrony
- #06 Oxytocin as the "bonding hormone"
- #07 Polyvagal theory and attachment
- #08 Attachment "parenting hacks"
- #09 "Right-brain" versus "left-brain" dominance
- #10 Beyond threat & fear / amygdala & HPA axis

Topics #21 - #30

- #21 Attachment and infant crying
- #22 Attachment, nature & nurture
- #23 Intergenerational attachment transmission
- #24 Adult attachment avoidance
- #25 Attachment and the "time-out" technique
- #26 Attachment trauma
- #27 Transgenerational epigenetic inheritance (TEI)
- #28 Attachment "Neurobollocks"
- #29 "Getting stuck" in "brain or nervous system states"
- #30 Mirror neurons, empathy & attachment

Topics #11 - #20

- #11 Parent-child bonding vs. -attachment
- #12 "Good enough" parenting
- #13 Attachment parenting vs attachment theory
- #14 There is no single measure of attachment
- #15 Caution about clinical diagnoses & disorders
- #16 Neurobiology: complicated and often outdated
- #17 Attachment theory and astrology
- #18 Child attachment and nursery daycare attendance
- #19 Attachment and neurodivergence / ASD
- #20 Attachment styles are not set in stone

Topics #31-#40

- #31 Attachment theory and Buddhism
- #32 The "anxious-avoidant trap"
- #33 Sex differences in attachment
- #34 Attachment between humans and pets













Additional resources









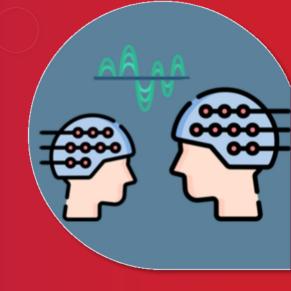
Concepts Used By Developmental Attachment Researchers

Concept	Common misconceptions	Explanation, as accessible as possible
Adult Attachment Interview	Definitive test of individual differences in adult attachment; assessment of representations of parents or relationships	A semi-structured interview developed by Main and colleagues. The interview comprises 20 questions. These explore the interviewee's perceived childhood experiences with their parents, experiences of abuse and loss, the effect of those experiences in the formation of their adult personality, and the interviewee's current relationship with his or her parents. Main and colleagues discovered that there were patterns to the way interviewees talked about their attachment experiences. These patterns were termed 'adult's states of mind with respect to attachment'. They represent an adult's present-day capacity to think about and communicate attachment-relevant information about the past. The interview creates conditions that arouse and direct attention towards attachment-related experiences. The language of the interview is analysed for the speaker's capacity to integrate two kinds of information:episodic information, i.e., specific events and when they happened, such as an accidentsemantic information, i.e., beliefs about the world, such as whether people are generally caring Following the coding manual by Main and colleagues, interviews are transcribed verbatim and scored by certified coders. Several subscales are scored, after which the transcript is classified into one of four Attachment classifications.









Thank you

essex.ac.uk



Any Questions or Remarks? Email: p.vrticka@essex.ac.uk

More Information: Website: https://pvrticka.com/