BBS Associateship 2013

Andersson, Claes, Psychology, Chalmers University, Sweden Artinger, Florian, Behavioural Science, University of Warwick, UK Boudry, Maarten, Philosophy of Science, Ghent University, Belgium Clark, Kevin B., Neuroscience, Veterans Affairs Greater L.A. Healthcare Sys., U.S.A. Farmer, Thomas, Psychology / Cognitive Science, University of Iowa, U.S.A. Gonzalez Vallejo, Claudia, Judgement and Decision Making, Ohio University, U.S.A. Hankins, Bradley, Chemistry, Olathe Public Schools USD 233, U.S.A. Heywood, Bethany, Cognitive Science, Ashford University, U.S.A. Hodson, Gordon, Psychology, Brock University, Canada Hytönen, Kaisa, Neuroeconomics, Aalto University, Finland Kitto, Kirsty, Psychology, Queensland University of Technology, Australia Knauff, Markus, Psychology, University of Giessen, Germany Lenggenhager, Bigna, Neuroscience, University Hospital of Zurich, Switzerland Madva, Alex, Philosophy, University Of California, Berkeley, U.S.A. Malka, Ariel, Political Psychology, Yeshiva University, U.S.A. Michaelian, Kourken, Philosophy, Bilkent University, Turkey Nummenmaa, Lauri, Neuroscience, Aalto University, Finland

- Olivola, Christopher Y., Judgment and Decision Making, Carnegie Mellon University, U.S.A.
- Peelle, Jonathan E., Cognitive Neuroscience, Washington University, U.S.A
- Saniotis, Arthur, Psychology, Adelaide University, Australia
- Saramäki, Jari, Complex and Social Networks, Aalto University, Finland
- Sarkar, Sahotra, *Philosophy, Integrative Biology*, University of Texas at Austin, U.S.A.
- Savaki, Helen, Neuroscience, University of Crete, Greece
- Sherwood, Chet, Comparative Neuroanatomy, Evolution, George Washington University, U.S.A.
- Soto, Christopher J., Psychology, Colby College, U.S.A.
- Spaulding, Shannon, Philosophy of Mind, Oklahoma State University, U.S.A.
- Steingroever, Helen, Mathematical Psychology, University of Amsterdam, U.S.A.
- Townsend, Ellen, Psychology, Nottingham University, U.K.
- van de Vliert, Evert, Social Psychology, University of Groningen, The Netherlands
- Vohs, Kathleen D., Social Psychology, University of Minnesota, U.S.A. Zhu, Luke, Business Psychology, University of British Columbia, Canada

Contents Volume 36:1 February 2013

McCullough, M. E., Kurzban, R. & Tabak, B. A. Cognitive systems for

revenge and forgiveness

Open Peer Commentary:		Leiser, D. & Joskowicz-Jabloner, L. On the	
Aureli, F. & Schaffner, C. M. Why so		differential mediating role of emotions in	
complex? Emotional mediation of revenge,		revenge and reconciliation	27
forgiveness, and reconciliation	15	McCoy, M. G. & Shackelford, T. K. No such	
Balliet, D. & Pronk, T. M. Personality,		thing as genuine forgiveness?	28
self-control, and welfare-tradeoff ratios in		O'Connor, K. & Adams, G. S. Affective	
revenge and forgiveness	16	antecedents of revenge	29
Barclay, P. Pathways to abnormal revenge		Pahlavan, F. Third parties belief in a just	
and forgiveness	17	world and secondary victimization	30
Beckerman, S. The cultural shaping		Petersen, M. B. Adaptationism and intuitions	
of revenge	18	about modern criminal justice	31
Crisp, R. J. & Meleady, R. On the evolutionary		Pietraszewski, D. The elementary dynamics	
origins of revenge and forgiveness: A converging		of intergroup conflict and revenge	32
systems hypothesis	19	Potegal, M. Revenge: An adaptive system for	
Dellis, A. & Spurrett, D. An eye for an eye:		maximizing fitness, or a proximate calculation arising	
Reciprocity and the calibration of redress	20	from personality and social-psychological processes?	33
Fatfouta, R., Jacobs, A. & Merkl, A. Towards a		Roberts, S. C. & Murray, J. Applying the	
multifaceted understanding of revenge and		revenge system to the criminal justice system	
forgiveness	21	and jury decision-making	34
Gintis, H. An implausible model and evolutionary		Ross, D. Forgiveness is institutionally mediated,	
explanation of the revenge motive	21	not an isolable modular output	35
Holbrook, C., Fessler, D. M. T. & Gervais, M. M.		Sell, A. N. Revenge can be more fully understood	
Revenge without redundancy: Functional		by making distinctions between anger and hatred	36
outcomes do not require discrete adaptations		Stein, D. J., van Honk, J. & Ellis, G.	
for vengeance or forgiveness	22	Revenge and forgiveness in the New South Africa	37
Johnson-Freyd, S. & Freyd, J. J.		Uhlmann, E. L. The logic of moral outrage	38
Revenge and forgiveness or		Wereha, T. J. & Racine, T. P. A systems view	
betrayal blindness?	23	on revenge and forgiveness systems	39
Karremans, J. C. & van der Wal, R. C. It takes		Yu, R. Revenge, even though it is not your fault	40
more to forgive: The role of executive control	25		
Konečni, V. J. Revenge: Behavioral and		Authors' Response:	
emotional consequences	25	McCullough, M. E., Kurzban, R. & Tabak,	
Konrath, S. & Cheung, I. The fuzzy reality		B. A. Putting revenge and forgiveness in an	
of perceived harms	26	evolutionary context	41

Baumard, N., André, J.-B. & Sperber, D. A mutualistic approach to

morality: The evolution of fairness by partner choice

Open Peer Commentary

Ainslie, G. Intertemporal bargaining predicts moral behavior, even in anonymous, one-shot economic games Ainsworth, S. E. & Baumeister, R. F. Cooperation and fairness depend on selfregulation Alvard, M. S. Partner selection, coordination games, and group selection Atran, S. From mutualism to moral transcendence **Binmore, K.** Modeling justice as a natural phenomenon Bonnefon, J.-F., Girotto, V., Heimann, M. & Legrenzi, P. Can mutualistic morality predict how individuals deal with benefits they did not deserve? Bshary, R. & Raihani, N. "Fair" outcomes without morality in cleaner wrasse mutualism Cappelen, A. W. & Tungodden, B. Heterogeneity in fairness views: A challenge to the mutualistic approach? Clark, M. S. & Boothby, E. A strange(r) analysis of morality: A consideration of relational context and the broader literature is needed Cova, F., Deonna, J. & Sander, D. The emotional shape of our moral life: Anger-related emotions and mutualistic anthropology **DeScioli**, **P.** Does market competition explain fairness? Dunfield, K. A. & Kuhlmeier, V. A. Evidence for partner choice in toddlers: Considering the breadth of other-oriented behaviours Fessler, D. M. T. & Holbrook, C. Baumard et al.'s moral markets lack market dynamics Gill, M. J., Packer, D. J. & Van Bavel, J. More to morality than mutualism: Consistent contributors exist and they can inspire costly generosity in others

	Gintis, H. Mutualism is only a part of human	
	morality	91
	Graham, J. Beyond economic games: A	
78	mutualistic approach to the rest of moral life	91
	Guala, F. Bargaining power and the evolution of	
	un-fair, non-mutualistic moral norms	92
79	Iran-Nejad, A. & Bordbar, F. The paradox of	
	the missing function: How similar is moral	
80	mutualism to biofunctional understanding?	93
	Kirkby, D., Hinzen, W. & Mikhail, J. Your	
81	theory of the evolution of morality depends upon	
	your theory of morality	94
82	Machery, E. & Stich, S. You can't have it both	
	ways: What is the relation between morality and	
	fairness?	95
	Rachlin, H., Locey, M. L. & Safin, V. Biological	
83	evolution and behavioral evolution: Two	
	approaches to altruism	96
83	Ramlakhan, N. & Brook, A. Sense of fairness:	
	Not by itself a moral sense and not a foundation of	
	a lot of morality	96
84	Roberts, G. Competitive morality	97
	Rochat, P. & Robbins, E. Ego function of	
	morality and developing tensions that are "within"	98
85	Sachdeva, S., Iliev, R. & Medin, D. L. Non-	
	mutualistic morality	99
	Shaw, A. & Knobe, J. Not all mutualism is fair,	
86	and not all fairness is mutualistic	100
	Tummolini, L., Scorolli, C. & Borghi, A. M.	
87	Disentangling the sense of ownership from the	
	sense of fairness	101
	Warneken, F. From partner choice to equity –	
88	and beyond?	102
89		
	Authors' Response	
	Baumard, N., André, JB. & Sperber, D.	
	Partner choice, fairness, and the extension of	
00	1	100

90

morality

Contents Volume 36:2 April 2013

Bullot, N. J. & Reber, R. The artful mind meets art history: Toward a psycho-historical framework for the science of art appreciation

Open Peer Commentary:

Open Peer Commentary:		McManus, C. "The anti-developmental,	
Chatterjee, A. Neuroaesthetics: Range and		the anti-narrative, the anti-historical":	
restrictions	137	Mondrian as a paradigmatic artist for	
Davies, S. Artists' intentions and artwork		empirical aesthetics	152
meanings: Some complications	138	Newman, G. E. The duality of art: Body and soul	153
De Smedt, J. & De Cruz, H. The artistic design		Parsons, G. & Carlson, A. Distinguishing	
stance and the interpretation of Paleolithic art	139	intention and function in art appreciation	153
Fitch, W. T. & Westphal-Fitch, G. Fechner		Rollins, M. Exposure, experience, and intention	
revisited: Towards an inclusive approach to		recognition: Take it from the bottom	154
aesthetics	140	Ross, S. Context, causality, and appreciation	155
Freeman, N. H. & Allen, M. L. Educating the		Schellekens, E. A bridge too far: From basic	
design stance: Issues of coherence and transgression	141	exposure to understanding in artistic experience	156
Gelman, S. A., Meyer, M. A. & Noles, N. S.		Silvia, P. J. Aesthetic meanings and aesthetic	
History and essence in human cognition	142	emotions: How historical and intentional	
Gibbs, R. W., Jr. Artistic understanding as		knowledge expand aesthetic experience	157
embodied simulation	143	Takahashi, S. & Ejima, Y. Contextual	
Gilmore, J. Normative and scientific approaches		information processing of brain in art	
to the understanding and evaluation of art	144	appreciation	158
Graham, D. J. Integrating holism and		Thompson, W. F. & Antliff, M. Bridging two	
reductionism in the science of art perception	145	worlds that care about art: Psychological and	
Hirstein, W. Memories of Art	146	historical approaches to art appreciation	159
Hogan, P. C. Art appreciation and aesthetic		Tullmann, K. Questioning the necessity of the	
feeling as objects of explanation	147	aesthetic modes	160
Kozbelt, A. & Ostrofsky, J. Extending the		Vartanian, O. & Kaufman, J. C. Psychological	
psycho-historical framework to understand		and neural responses to art embody viewer and	
artistic production	148	artwork histories	161
Leder, H. Acknowledging the diversity of		Wilson, R. A. Extended artistic appreciation	162
aesthetic experiences: Effects of style, meaning,			
and context	149	Authors' Reponse:	
Levinson, J. Causal history, actual and apparent	150	Bullot, N. J. & Reber, R. A psycho-historical	
Malafouris, L. Mindful art	151	research program for the integrative science of art	163

Contents Volume 36:3 June 2013

Clark, A. Whatever next? Predictive brains, situated agents, and the future of cognitive science

Open Peer Commentary:		Little, D. YJ. & Sommer, F. T. Maximal
Anderson, M. L. & Chemero, T. The problem		mutual information, not minimal entropy, for
with brain GUTs: Conflation of different senses of		escaping the "Dark Room"
"prediction" threatens metaphysical disaster	204	Muckli, L., Petro, L. S. & Smith, F. W.
Block, N. & Siegel, S. Attention and perceptual		Backwards is the way forward: Feedback in the
adaptation	205	cortical hierarchy predicts the expected future
Bowman, H., Filetti, M., Wyble, B. & Olivers,		Paton, B., Skewes, J., Frith, C. & Hohwy, J.
C. Attention is more than prediction precision	206	Skull-bound perception and precision
Bridgeman, B. Applications of predictive control		optimization through culture
in neuroscience	208	Phillips, W. A. Neuronal inference must be local,
Buckingham, G. & Goodale, M. A. When the		selective, and coordinated
predictive brain gets it really wrong	208	Rasmussen, D. & Eliasmith, C. God, the devil,
Dennett, D. C. Expecting ourselves to expect:	200	and the details: Fleshing out the predictive
The Bayesian brain as a projector	209	processing framework
Egner, T. & Summerfield, C. Grounding	200	Roepstorff, A. Interactively human: Sharing
predictive coding models in empirical		time, constructing materiality
neuroscience research	210	Ross , D . Action-oriented predictive processing
Farmer, T. A., Brown, M. & Tanenhaus, M. K.	210	and the neuroeconomics of sub-cognitive reward
Prediction, explanation, and the role of generative		Schaefer, R. S., Overy, K. & Nelson, P. Affect
models in language processing	211	and non-uniform characteristics of predictive
Friston, K. Active inference and free energy	212	processing in musical behaviour
Froese, T. & Ikegami, T. The brain is not an		Seth, A. K. & Critchley, H. D. Extending
isolated "black box," nor is its goal to become one	213	predictive processing to the body: Emotion as
Gerrans, P. Unraveling the mind	214	interoceptive inference
Gowaty, P. A. & Hubbell, S. P. Bayesian animals	211	Shea, N. Perception versus action: The
sense ecological constraints to predict fitness and		computations may be the same but the direction
organize individually flexible reproductive		of fit differs
decisions	215	Silverstein, S. M. Schizophrenia-related
Hirsh, J. B., Mar, R. A. & Peterson, J. B.	210	phenomena that challenge prediction error as the
Personal narratives as the highest level of cognitive		basis of cognitive functioning
integration	216	Sloman, A. What else can brains do?
Holm, L. & Madison, G. Whenever next:		Spratling, M. W. Distinguishing theory from
Hierarchical timing of perception and action	217	implementation in predictive coding accounts of
Khalil, E. L. Two kinds of theory-laden cognitive		brain function
processes: Distinguishing intransigence from		Trappenberg, T. & Hollensen, P. Sparse coding
dogmatism	218	and challenges for Bayesian models of the brain
König, P., Wilming, N., Kaspar, K.,		
Nagel, S. K. & Onat, S. Predictions in the light of		Authors' Response:
your own action repertoire as a general		Clark, A. Are we predictive engines? Perils,
computational principle	219	prospects, and the puzzle of the porous perceiver
computational principie	210	prospects, and the puzzle of the porous perceiver

181

220

221

222

222

223

224

225

226

227

228

229

230

231

232

233

Pothos, E. M. & Busemeyer, J. R. Can quantum probability provide a new direction for cognitive modeling?

Open Peer Commentary:		Kusev, P. & van Schaik, P. The cognitive	
Aerts, D., Broekaert, J., Gabora, L. & Sozzo,		economy: The probabilistic turn in psychology and	
S. Quantum structure and human thought	274	human cognition	294
Atmanspacher, H. At home in the quantum		Lee, M. D. & Vanpaemel, W. Quantum models	
world	276	of cognition as Orwellian newspeak	295
Baldo, M. V. C. Signal detection theory in Hilbert		Love, B. C. Grounding quantum probability in	
space	277	psychological mechanism	296
Banerjee, A. & Horwitz, B. Can quantum		MacLennan, B. J. Cognition in Hilbert space	296
probability help analyze the behavior of functional		Marewski, J. N. & Hoffrage, U. Processes	
brain networks?	278	models, environmental analyses, and cognitive	
Behme, C. Uncertainty about the value of		architectures: Quo vadis quantum probability	
quantum probability for cognitive modeling	279	theory?	297
Blutner, R. & beim Graben, P. The (virtual)		Mender, D. The implicit possibility of dualism in	
conceptual necessity of quantum probabilities in		quantum probabilistic cognitive modeling	298
cognitive psychology	280	Navarro, D. J. & Fuss, I. What are the	
de Castro, A. On the quantum principles of		mechanics of quantum cognition?	299
cognitive learning	281	Newell, B. R., van Ravenzwaaij, D. & Donkin,	
Corr, P. J. Cold and hot cognition: Quantum		C. A quantum of truth? Querying the alternative	
probability theory and realistic psychological		benchmark for human cognition	300
modeling	282	Noori, H. R. & Spanagel, R. Quantum modeling	
Dzhafarov, E. N. & Kujala, J. V. Beyond		of common sense	302
quantum probability: Another formalism shared		Oaksford, M. Quantum probability, intuition,	
by quantum physics and psychology	283	and human rationality	303
Franceschetti, D. R. & Gire, E. Quantum		Pleskac, T. J., Kvam, P. D. & Yu, S. What's the	
probability and cognitive modeling: Some cautions		predicted outcome? Explanatory and predictive	
and a promising direction in modeling physics		properties of the quantum probability	
learning	284	framework	303
Gelman, A. & Betancourt, M. Does quantum		Rakow, T. If quantum probability = classical	
uncertainty have a place in everyday applied		probability + bounded cognition; is this good, bad,	
statistics?	285	or unnecessary?	304
Gonzalez, C. & Lebiere, C. Cognitive		Ross, D. & Ladyman, J. Quantum probability,	
architectures combine formal and heuristic		choice in large worlds, and the statistical structure	
approaches	285	of reality	305
Grace, R. C. & Kemp, S. Quantum probability		Shanteau, J. & Weiss, D. J. Physics envy: Trying	
and comparative cognition	287	to fit a square peg into a round hole	306
Hameroff, S. R. Quantum mathematical		Stewart, T. C. & Eliasmith, C. Realistic neurons	
cognition requires quantum brain biology: The	207	can compute the operations needed by quantum	
"Orch OR" theory	287	probability theory and other vector symbolic	207
Hampton, J. A. Quantum probability and	200	architectures	307
conceptual combination in conjunctions	290	Tentori, K. & Crupi, V. Why quantum	
Houston, A. I. & Wiesner, K. Is quantum	201	probability does not explain the conjunction	000
probability rational?	291	fallacy	308
Kaznatcheev, A. & Shultz, T. R. Limitations of			
the Dirac formalism as a descriptive framework	202	Authors' Boononso	
for cognition	292	Authors' Response:	
Khalil, E. L. Disentangling the order effect from		Pothos, E. M. & Busemeyer, J. R. Quantum	
the context effect: Analogies, homologies, and	202	principles in psychology: The debate, the evidence, and the future	210
quantum probability	293	evidence, and the luture	310

Contents Volume 36:4 August 2013

Pickering, M. J. & Garrod, S. An integrated theory of language production

and comprehension

Open Peer Commentary:

Aitken, K. J. It ain't what you do (it's the way that you do it) 34 Alario, F.-X. & Hamamé, C. M. Evidence for, and predictions from, forward modeling in language production 34 Bowers, J. How do forward models work? And 34 why would you want them? Chang, F., Kidd, E. & Rowland, C. F. Prediction in processing is a by-product of language learning 35 de Ruiter, J. P. & Cummins, C. Forward modelling requires intention recognition and 35 non-impoverished predictions Dell, G. S. Cascading and feedback in interactive models of production: A reflection of forward 35 modeling? Dick, A. S. & Andric, M. The neurobiology of receptive-expressive language interdependence 35 Dove, G. Intermediate representations exclude embodiment 35 Echterhoff, G. The role of action in verbal communication and shared reality 35 Festman, J. The complexity-cost factor in bilingualism 35 Fowler, C. A. An ecological alternative to a "sad response": Public language use transcends the boundaries of the skin 35 Hartsuiker, R. J. Are forward models enough to explain self-monitoring? Insights from patients and eve movements 35 Hickok, G. Predictive coding? Yes, but from what source? 35 Howes, C., Healey, P.G.T., Eshghi, A. & **Hough**, J. "Well, that's one way": Interactivity in parsing and production 359 Jaeger, T. F. & Ferreira, V. Seeking predictions 359 from a predictive framework Johnson, M. A., Turk-Browne, N. B. & Goldberg, A. E. Prediction plays a key role in language development as well as processing 360 Kashima, Y., Bekkering, H. & Kashima, E. S. Communicative intentions can modulate the linguistic perception-action link 3 Kreysa, H. Preparing to be punched: Prediction 3 may not always require inference of intentions

7	Krishnan, S. A developmental perspective on the integration of language production and	363
	comprehension Laurent, R., Moulin-Frier, C., Bessière, P., Schwartz, JL. & Diard, J. Integrate, yes, but	505
8	<i>what</i> and <i>how</i> ? A computational approach of sensorimotor fusion in speech	364
9	Mani, N. & Huettig, F. Towards a complete multiple-mechanism account of predictive	
0	language processing McCauley, S. M. & Christiansen, M. H.	365
	Toward a unified account of comprehension and	
	production in language development	366
1	Meyer, A. S. & Hagoort, P. What does it mean	-
	to predict one's own utterances?	367
1	Mylopoulos, M. I. & Pereplyotchik, D. Is there	
1	any evidence for forward modeling in language production?	368
2	Oppenheim, G. M. Inner speech as a forward	500
_	model?	369
3	Pazzaglia, M. Does what you hear predict what	
	you will do and say?	370
4	Pezzulo, G. & Dindo, H. Intentional strategies	
	that make co-actors more predictable: The case	
5	of signaling	371
	Rabagliati, H. & Bemis, D. K. Prediction is no	070
6	panacea: The key to language is in the unexpected	372
0	Slevc, L. R. & Novick, J. M. Memory and cognitive control in an integrated theory of	
	language processing	373
7	Strijkers, K., Runnqvist, E., Costa, A. &	010
•	Holcomb, P. The poor helping the rich: How can	
8	incomplete representations monitor complete	
	ones?	374
	Trude, A. M. When to simulate and when to	
9	associate? Accounting for inter-talker variability	
	in the speech signal	375
9	Yoon, S. O. & Brown-Schmidt, S. What is the	
	context of prediction?	376

329

377

Authors' Response:

861	Pickering, M. J. & Garrod, S. Forward models
	and their implications for production,
862	comprehension, and dialogue

Schilbach, L., Timmermans, B., Reddy, V., Costall, A., Bente, G., Schlicht, T. & Vogeley, K. Toward a second-person neuroscience

Open Peer Commentary:		Ltongo, M. R. & Tsakiris, M. Merging second-	
Chakrabarti, B. Parameterising ecological		person and first-person neuroscience	429
validity and integrating individual differences		Moore, C. & Paulus, M. A second-person	
within second-person neuroscience	414	approach cannot explain intentionality in social	
Cummins, F. Social cognition is not a special		understanding	430
case, and the dark matter is more extensive than		Moore, K. Second-person neuroscience:	100
recognized	415	Implications for Wittgensteinian and Vygotskyan	
Cleret de Langavant, L., Jacquemot, C.,	110	approaches to psychology	431
Bachoud-Lévi, AC. & Dupoux, E. The		Moore, L. & Iacoboni, M. The use of non-	101
second person in "I"-"you"-"it" triadic interactions	416	interactive scenarios in social neuroscience	432
Dezecache, G., Conty, L. & Grèzes, J. Social	110	Nephew, B. C. What we can learn from second	102
affordances: Is the mirror neuron system		animal neuroscience	433
involved?	417	Overgaard, S. & Krueger, J. Social perception	100
Dominey, P. F. Reciprocity between second-	111	and "Spectator Theories" of other minds	434
person neuroscience and cognitive robotics	418	Redcay, E., Rice, K. & Saxe, R. Interaction	101
Evans, N. On projecting grammatical persons	110	versus observation: A finer look at this distinction	
into social neurocognition: A view from linguistics	419	and its importance to autism	435
Froese, T., Iizuka, H. & Ikegami, T. From	110	Rietveld, E., de Haan, S. & Denys, D. Social	100
synthetic modeling of social interaction to		affordances in context: What is it that we are	
dynamic theories of brain-body-environment-		bodily responsive to?	436
body-brain systems	420	Sameen, N., Thompson, J. & Carpendale, J. I.	100
Gallagher, S., Hutto, D. D., Slaby, J. & Cole, J.	-120	M. Further steps toward a second-person	
The brain as part of an enactive system	421	neuroscience	437
Gallotti, M. Why not the first-person plural in	121	Simpson, E. A. & Ferrari, P. F. Mirror neurons	101
social cognition?	422	are central for a second-person neuroscience:	
Gambi, C. & Pickering, M. J. Talking to each	744	Insights from developmental studies	438
other and talking together: Joint language tasks		Swain, J. E., Konrath, S., Dayton, C. J.,	100
and degrees of interactivity	423	Finegood, E. D. & Ho, S. S. Toward a	
Gariépy, JF., Chang, S. W. C. & Platt, M. L.	720	neuroscience of interactive parent–infant dyad	
Brain games: Toward a neuroecology of social		empathy	438
behavior	424	Syal, S. & Anderson, A. K. It takes two to talk:	100
Hamilton, A. F. de C. Second person	747	A second-person neuroscience approach to	
neuroscience needs theories as well as methods	425	language learning	439
Hamon-Hill, C. & Gadbois, S. From the bottom	120	Vermeulen, N., Pleyers, G. & Mermillod, M.	100
up: The roots of social neuroscience at risk of		Second-person social neuroscience: Connections	
running dry?	426	to past and future theories, methods, and findings	440
Krach, S., Müller-Pinzler, L., Westermann, S.	-120	to past and future incomes, methods, and infamgs	-1-10
& Paulus, F. M. Advancing the neuroscience of			
social emotions with social immersion	427	Authors' Response:	
Lewis, C. & Stack, J. A mature second-person	141	Schilbach, L., Timmermans, B., Reddy, V.,	
neuroscience needs a first-person (plural)		Costall, A., Bente, G., Schlicht, T. & Vogeley, K.	
developmental foundation	428	A second-person neuroscience in interaction	441
rr			

Contents Volume 36:5 October 2013

Van de Vliert, E. Climato-economic habitats support patterns of human needs, stresses, and freedoms

Open Peer Commentary:

Adamopoulos, J. Interpersonal exchange and 48 freedom for resource acquisition Ainslie, G. Cold climates demand more intertemporal self-control than warm climates 48 Allik, J. & Realo, A. How is freedom distributed 48 across the earth? Arantes, J., Grace, R. C. & Kemp, S. Press freedom, oil exports, and risk for natural disasters: 48 A challenge for climato-economic theory? Baumeister, R. F., Park, J. & Ainsworth, S. E. Individual identity and freedom of choice in the context of environmental and economic conditions 48 Burghardt, G. M. Play, animals, resources: The need for a rich (and challenging) comparative 48 environment Chang, L., Chen, B.-B. & Lu, H. J. Cultural adaptation to environmental change versus 48 stability de Oliveira Chen, S. & Kitayama, S. Frontier migration fosters ethos of independence: Deconstructing the climato-economic theory of 48 human culture Desseilles, M., Duclos, C., Flohimont, V. & Desseilles, F. Is there a role for "climatotherapy" in the sustainable development of mental health? 48Fischer, R. Improving climato-economic theorizing at the individual level 48 Gelfand, M. J. & Lun, J. Ecological priming: Convergent evidence for the link between ecology and psychological processes 48 49 Güss, C. D. What about politics and culture? Hrotic, S. Unsurprising, in a good way 491 conditions

	Iyer, R., Motyl, M. & Graham, J. What is	
	freedom – and does wealth cause it?	492
0	Karwowski, M. & Lebuda, I. Extending	
	climato-economic theory: When, how, and why it	
1	explains differences in nations' creativity	493
	Leung, K. & Cheng, G. HL. Methodological	
2	suggestions for climato-economic theory	494
	Locke, J. L. & Flanagan, C. M. The need for	
	psychological needs: A role for social capital	495
3	Loughnan, S., Bratanova, B. & Kuppens, P.	
	Toward an integrated, causal, and psychological	
	model of climato-economics	496
	Murray, D. R. Cultural adaptations to the	
4	differential threats posed by hot versus cold	
	climates	497
	Pahlavan, P. & Amirrezvani, A. Contextual	
4	freedom: Absoluteness versus relativity of	
	freedom	498
	Paternotte, C. Shared adaptiveness is not group	
5	adaptation	499
	Sparks, A., Mishra, S. & Barclay, P.	
	Fundamental freedoms and the psychology of	
	threat, bargaining, and inequality	500
6	Terracciano, A. & Chan, W. Personality traits,	
	national character stereotypes, and climate–	
	economic conditions	501
7	Vigil, J. M., Swartz, T. J. & Rowell, L. N. Subtle	
	variation in ambient room temperature influences	
8	the expression of social cognition	502
	Author's Response:	
9	Van de Vliert, E. White, gray, and black domains	
0	of cultural adaptations to climato-economic	
1	conditions	503

465

523

Jeffery, K. J., Jovalekic, A., Verriotis, M. & Hayman, R. Navigating in a three-dimensional world

Open Peer Commentary:		Bianchi, I. & Bertamini, M. Anisotropy and	
Badets, A. Semantic sides of three-dimensional		polarization of space: Evidence from naïve optics	
	543	and phenomenological psychophysics	545
Barnett-Cowan, M. & Bülthoff, H. H. Human		Burt de Perera, T., Holbrook, R., Davis, V.,	
path navigation in a three-dimensional world	544	Kacelnik, A. & Guilford, T. Navigating in a	
Berthoz, A. & Thibault, G. Learning landmarks		volumetric world: Metric encoding in the vertical	
and routes in multi-floored buildings	545	axis of space	546

Carbon, CC. & Hesslinger, V. M. Navigating through a volumetric world does not imply needing a full three-dimensional representation	547	Pasqualotto, A. & Proulx, M. J. The study of blindness and technology can reveal the mechanisms of three-dimensional navigation
Dudchenko, P. A., Wood, E. R. & Grieves, R. M. Think local, act global: How do fragmented		Peremans, H. & Vanderelst, D. Augmented topological maps for three-dimensional
representations of space allow seamless navigation?	548	navigation
Durgin, F. H. & Li, Z. Perceptual experience as		Phillips, J. G. & Ogeil, R. P. Navigation bicoded
a bridge between the retina and a bicoded		as functions of x-y and time?
cognitive map	549	Powers, D. M. W. Vertical and veridical –
Dyer, A. G. & Rosa, M. G. P. Learning to		2.5-dimensional visual and vestibular navigation
navigate in a three-dimensional world: From bees to primates	550	Ross, H. E. Foreshortening affects both uphill and downhill slope perception at far
Holmes, K. J. & Wolff, P. Spatial language as a	000	distances
window on representations of three-dimensional		Savelli, F. & Knierim, J. J. The problem of
space	550	conflicting reference frames when investigating
Hölscher, C., Büchner, S. & Strube, G. Multi-		three-dimensional space in surface-dwelling
floor buildings and human wayfinding cognition	551	animals
Howard, A. M. & Fragaszy, D. M. Applying the		Schultheis, H. & Barkowsky, T. Just the tip of
bicoded spatial model to nonhuman primates in an arboreal multilayer environment	552	the iceberg: The bicoded map is but one instantiation of scalable spatial representation
Kaplan, D. M. The complex interplay between	002	structures
three-dimensional egocentric and allocentric		Sparks, F. T., O'Reilly, K. C. & Kubie, J. L.
spatial representation	553	What is optimized in an optimal path?
Klatzky, R. L. & Giudice, N. A. The planar		Stella, F., Si, B., Kropff, E. & Treves, A. Grid
mosaic fails to account for spatially directed action	554	maps for spaceflight, anyone? They are for free!
Lehky, S. R., Sereno, A. B. & Sereno, M. E.		Wang, R. F. & Street, W. N. What counts as the
Monkeys in space: Primate neural data suggest	555	evidence for three-dimensional and four-
volumetric representations Longstaffe, K. A., Hood, B. M. & Gilchrist, I.	000	dimensional spatial representations? Weisberg, S. M. & Newcombe, N. S. Are all
D. Development of human spatial cognition in a		types of vertical information created equal?
three-dimensional world	556	Yamahachi, H., Moser, MB. & Moser, E. I.
Moss, C. F. Has a fully three-dimensional space		Map fragmentation in two- and three-dimensional
map never evolved in any species? A comparative		environments
imperative for studies of spatial cognition	557	Zappettini, S. & Allen, C. Does evidence from
Nardi, D. & Bingman, V. P. Making a stronger		ethology support bicoded cognitive maps?
case for comparative research to investigate the behavioral and neurological bases of three-		
dimensional navigation	557	
Orban, G. A. Which animal model for		Authors' Response:
understanding human navigation in a three-	FF 0	Jeffery, K. J., Jovalekic, A., Verriotis, M. &
dimensional world?	558	Hayman, R. A framework for three-dimensional navigation research

Contents Volume 36:6 December 2013

Llewellyn, S. Such stuff as dreams are made on? Elaborative encoding, the ancient art of memory, and the hippocampus

589

Open Peer Commentary:

Open Peer Commentary: Axmacher, N. & Fell, J. The analogy between		Hobson, A. The ancient art of memory Kirov, R. REM sleep and dreaming functions	621
dreams and the ancient art of memory is tempting		beyond reductionism	621
but superficial	607	Markowitsch, H. J. & Staniloiu, A. The spaces	011
Bimler, D. L. Some Renaissance, Baroque, and		left over between REM sleep, dreaming,	
contemporary cultural elaborations of the art of		hippocampal formation, and episodic	
memory	608	autobiographical memory	622
Blagrove, M., Ruby, P. & Eichenlaub, JB.		Mattei, T. A. The secret is at the crossways:	
Dreams are made of memories, but maybe not for		Hodotopic organization and nonlinear dynamics of	
memory	609	brain neural networks	623
Cheng, S. & Werning, M. Composition and		Nielsen, T. The method of loci (MoL) and	
replay of mnemonic sequences: The contributions		memory consolidation: Dreaming is not MoL-like	624
of RÉM and slow-wave sleep to episodic memory	610	Pearlmutter, B. A. & Houghton, C. J. Dreams,	
Cicogna, P. & Occhionero, M. Such stuff as		mnemonics, and tuning for criticality	625
NREM dreams are made on?	611	Porte, H. S. From Freud to acetylcholine: Does	
D'Agostino, A. & Scarone, S. Such stuff as		the AAOM suffice to construct a dream?	626
psychoses are made on?	612	Schredl, M. Studying the relationship between	
Deliens, G., Schwartz, S. & Peigneux, P. Don't		dreaming and sleep-dependent memory	
count your chickens before they're hatched:		processes: Methodological challenges	628
Elaborative encoding in REM dreaming in face of		Solms, M. Dreaming is not controlled by	
the physiology of sleep stages	613	hippocampal mechanisms	629
Desseilles, M. & Duclos, C. Dream and		Spoormaker, V. I., Czisch, M. & Holsboer, F.	
emotion regulation: Insight from the ancient art of		REM sleep, hippocampus, and memory	
memory	614	processing: Insights from functional neuroimaging	
DeYoung, C. G. & Grazioplene, R. G.		studies	629
"They who dream by day": Parallels between		van Heugten-van der Kloet, D.,	
Openness to Experience and dreaming	615	Merckelbach, H. & Lynn, S. J. Dissociative	
Dominey, P. F. A hippocampal indexing model		symptoms and REM sleep	630
of memory retrieval based on state trajectory	C15	Westermann, S., Paulus, F. M., Müller-	
reconstruction	615	Pinzler, L. & Krach, S. Elaborative encoding	
Dresler, M. & Konrad, B. N. Mnemonic	C1C	during REM dreaming as prospective emotion	001
expertise during wakefulness and sleep	616	regulation	631
Erdelyi, M. H. Beware of being captured by an	617	Windt, J. M. Minding the dream self:	
analogy: Dreams are like many things	617	Perspectives from the analysis of self-experience in dreams	633
Girard, T. A. The seahorse, the almond, and the night-mare: Elaborative encoding during sleep-		in creams	055
paralysis hallucinations?	618		
Globus, G. Ontological significance of the dream	010		
world	619	Author's Response:	
Greenberg, R. A three-legged stool needs a	010	Llewellyn, S. Such stuff as REM and NREM	
stronger third leg	620	dreams are made on? An elaboration	634
adongor and log			001

Kurzban, R., Duckworth, A., Kable, J. W. & Myers, J. An opportunity cost model of subjective effort and task performance

Open Peer Commentary		Huizenga, H. M., van der Molen, M. W.,	
Ainslie, G. Monotonous tasks require self-control		Bexkens, A. & van den Wildenberg, W. P. M.	
because they interfere with endogenous reward	679	Formal models of "resource depletion"	694
Bonato, M., Zorzi, M. & Umiltà, C. Difficulty		Inzlicht, M. & Schmeichel, B. J. Beyond simple	
matters: Unspecific attentional demands as a		utility in predicting self-control fatigue: A	
major determinant of performance highlighted by		proximate alternative to the opportunity cost	
clinical studies	680	model	695
Bruyneel, S. D. & Dewitte, S. An addition to		Iran-Nejad, A. & Zengaro, S. A. Opportunity	
Kurzban et al.'s model: Thoroughness of cost-		prioritization, biofunctional simultaneity, and	
benefit analyses depends on the executive tasks at		psychological mutual exclusion	696
hand	681	Kool, W. & Botvinick, M. The intrinsic cost of	
Brzezicka, A., Kamiński, J. & Wróbel, A. Local		cognitive control	697
resource depletion hypothesis as a mechanism for		Malecek, N. J. & Poldrack, R. A. Beyond	
action selection in the brain	682	dopamine: The noradrenergic system and	
Carter, E. C. & McCullough, M. E. Is ego		mental effort	698
depletion too incredible? Evidence for the		Molden, D. C. An expanded perspective on the	
overestimation of the depletion effect	683	role of effort phenomenology in motivation and	
Charney, E. Can tasks be inherently boring?	684	performance	699
Cohen, D. B. & Saling, L. L. Maximising utility		Monterosso, J. & Luo, S. Willpower is not	
does not promote survival	685	synonymous with "executive function"	700
Craig, A. D. An interoceptive neuroanatomical		Navon, D. Effort aversiveness may be functional,	
perspective on feelings, energy, and effort	685	but does it reflect opportunity cost?	701
Gendolla, G. H. E. & Richter, M. Opportunity		Nicolle, A. & Riggs, K. The costs of giving up:	
cost calculations only determine <i>justified</i> effort –		Action versus inaction asymmetries in regret	702
Or, What happened to the resource conservation		Prudkov, P. N. Mental effort and fatigue as	
principle?	686	consequences of monotony	702
Hagger, M. S. The opportunity cost model:		Tops, M., Boksem, M. A. S. & Koole, S. L.	
Automaticity, individual differences, and self-		Subjective effort derives from a neurological	
control resources	687	monitor of performance costs and physiological	-
Harrison, J. M. D. & McKay, R. Give me		resources	703
strength or give me a reason: Self-control, religion,	000	Westbrook, J. A. & Braver, T. S. The economics	T 0.4
and the currency of reputation	688	of cognitive effort	704
Harvey, N. Depletable resources: Necessary, in	000	Wright, R. A. & Pantaleo, G. Effort processes in	
need of fair treatment, and multi-functional	689	achieving performance outcomes: Interrelations	FOF
Hennecke, M. & Freund, A. M. Competing		among and roles of core constructs	705
goals draw attention to effort, which then enters	000	Zayas, V., Günaydin, G. & Pandey, G.	
cost-benefit computations as input	690	Persistence: What does research on self-regulation	700
Hillman, K. L. & Bilkey, D. K. Persisting		and delay of gratification have to say?	706
through subjective effort: A key role for the	CO1		
anterior cingulate cortex?	691	Authors' Deenenee	
Hofmann, W. & Kotabe, H. On treating effort as	c02	Authors' Response:	
a dynamically varying cost input	692	Kurzban, R., Duckworth, A., Kable, J. W. &	
Holroyd, C. B. Theories of anterior cingulate	602	Myers, J. Cost-benefit models as the next, best	707
cortex function: Opportunity cost	693	option for understanding subjective effort	707
BBS Associateship 2013			727
DD5 A550Clate5111P 2015			141

CAMBRIDGE



New and Exciting Scholarship in Psychology *from* Cambridge University Press!

Animal

Communication Theory Information and Influence

Ulrich E. Stegmann \$99.00: Hb: 978-1-107-01310-0: 468 pp.

Creativity and Crime A Psychological Analysis

David H. Cropley and Arthur J. Cropley \$90.00: Hb: 978-1-107-02485-4: 256 pp.

How Humans Learn to Think Mathematically

Exploring the Three Worlds of Mathematics

David Tall Learning in Doing: Social, Cognitive and Computational Perspectives \$99.00: Hb: 978-1-107-03570-6 \$39.99: Pb: 978-1-107-66854-6: 476 pp.

Human Development in the Life Course Melodies of Living

Tania Zittoun, Jaan Valsiner, Dankert Vedeler, João Salgado, Miguel M. Gonçalves *and* Dieter Ferring \$99.00: Hb: 978-0-521-76938-9: 442 pp.

Knowing and Not Knowing in Intimate Relationships

Paul C. Rosenblatt and Elizabeth Wieling \$95.00: Hb: 978-1-107-04132-5: 205 pp.

Learn to Write Badly

How to Succeed in the Social Sciences Michael Billig \$65.00: Hb: 978-1-107-02705-3 \$22.99: Pb: 978-1-107-67698-5: 240 pp.

Pedagogy in Higher Education A Cultural Historical Approach Gordon Wells *and* Anne Edwards \$90.00: Hb: 978-1-107-01465-7: 256 pp.

Play, Playfulness, Creativity and Innovation

Patrick Bateson and Paul Martin \$85.00: Hb: 978-1-107-01513-5 \$34.99: Pb: 978-1-107-68934-3: 162 pp.

Reflective Thinking in Educational Settings

A Cultural Framework

Alessandro Antonietti, Emanuela Confalonieri *and* Antonella Marchetti \$99.00: Hb: 978-1-107-02573-8: 352 pp.

Self-Regulation and Autonomy

Social and Developmental Dimensions of Human Conduct

Bryan W. Sokol, Frederick M. E. Grouzet and Ulrich Müller Interdisciplinary Approaches to

Knowledge and Development \$90.00: Hb: 978-1-107-02369-7: 310 pp.

The Cambridge Handbook of Communication Disorders

Louise Cummings Cambridge Handbooks in Language and Linguistics \$150.00: Hb: 978-1-107-02123-5: 716 pp.

The Neuroscience of Freedom and Creativity Our Predictive Brain

Joaquín M. Fuster \$80.00: Hb: 978-1-107-02775-6 \$27.99: Pb: 978-1-107-60862-7: 282 pp.

The Psychology of

Contemporary Art Gregory Minissale \$99.00: Hb: 978-1-107-01932-4: 404 pp.

The Unity of

Mind, Brain and World Current Perspectives on a Science of Consciousness Alfredo Pereira, Jr. and Dietrich Lehmann \$99.00: Hb: 978-1-107-02629-2: 368 pp.

Virtues and Vices in Positive Psychology A Philosophical Critique Kristján Kristjánsson \$95.00: Hb: 978-1-107-02520-2: 262 pp.

Prices subject to change.



www.cambridge.org/psychology @CambUP_Psych



UNIVERSITY PRESS

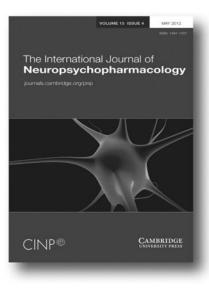
CAMBRIDGE

JOURNALS

The International Journal of **Neuropsychopharmacology**

EDITOR

Alan Frazer, University of Texas Health Science Center, San Antonio, USA



The International Journal of Neuropsychopharmacology (IJNP) serves as a major forum for the rapid publication and wide dissemination of high quality, influential research in neuropsychopharmacology, in the basic and clinical domains. The central focus of the journal is on research which advances understanding of existing and new neuropsychopharmacological agents, including their mode of action and clinical application, or which provides insights into the biological basis of neuropsychiatric disorders and thereby advances their pharmacological treatment. Such research might derive from the full spectrum of biological and psychological fields of inquiry, encompassing classical and novel techniques in neuropsychopharmacology, as well as strategies such as neuroimaging, genetics, psycho-neuroendocrinology and neuropsychology. IJNP's rapid publication policy is facilitated by web-based submission and review, and the journal publishes the definitive versions of papers online, ahead of the printed issues. All papers are indexed in PubMed and Thomson Reuters Journal Citation Reports.

FREE email alerts

Keep up-to-date with new material – sign up at http://journals.cambridge.org/pnp-alerts

http://journals.cambridge.org/pnp





CAMBRIDGE

Journal of the International Neuropsychological Society

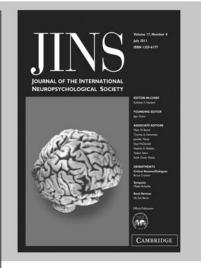
JOURNALS

Published for the International Neuropsychological Society

Editor-in-Chief

Kathleen Y. Haaland, NM VA Healthcare System, Albuquerque, US

JINS aims to further scientific and research activities in neuropsychology and enhance communication among its cognate member disciplines. The journal publishes scholarly, peer-reviewed articles and includes original research, timely review articles and transactions of the annual meetings of the International Neuropsychological Society. Contributions reflect the interest of all areas of neuropsychology, including (but not limited to): development of cognitive processes, brain–behavior relationships, adult neuropsychology, child neuropsychology, developmental neuropsychology, disorders of speech and language, and related topics such as behavioral neurology, neuropsychiatry, neuroimaging, and electrophysiology.



Journal of the International Neuropsychological Society is available online at: http://journals.cambridge.org/ins

To subscribe contact Customer Services

in Cambridge: Phone +44 (0)1223 326070 Fax +44 (0)1223 325150 Email journals@cambridge.org

in New York: Phone +1 (845) 353 7500 Fax +1 (845) 353 4141 Email subscriptions_newyork@cambridge.org

Free email alerts Keep up-to-date with new material – sign up at journals.cambridge.org/register

For free online content visit: http://journals.cambridge.org/ins



Behavioral and Brain Sciences

Instructions for Authors and Commentators http://journals.cambridge.org/BBSJournal/Inst

Behavioral and Brain Sciences (BBS) is a unique scientific communication medium, providing the service of Open Peer Commentary for reports of significant current work in psychology, neuroscience, behavioral biology or cognitive science. If a manuscript is judged by BBS referees and editors to be appropriate for Commentary (see Criteria below), it is circulated electronically to a large number of commentators selected (with the aid of systematic bibliographic searches and e-mail Calls for Commentators) from the BBS Associateship and the worldwide biobehavioral science community, including individuals recommended by the author. If you are not a BBS Associate and wish to enquire about joining, please see the instructions for associate membership at http://journals.cambridge.org/BBSJournal/Inst

Once the Commentary stage of the process has begun, the author can no longer alter the article, but can respond formally to all commentaries accepted for publication. The target article, commentaries, and authors' responses then co-appear in BBS. (Note: Continuing Commentary submissions are no longer being accepted.)

Criteria for acceptance: To be eligible for publication, a paper should not only meet the standards of a journal such as *Psychological Review or the International Review of Neurobiology* in terms of conceptual rigor, empirical grounding, and clarity of style, but the author should also offer an explicit 500 word rationale for soliciting Commentary, and a list of suggested commentators (complete with e-mail addresses).

A BBS target article an be: (i) the report and discussion of empirical research that the author judges to have broader scope and implications than might be more appropriately reported in a specialty journal; (ii) an unusually significant theoretical article that formally models or systematizes a body of research; or (iii) a novel interpretation, synthesis, or critique of existing experimental or theoretical work. Occasionally, articles dealing with social or philosophical aspects of the behavioral and brain sciences will be considered.

The service of Open Peer Commentary will be primarily devoted to original unpublished manuscripts written specifically for BBS treatment. However, a recently published book whose contents meet the standards outlined above spontaneously and multiply nominated by the BBS Associateship may also be eligible for Commentary. In such a BBS Multiple Book Review, a comprehensive, article-length précis by the author is published together with the commentaries and the author's response. In special cases, Commentary will also be extended to a position paper or an already published article that deals with particularly influential or controversial research or that has itself proven to be especially important or controversial. In normal cases however, BBS submissions may not be already published (either in part or whole) or be under consideration for publication elsewhere and submission of an article is considered expressly to imply this. Multiple book reviews and previously published articles appear by invitation only. Self-nominations cannot be considered, neither can non-spontaneous (i.e. author elicited) nominations. However, the BBS Associateship and professional readership of BBS are encouraged to nominate current topics, books and authors for Commentary; e-mail bbsjournal@cambridge.org

In all the categories described, the decisive consideration for eligibility will be the desirability of Commentary for the submitted material. Controversiality simpliciter is not a sufficient criterion for soliciting Commentary: a paper may be controversial simply because it is wrong or weak. Nor is the mere presence of interdisciplinary aspects sufficient: general cybernetic and "organismic" disquisitions are not appropriate for BBS. Some appropriate rationales for seeking Open Peer Commentary would be that: (1) the material bears in a significant way on some current controversial issues in behavioral and brain sciences; (2) its findings substantively contradict some well-established aspects of current research and theory; (3) it criticizes the findings, practices, or principles of an accepted or influential line of work; (4) it unifies a substantial amount of disparate research; (5) it has important cross-disciplinary ramifications; (6) it introduces an innovative methodology or formalism for broader consideration; (7) it meaningfully integrates a body of brain and behavioral data; (8) it places a hitherto dissociated area of research into an evolutionary or ecological perspective; etc. In order to assure communication with potential commentators (and readers) from other BBS specialty areas, all technical terminology must be clearly defined or simplified, and specialized concepts must be fully described. In case of doubt of appropriateness for BBS Commentary, authors should submit a detailed target article proposal using the new BBS Editorial Manager site at http://www.editorialmanager.com/bbs/. After evaluating the proposal, the Editors will encourage or discourage formal target article submission.

A note on commentaries: The purpose of the Open Peer Commentary service is to provide a concentrated constructive interaction between author and commentators on a topic judged to be of broad significance to the biobehavioral science community. Commentators should provide substantive criticism, interpretation, and elaboration as well as any pertinent complementary or supplementary material, such as illustrations; all original data will be refereed in order to assure the archival validity of BBS commentaries. Commentaries and articles should be free of hyperbole and remarks ad hominem. Please refer to and follow exactly the BBS Instructions for Commentators thttp://journals.cambridge.org/BBSJournal/Inst before submitting your invited commentary.

Style and format for target articles: Target Articles must not exceed 14,000 words (and should ordinarily be considerably shorter); commentaries should not exceed 1,000 words, excluding references. Spelling, capitalization, and punctuation should be consistent within each article and commentary and should follow the style recommended in the latest edition of *A Manual of Style*, The University of Chicago Press. It is advisable to examine a recent issue of BBS as a model.

Target articles should be submitted in MSWord format to the new Editorial Manager site at http://www.editorialmanager.com/bbs/. Figures should appear in the body of the text, not at the end of the paper, and should also be supplied as separate TIFF, EPS, JPEG, or GIF files. However, if your article is accepted, TIFF or EPS format will be requested for publication since printing requires resolutions of at least 1100dpi. (Please note that costs for color figure reproduction will be passed along to the author. Color printing is expensive, and authors are encouraged to find alternative methods for presentation of their argument.) Once accepted, a Call for Commentators will be sent to thousands of BBS Associates and readers. The Call letter includes a link to the pre-copyedited final draft archived publicly for potential commentators. The copyedited final draft will only be posted for the invited commentators.

Please make sure your target article file has ALL of the following in this order: Four Separate Word Counts (for the abstract, main text, references, and entire text – total + addresses etc.), an Indexable Title, Full Name(s), Institutional Address(es), E-mail Address(es) and Homepage URL(s) for all authors (where available), Short Abstract (100 words), Long Abstract (250 words), 5–10 Keywords (in alphabetical order), approx. 12,000 word Main Text (with paragraphs separated by full blank lines, not tab indents), and Alphabetical Reference List. Target article authors must also provide numbered headings and subheadings to facilitate cross-reference by commentators. Tables and figures (i.e., photographs, graphs, charts, or other artwork) should be numbered consecutively, and should appear in its appropriate location. Every table should have a title; every figure, a caption.

Endnotes and appendices should be grouped together at the end of the paper and should ideally be locally linked to in the text to facilitate the reader (and of course the referee's task). Acknowledgements should be placed at the end of the paper.

The short abstract will appear by way of an advertisement, one issue in advance of the publication issue. The long abstract will be circulated to referees and then potential commentators should the paper be accepted, and will appear with the printed article. BBS's rigorous timetable constraints (requiring the coordination of target articles, commentaries and author's responses within the publishing queue) make it extremely difficult for us to process follow-up drafts of your submission. Please make sure that the paper you submit is the carefully checked final draft to which you wish the referees to address.

Please also ensure that your submission has been proof-read by a native English speaker before submission. This, of course, greatly improves its chances at the refereeing stage.

References: Bibliographic citations in the text must include the author's last name and the date of publication and may include page references. Complete bibliographic information for each citation should be included in the list of references. Please also include and link to the WWW URL for any paper for which it exists. Examples of correct styles are: Brown (1973); (Brown 1973); Brown 1973; 1978); (Brown 1973; Jones 1976); (Brown & Jones 1978); (Brown et al. 1978). References should be in alphabetical order in the style of the following examples. Do not abbreviate journal titles:

- Freeman, W. J. (1958) Distribution in time and space of prepyriform electrical activity. *Journal of Neurophysiology* 2:644–66. http://cogprints.soton.ac.uk/abs/ neuro/199806009
- Dennet, D. C. (1991) Two contrasts: Folk craft versus folk science and belief versus opinion. In: The future of folk psychology: Intentionality and cognitive science, ed. J. D. Greenwood, pp. 26–7. Cambridge University Press. http:// cogprints.soton.ac.uk/abs/phil/199804005
- Bateson, P.P.G. & Hinde, R.A., eds. (1978) *Growing points in ethology*. Cambridge University Press.

Editing: The publishers reserve the right to edit and proof all articles and commentaries accepted for publication. Authors of target articles will be given the opportunity o review the copy-edited manuscript and page proofs. Commentators will be asked to review copy-editing only when changes have been substantial; commentators will not see proofs. Both authors and commentators should notify the editorial office of all corrections within 48 hours or approval will be assumed.

Author response to commentaries: All invited commentaries received before the deadline are only accessible to the Authors and Editors. Please note that no commentary is officially accepted until the Editor in charge has formally reviewed it and notified both the authors and the Editorial Administrator. Please refer to and follow exactly the BBS Commentary Response Instructions at http://journals.cambridge.org/BBSJournal/Inst before submitting your response.

Authors of target articles receive 50 offprints of the entire treatment, and can purchase additional copies. Commentators will also be given an opportunity to purchase offprints of the entire treatment.

In this issue

Offprints of the following forthcoming BBS treatments can be purchased for educational purposes if they are ordered well in advance. For ordering information, please write to Journals Department, Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473.

Such stuff as dreams are made on? Elaborative encoding, the ancient art of memory, and the hippocampus

Sue Llewellyn

An opportunity cost model of subjective effort and task performance

Robert Kurzban, Angela Duckworth, Joseph W. Kable, and Justus Myers

To appear in upcoming issues (2014)

Unconscious influences on decision making: A critical review

Ben R. Newell, University of New South Wales, and David R. Shanks, University College London

Recommendations to "stop thinking" and rely on "gut instincts" reflect widely held beliefs that our decisions can be influenced by unconscious processes. This article evaluates some of the wide range of research findings from the past 20 or so years on this topic. Critical analysis points to a surprising conclusion: There is little convincing evidence of unconscious influences on decision making. We conclude that such influences should not, therefore, be assigned a prominent role in theories of decision making and related behaviors.

With commentary from L Antony; RF Baumeister, KD Vohs & EJ Masicampo; J Bernacer, G Balderas, I Martinez-Valbuena, MA Pastor & JI Murillo; B Brogaard, K Marlow & K Rice; SJ Brooks & DJ Stein; G Coppin; A Dijksterhuis, A van Knippenberg, RW Holland & H Veling; JStBT Evans; M Finkbeiner & M Coltheart; C González-Vallejo, TR Stewart, GD Lassiter & JM Weindhardt; A Hahn & B Gawronski; RR Hassin & M Milyavsky; EG Helzer & D Dunning; RM Hogarth; HM Huizenga, ACK van Duijvenvoorde, D van Ravenzwaaij, R Wetzels & BRJ Jansen; K Hytönen; GPD Ingram & K Prochownik; IPL McLaren, BD Dunn, NS Lawrence, FN Milton, F Verbruggen, T Stevens, A McAndrew & F Yeates; R Ogilvie & P Carruthers; N Persaud & P McLeod; T Rakow; S Sher & P Winkielman; M Snodgrass, H Shevrin & JA Abelson; N Srinivasan & S Mukherjee; H Steingroever & E-J Wagenmakers; EL Uhlmann; M Velmans; L Waroquier, M Abadie, O Klein & A Cleeremans

Mapping collective behavior in the big-data era

R. Alexander Bentley, University of Bristol, Michael J. O'Brien, University of Missouri, and William A. Brock, University of Missouri and University of Wisconsin

Individuals in the present online age have access to social connections on an unprecedentedly large and unpredictable scale. Similarly, behavioral scientists now have access to "big data" sets that track those connections. Although novel, studies of human dynamics based on these data sets can foster the misconception that mass-scale online behavior is all we need to know in order to understand how humans make decisions. To overcome that misconception, we draw on the field of discrete-choice theory to create a multiscale comparative "map" that captures the essence of decision making along two axes: one representing the degree to which agents' decisions are independently made versus socially influenced, the other axis representing the degree to which there is transparency in the payoffs and risks associated with these decisions. Dividing the map into quadrants featuring signature behavioral patterns, we provide an empirical framework for evaluating how modern collective behavior may be changing in the digital age.

With commentary from P Analytis, M Moussaïd, F Artinger, JE Kämmer & G Gigerenzer; FL Bookstein; R Buck; M Christen & P Brugger; SN Durlauf; JE Fan & JW Suchow; S Fortunato, J Saramäki & JP Onnela; AN García, JM Torralba & AM González; EJ Godzińska & A Wróbel; A Hopfensitz, E Lorini & F Moisan; MT Keane & A Gerow; G Le Mens; RJ MacCoun; RA McCain & R Hamilton; A Mesoudi; HS Moat, T Preis, CY Olivola, C Liu & N Chater; SH Norgate, N Davies, C Speed, T Cherrett & J Dickinson; MB O'Donnell, EB Falk & S Konrath; HR Pfister & G Böhm; SM Reader & I Leris; EB Roesch, F Stahl & MM Gaber; D Ross; D Ruths & T Shultz; CT Schmidt; D Spurrett; JE Swain, C Sripada & JD Swain; M Taquet, J Quoidbach, Y-A de Montjoye & M Desseilles; EL Uhlmann & R Silberzahn; X Zhou, W Xie & M Ye

Among the articles to appear in forthcoming issues of BBS:

- B. R. Newell & D. R. Shanks, "Unconscious influences on decision making: A critical review"
- R. A. Bentley, M. J. O'Brien & W. A. Brock, "Mapping collective behavior in the big-data era"
 J. Y. Huang & J. A. Bargh, "The selfish goal: Autonomously operating motivational structures as the proximate cause of human judgment and behavior"
 R. Cook, G. Bird, C. Catmur, C. Press & C. Heyes, "Mirror neurons: From origin to function"
 J. R. Hibbing, K. B. Smith & J. R. Alford, "Differences in negativity bias underlie variations in political ideology"

- P. E. Smaldino, "The cultural evolution of emergent group-level traits"

 A. Lankford, "The myth of martyrdom: What really drives suicide bombers, rampage shooters, and other self-destructive killers"
 D. S. Wilson & S. C. Hayes, "Evolving the future: Toward a science of intentional change"
 A. Cimpian & E. Salomon, "The inherence heuristic: An intuitive means of making sense of the world, and a potential precursor to psychological essentialism" H. Ackermann, S. R. Hage & W. Ziegler, "Brain mechanisms of acoustic communication in humans and nonhuman primates: An evolutionary perspective"

Cambridge Journals Online

For further information about this journal please go to the journal website at:

journals.cambridge.org/bbs



