BERNAT COROMINAS-MURTRA
FULL PUBLICATION LIST
JANUARY 2020

Papers in peer-reviewed journals.

(52) **Stem cell lineage survival as a noisy competition for niche access** Bernat Corominas-Murtra, Colinda L.G.J. Scheele, Kasumi Kishi, Saskia Ellenbroek, Benjamin D. Simons, Jacco van Rheenen, and Edouard Hannezo (under review)

(51) **A morphospace framework to assess cognitive flexibility based on brain functional networks** Duy Duong-Tran, Enrico Amico, Bernat Corominas-Murtra, Mario Ventresca, and Joaquín Goñi (under review) *ArXiv e-print*: arXiv:1901.10962v1 [q-bio.NC]

(50) **Decomposing information into copying versus transformation** Artemy Kolchinsky, and Bernat Corominas-Murtra *Journal of the Royal Society Interface* –accepted for publication (2020)

(49) **Thermodynamics of duplication thresholds in synthetic protocell systems** Bernat Corominas-Murtra *Life* 9(1), 9 (2019)

(48) **Chromatic transitions in the emergence of syntax networks** Bernat Corominas-Murtra, Martí Sànchez Fibla, Sergi Valverde, and Ricard Solé *Royal Society Open Science* 5 (12), 181286 (2018)

(47) **Zipf's law, unbounded complexity and open-ended evolution** Bernat Corominas-Murtra, Luís Seoane, and Ricard Solé *Journal of the Royal Society Interface* 15 (149), 20180395 (2018)

(46) **Correction: Fitting power-laws in empirical data with estimators that work for all exponents** Rudolf Hanel, Bernat Corominas-Murtra, Bo Liu, and Stefan Thurner *PloS one* 13 (4), e0196807 (2018)

(45) **How driving rates determine the statistics of driven non-equilibrium systems with stationary distributions** Bernat Corominas-Murtra, Rudolf Hanel, Leonardo Zavojanni, and Stefan Thurner *Scientific Reports* 8, 10837 (2018)

(44) **Is the architecture of mutualistic networks an evolutionary spandrel?** Sergi Valverde, Jordi Piñero, Bernat Corominas-Murtra, Jose Montoya, Lucas Joppa, Ricard Solé *Nature Ecology and Evolution* 2(1), 94 (2018)

(43) **Sample space reducing cascading processes produce the full spectrum of scaling exponents** Bernat Corominas-Murtra, Rudolf Hanel, Stefan Thurner *Scientific Reports* 7, 11223 (2017)

(42) **The three faces of entropy for complex systems -information, thermodynamics and the maxent principle** Stefan Thurner, Bernat Corominas-Murtra, Rudolf Hanel *Physical Review E* 96, 032124 (2017)

(41) **Analytical computation of frequency distributions of path-dependent processes by means of a maximum entropy approach** Rudolf Hanel, Bernat Corominas-Murtra and Stefan Thurner *New Journal of Physics* 19 033008 (2017)

(40) **Fitting power-laws in empirical data with estimators that work for all exponents** Rudolf Hanel, Bernat Corominas-Murtra, Bo Liu and Stefan Thurner *PLoS ONE* 12(2): e0170920 (2017)

(39) **Extreme robustness of scaling in sample space reducing processes explains Zipf's law in diffusion on directed networks** Bernat Corominas-Murtra, Rudolf Hanel and Stefan Thurner *New Journal of Physics* 18 (9), 093010, (2016)

(38) **Understanding scaling through history-dependent processes with collapsing sample space** Bernat Corominas-Murtra, Rudolf Hanel and Stefan Thurner *Proceedings of the National Academy of Sciences* 112 (17), 5348-5353 (2015)
(Featured in: APA Science, Wiener Zeitung, Neues Deutschland)

(37) **Understanding Zipf's law of word frequencies through sample-space collapse in sentence formation** Stefan Thurner, Rudolf Hanel, Bo Liu and Bernat Corominas-Murtra *Journal of the Royal Society Interface* 12, 20150330, (2015)
(Featured in: Science ORF, Der Standard)

(36) **Detection of the elite structure in a virtual multiplex social system by means of a generalised K-core** Bernat Corominas-Murtra, Benedikt Fuchs and Stefan Thurner *PloS one* 9 (12), e112606 (2014)

(35) **Pacts with Twitter. Predicting voters' indecision and preferences for coalitions in multiparty systems** Frederic Guerrero-Solé, Bernat Corominas-Murtra and Hibai Lopez-Gonzalez *Information, Communication and Society* 17 (10), 1280-1297 (2014)

(34) **Towards a mathematical theory of meaningful communication** Bernat Corominas-Murtra, Jordi Fortuny and Ricard Solé *Nature Scientific Reports* 4, 4587 (2014)

(33) **Resting-brain functional connectivity predicted by analytic measures of network communication** Joaquín Goñi, Martijn P. van den Heuvel, Andrea Avena-Koenigsberger, Nieves Velez de Mendizabal,Richard F. Betzel, Alessandra Griffa, Patrick Hagmann, Bernat Corominas-Murtra, Jean-Philippe Thiran and Olaf Sporns *Proceedings of the National Academy of Sciences USA* 111 (2), 833-838 (2013)

(32) **On the origin of ambiguity in efficient communication** Jordi Fortuny and Bernat Corominas-Murtra *Journal of Logic, Language and Information* 22, 249-267 (2013)

(31) **On the origins of hierarchy in complex networks** Bernat Corominas-Murtra, Joaquín Goñi, Ricard Solé and Carlos Rodríguez-Caso *Proceedings of the National Academy of Sciences* USA 110 (33), 12216-13321 (2013)
Featured in: News of the Santa Fe Institute

(30) **Syntactic trees and small-world networks: syntactic development as a dynamical process** Lluís Barceló i Coblijn, Bernat Corominas-Murtra and Antoni Gomila *Adaptive Behavior* 20, (6) 427-442 (2012)

(29) **Emergence of Zipf's law in the evolution of communication** Bernat Corominas-Murtra, Jordi Fortuny and Ricard Solé *Physical Review E* 83, 32767 (2011)
Fetured in: The Virtual Journal of Biological Physics Research

(28) **Measuring the hierarchy in feed forward networks** Bernat Corominas-Murtra, Carlos Rodrǵuez-Caso, Joaquín Goñi and Ricard Solé Chaos 21, 16108 (2011)
Featured in: CHAOS Special issue: Mesoscopics on complex networks

(27) **Diversity, competition, extinction: the ecophysics of language change** Ricard Solé, Bernat Corominas-Murtra and Jordi Fortuny *Journal of the Royal Society Interface* 7, 1647-1664 (2010)

(26) **Exploring the randomness of directed acyclic networks** Joaquín Goñi, Bernat Corominas-Murtra, Ricard Solé and Carlos Rodriguez-Caso *Physical Review E* 82(6), 6115 (2010)

(25) **Language networks: their structure, function and evolution** Ricard Solé, Bernat Corominas-Murtra, Sergi Valverde and Luc Steels *Complexity* 15(6), 20-26 (2010)

(24) **Percolation of arbitrary uncorrelated nested subgraphs** Bernat Corominas-Murtra *European Physics Journal B* 77, 213-217 (2010)

(23) **Some formal considerations on the generation of hierarchically structured expressions** Jordi Fortuny and Bernat Corominas-Murtra *Catalan Journal of Linguistics* 8, 99-111 (2010)

(22) **Switcher-random-walks: a cognitive-inspired mechanism for network exploration** Joaquin Goñi, Iñigo Martincorena, Bernat Corominas-Murtra, Gonzalo Arrondo, Sergio Ardanza-Trevijano, Pablo Villoslada *International Journal of Bifurcations and Chaos* 20, 1-10 (2010)

(21) **The semantic organization of the animal category: evidence from semantic verbal fluency and network theory** Joaquin Goñi, Gonzalo Arrondo, Jorge Sepulcre, Iñigo Martincorena, Nieves Vélez de Mendizábal, Bernat Corominas-Murtra, Bartolomé Vejarano, Sergio Ardanza-trevijano, Herminia Perahita, Dennis P. Wall, Pablo Villoslada *Cognitive Processing* 12 (2) 183-96 (2011)

(20) **Topological reversibility and causality in feed-forward networks** Bernat Corominas-Murtra, Carlos Rodríguez-Caso, Joaquín Goñi and Ricard Solé *New Journal of Physics* 12, 32767 (2010)
This paper was selected for the IOP Science Select: special IOP articles chosen for their quality and recency

(19) **Universality of Zipf's law** Bernat Corominas-Murtra and Ricard Solé *Physical Review E* 82, 11102 (2010)

(18) **On the basic computational structure of gene regulatory networks** Carlos Rodríguez-Caso, Bernat Corominas-Murtra and Ricard Solé *Molecular Biosystems* 5, 1617-1629 (2009)
This paper is at the cover of: Systems Biology Special Issue

(17) **Percolation in insect nest networks: evidence for optimal wiring** Sergi Valverde, Bernat Corominas-Murtra, Andrea Perna, Pascale Kuntz, Guy Theraulaz and Ricard Solé *Physical Review E* 79, 32767 (2009)
This paper was highlighted in: The Virtual Journal of Biological Physics Research

(16) **The ontogeny of scale-free syntax networks: phase transitions in early language acquisition** Bernat Corominas-Murtra, Sergi Valverde and Ricard Solé *Advances in Complex Systems* 12, 371-392 (2009)
(Supplementary material: **Network statistics on early English Syntax: Structural criteria** Bernat Corominas-Murtra arXiv-org :0704.3708 (2007))

(15) **Nested subgraphs of complex networks** Bernat Corominas-Murtra, José F. F. Mendes and Ricard Solé *Journal of Physics A: Mathematical and Theoretical* 41, 32767 (2008)

(14) **Robustness of the European power grids under intentional attacks** Ricard Solé, Marti Rosas Casals, Bernat Corominas-Murtra and Sergi Valverde *Physical Review E* 77, 26102 (2008)

(13) **K-scaffold subgraphs in complex networks** Bernat Corominas-Murtra, Sergi Valverde, Carlos Rodríguez-Caso and Ricard Solé *Europhysics Letters* 77, 18004 (2007)

(12) **Network topology and self-consistency in language games** Bernat Corominas-Murtra and Ricard Solé *Journal of Theoretical Biology* 241, 438-441 (2006)

Publications as editor.

(11) **Special issue "Thermodynamics and Information Theory of Living Systems"** Bernat Corominas-Murtra, Artemy Kolchinsky and Rudolf Hanel, eds. *Entropy* (to appear January 2020)

(10) **Special edition on Ambiguity in Language** Jordi Fortuny and Bernat Corominas-Murtra, Eds. Special Issue: "The Locus of Ambiguity and the Design of Language" *The Linguistic Review* 32, (2015)

Book chapters.

(9) **Protocell cycles as thermodynamic cycles** Bernat Corominas-Murtra, Harold Fellermann and Ricard Solé *The interplay of thermodynamics and computation in both natural and artificial systems* David Wolpert and Bruce Bertram, eds. To appear in the Santa Fe studies on the science of complexity proceedings series, Santa Fe, NM (2019)

(8) **The weak core and the structure of elites in social multiplex networks** Bernat Corominas-Murtra and Stefan Thurner *Interconnected Networks* 165-177. Antonios Garas (Ed.) in the Series "Understanding Complex Systems", Springer: Berlin (2016)

(7) **Emergence of scale-free syntax networks** Bernat Corominas-Murtra, Sergi Valverde and Ricard Solé *Evolution of Communication and Language in Embodied Agents*, 83-101. Springer "Artificial Intelligence" Series (2010)

Papers in proceedings.

(6) **Total information transmission between autonomous agents** Bernat Corominas-Murtra. *Proceedings of the 1st conference on Complex Information Systems* (Accepted, to appear)

(5) **On the simplest transmission of meaning between autonomous agents** Bernat Corominas-Murtra *Proceedings of the Conference Computability in Europe* (2014)

(4) **On the interplay of kinetics, thermodynamics and information in simple replication systems** Bernat Corominas-Murtra, Harold Fellermann, Ricard Solé and Steen Rassmussen. *Proceedings of the Alife XII*, Fellermann, H. et al (eds) MIT Press, 233-234 (2010)

(3) **Assessing European power grid reliability by means of topological measures** Martí Rosas-Casals, Bernat Corominas-Murtra. *WIT transactions on ecology and the environment* (121) 527-537 (2009)

Popular science papers.

(2) **Lenguaje, redes y evolución** (in Spanish) Ricard Solé, Bernat Corominas-Murtra and Jordi Fortuny *Investigación y Ciencia* (Spanish edition of Sientific American) 440, (2013)

(1) **La structure en réseaux du language** (in French) Ricard Solé, Bernat Corominas-Murtra and Jordi Fortuny *Pour la science* 434 (2013)