

Current Drafts and Recent Papers.

Proof-theoretic Semantics, the Foundations of Logic, and Applied Logic.

- (1) Alexander Gheorghiu, Tao Gu, and David Pym. A Note on an Inferentialist Approach to Resource Semantics. To appear, *Proc. Scandinavian Logic Symposium 2024*, Reykjavik, 2024. [Manuscript](#).
- (2) Timo Eckhardt and David Pym. Base-extension Semantics for S5 Modal Logic. [Manuscript](#), 2024.
- (3) Alexander Gheorghiu, Tao Gu, and David Pym. A note on the practice of logical inferentialism: the state-effect interpretation, definitional reflection, and completeness. [Manuscript](#). 2nd Logic and Philosophy: Historical and Contemporary Issues Conference, Vilnius, Lithuania, May 2024.
- (4) Alexander Gheorghiu, Tao Gu, and David Pym. Inferentialist Resource Semantics. To appear, *Proc. Mathematical Foundations of Programming Semantics (MFPS)*, Oxford, June 2024. [Manuscript](#).
- (5) Didier Galmiche, Timo Lang, and David Pym. Minimalistic System Modelling: Behaviours, Interfaces, and Local Reasoning. Submitted, 2024. [Manuscript](#).
- (6) Timo Eckhardt and David Pym. Base-extension Semantics for Modal Logics. [Manuscript](#). *Logic Journal of the IGPL*, 2024.
- (7) Alexander Gheorghiu, Tao Gu, and David Pym. Proof-theoretic-semantics for the Logic of Bunched Implications. Submitted, 2024. [Manuscript](#).
- (8) Alexander Gheorghiu, Tao Gu, and David Pym. Proof-theoretic-semantics for Intuitionistic Multiplicative Linear Logic (Extended Abstract). In *Proc. TLLA*, 2023. [Manuscript](#).
- (9) Alexander Gheorghiu, Tao Gu, and David Pym. Proof-theoretic-semantics for Intuitionistic Multiplicative Linear Logic. In *Proc. Tableaux 2023*, LNCS. [Manuscript](#).
- (10) David Pym, Eike Ritter, and Edmund Robinson. Categorical Proof-theoretic Semantics. [Manuscript](#). *Studia Logica* <https://doi.org/10.1007/s11225-024-10101-9>, 2024.
- (11) Alexander Gheorghiu and David Pym. Definite formulae, Negation-as-Failure, and the Base-extension Semantics of Intuitionistic Propositional Logic. To appear, *Bulletin of the Section of Logic*, 2023. [Manuscript](#).
- (12) Alexander Gheorghiu and David Pym. From Proof-theoretic Validity to Base-extension Semantics for Intuitionistic Propositional Logic. Submitted, 2022. [Manuscript](#).
- (13) Alexander Gheorghiu and David Pym. Proof-theoretic Semantics and Tactical Proof. [Manuscript](#).
- (14) David Pym, Eike Ritter, and Edmund Robinson. Proof-theoretic Semantics in Sheaves (Extended Abstract). *Scandinavian Logic Symposium*, Bergen, June 2022. [Manuscript](#). [SLSS 2022 Abstracts Booklet](#).
- (15) Alexander Gheorghiu and David Pym. Generalizing Rules via Algebraic Constraints (Extended Abstract). *Scandinavian Logic Symposium*, Bergen, June 2022. [Manuscript](#). [SLSS 2022 Abstracts Booklet](#).
- (16) Alexander Gheorghiu and David Pym. Reductive Logic, Proof-search, and Coalgebra (Extended Abstract). To appear, *Proc. Coalgebraic Methods in Computer Science (Short papers Technical Report,*

Helle Hvid Hansen and Fabio Zanasi, editors), 2022. This is an extended abstract of the paper in *Samson Abramsky on Logic and Structure in Computer Science and Beyond* (see below). [Manuscript](#).

- (17) Alexander Gheorghiu and David Pym. Semantics ex Proof and Refutation (Extended Abstract). Presented (by Alexander Gheorghiu) at *Bilateralism & Proof-Theoretic Semantics*, Ruhr University Bochum, March 17-18, 2022. [Manuscript](#).
- (18) Alexander Gheorghiu and David Pym. Semantical Analysis of the Logic of Bunched Implications. *Studia Logica* (2023). [Manuscript](#). [Published version](#).
- (19) Alexander Gheorghiu and David Pym. Defining Logical Systems via Algebraic Constraints. *Journal of Logic and Computation*, 2023. [Manuscript](#), [OUP Advance Publication](#)
- (20) Alexander Gheorghiu, Simon Docherty, and David Pym. Reductive Logic, Proof-search, and Coalgebra: A Perspective from Resource Semantics. Revised version to appear, *Samson Abramsky on Logic and Structure in Computer Science and Beyond*, Alessandra Palmigiano and Mehrnoosh Sadrzadeh (editors), *Outstanding Contributions to Logic*, Springer, 2021. [Manuscript](#).
- (21) David Pym. Reductive logic & proof-theoretic semantics: a coalgebraic perspective. To appear: *Proc. Proof-theoretic Semantics: Assessment and Future Perspectives*, P. Schroeder-Heister and T. Piecha (editors), Third Tübingen Conference on Proof-theoretic Semantics, 27-30 March 2019. [Manuscript](#). [Proceedings](#).
- (22) Simon Docherty and David Pym. STONE-TYPE DUALITIES FOR SEPARATION LOGICS. To appear: *Logical Methods in Computer Science*. [Manuscript](#).
- (23) Simon Docherty and David Pym. Intuitionistic Layered Graph Logics: Semantics and Proof Theory. To appear: *Logical Methods in Computer Science*. [Manuscript](#).
- (24) Simon Docherty and David Pym. Resource Reasoning in Duality-theoretic Form: Stone-type Dualities for Bunched and Separation Logics. *Proc. Topology, Algebra and Categories in Logic (TACL) 2019*. [Manuscript](#).
- (25) Simon Docherty and David Pym. Modular Tableaux Calculi for Separation Theories. To appear: *Proc. FOSSACS 2018*. [Manuscript](#).
- (26) Didier Galmiche, Pierre Kimmel, and David Pym. A Substructural Epistemic Resource Logic: Theory and Modelling Applications. *Journal of Logic and Computation*, 29(8), 1251-1287, 2019. doi.org/10.1093/logcom/exz024. Published: 19 January 2020. [Manuscript](#).
- (27) David Pym. Resource semantics: logic as a modelling technology. *ACM SIGLOG News*, April 2019, Vol. 6, No. 2., 5–41. [Manuscript](#).

History and Philosophy of Science.

- (1) Albesë Demjaha, David Pym, Tristan Caulfield, and Simon Parkin. The trivial tickets build the trust': A co-design approach to understanding security support interactions in a large university. In press, *Journal of Cybersecurity*, 2024.
- (2) Alexander Gheorghiu, Tao Gu, and David Pym. A note on the practice of logical inferentialism:

- the state-effect interpretation, definitional reflection, and completeness. *2nd Logic and Philosophy: Historical and Contemporary Issues Conference*, Vilnius, Lithuania, May 2024. *2nd Logic and Philosophy: Historical and Contemporary Issues Conference*, Vilnius, Lithuania, May 2024. [Manuscript](#).
- (3) David Pym. The Origins of Cyberspace. To appear as Chapter 1: *The Oxford Handbook of Cybersecurity*, P. Cornish (editor). [Manuscript](#).
 - (4) David Pym, Jonathan Spring, and Peter O’Hearn. Why Separation Logic Works. *Philos. Technol.* (2018). <https://doi.org/10.1007/s13347-018-0312-8>. [Manuscript](#).
 - (5) Jonathan Spring, Tyler Moore, and David Pym. Practicing a Science of Security: A Philosophy of Science Perspective. To appear: *NSPW ’17, Oct 1–4, 2017, Santa Cruz, California, USA*. ACM, 2017. [Manuscript](#).
 - (6) Jonathan Spring and David Pym. Towards Scientific Incident Response. To appear, *Proc. GameSec 2018*, LNCS. [Manuscript](#).

Systems Modelling, Security, and Security Economics.

- (1) Albesë Demjaha, David Pym, Tristan Caulfield, and Simon Parkin. The trivial tickets build the trust’: A co-design approach to understanding security support interactions in a large university. In press, *Journal of Cybersecurity*, 2024.
- (2) Didier Galmiche, Timo Lang, and David Pym. Minimalistic System Modelling: Behaviours, Interfaces, and Local Reasoning. Submitted, 2024. [Manuscript](#).
- (3) Marius-Constantin Ilau, Adrian Baldwin, Tristan Caulfield, and David Pym. Modelling and simulating organizational ransomware recovery: structure, methodology, and decisions. Submitted, 2023. [Manuscript](#).
- (4) Henry Skeoch and David Pym. Pricing Cyber-insurance for Systems via Maturity Models. [Manuscript](#).
- (5) M. Bujorianu, T. Caulfield, and D. Pym. Modelling and Control of Complex Cyber-Physical Ecosystems. In *Proc. 1st IFAC Workshop on Control of Complex Systems (COSY 2022)*. [Manuscript](#).
- (6) Albesë Demjaha, Simon Parkin, and David Pym. The boundedly rational employee: Security economics for behaviour intervention support in organizations. *Journal of Computer Security* 30(3) 2022, 435-464. [Manuscript](#).
- (7) T. Caulfield, M.-C. Ilau, and D. Pym. Engineering Ecosystem Models: Semantics and Pragmatics. In *Proc. 13th SIMUtools 2021*. Springer, 2021. [Manuscript](#). [Springer Link](#).
- (8) T. Caulfield, M.-C. Ilau, and D. Pym. Metamodeling for Ecosystems Security. In *Proc. 13th SIMUtools 2021*. Springer, 2021. [Manuscript](#). [Springer Link](#).
- (9) A. Baldwin, T. Caulfield, M.-C. Ilau, and D. Pym. Modelling Organizational Recovery. In *Proc. 13th SIMUtools 2021*. Springer, 2021. [Manuscript](#). [Springer Link](#).
- (10) A. Demjaha, D. Pym, and T. Caulfield. Found in Translation: Co-design for Security Modelling. In *Proc. 11th STAST 2021*. LNCS 13176:108–128, 2021. Springer. [Manuscript](#).
- (11) David Pym and Will Venters. Modelling interfaces in the decentralized Internet of Things. International Conference on Information Systems (ICIS), India (Online), 2020. [Presentation](#). [Manuscript](#).
- (12) Paul Brunet and David Pym. Pomsets with Boxes: Protection, Separation, and Locality in Concurrent Kleene Algebra. [Manuscript](#).
- (13) Albesë Demjaha, Simon Parkin, and David Pym. You’ve left me no choices: Security economics to inform behaviour intervention support in organizations. To appear: *Proc. 9th Workshop on Socio-technical Aspects in Security*, Luxembourg City, 2019. LNCS, 2019, Springer. Recipient of ‘Best Paper’ award. [Manuscript](#).
- (14) C. Ioannidis, D. Pym, J. Williams, and I. Gheyas. Resilience in Information Stewardship. *European Journal of Operational Research* 274(2), 638-653, April 2019. [Manuscript](#).
- (15) Albesë Demjaha, Tristan Caulfield, M. Angela Sasse, and David Pym. 2 Fast 2 Secure: A Study of Post-Breach Security Changes. In: *Proc. 4th European Workshop on Usable Security, EuroUSEC 2019*, IEEE 2019. Stockholm, Sweden, June 20, 2019. To appear: IEEE Xplore. [Manuscript](#).
- (16) Baldwin, A., Gheyas, I., Ioannidis, C., Pym, D. and Williams, J. (2017). Contagion in cyber security attacks. *Journal of the Operational Research Society* 68(7): 780-791. [Manuscript](#).
- (17) David Pym. The Origins of Cyberspace. To appear: *The Oxford Handbook of Cybersecurity*, P. Cornish (editor). [Manuscript](#).
- (18) Thomas Cattermole, Simon Docherty, David Pym, and Angela Sasse. Asset-oriented access control through object-oriented principles. [Manuscript](#).
- (19) Tristan Caulfield, Christos Ioannidis, and David Pym. Dynamic Pricing for Ransomware. Working draft: [Manuscript](#).
- (20) Tristan Caulfield, Michelle Baddeley, and David Pym. Social Learning in Systems Security Modelling. In *Social Simulation Conference*, 2016. [Manuscript](#).