

## Logic Seminar

### *Foundations of cologic*

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**Abstract:** The existence of a robust categorical dual to first-order logic is hinted at in (at least) four independent bodies of work: (1) The cologic of profinite groups (e.g. Galois groups), which plays an important role in the model theory of PAC fields [Cherlin - van den Dries - Macintyre, Chatzidakis]. (2) Projective Fraïssé theory [Solecki & coauthors, Panagiotopolous]. (3) Universal coalgebra and coalgebraic logic [Rutten, Kurz - Rosicky, Moss, others]. (4) Ultracoproducts and coelementary classes of compact Hausdorff spaces [Bankston]. In this talk, I will propose a natural syntax and semantics for such a dual "cologic", in which "coformulas" express properties of partitions of "costructures", dually to the way in which formulas express properties of tuples from structures. I will show how the basic theorems and constructions of first-order logic (completeness, compactness, ultraproducts, Henkin constructions, Löwenheim-Skolem, etc.) can be dualized, and I will discuss some possible extensions of the framework.

Tuesday, November 1 at 4:00 PM in SEO 636
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