LOGIC SEMINAR
Spring 2010

Previous seminars at: http://home.gwu.edu/~harizanv/index.html#GW_Logic_Seminar_

Wednesday, April 28, 2010
4:00–5:00 p.m.
Speaker: Michele Friend, Department of Philosophy, GWU
http://www.gwu.edu/~philosop/faculty/Friend.cfm
Place: Monroe Hall (2115 G Street), Room 267
Title: *A Pluralist Approach to Proof in Mathematics*
Abstract: In this paper, I shall focus on what the Pluralist has to say about proof in mathematics.

Wednesday, April 21, 2010
5:15–6:15 p.m.
Speaker: Pedro Baltazar, SQIG - IT Lisbon & UT Lisbon, Portugal
http://sqig.math.ist.utl.pt/pedro.baltazar/
Place: Monroe Hall (2115 G Street), Room 267
Title: *Exogenous Probabilization of Logics*

Abstract: A general method to enrich logic with probability features will be discussed, and the transference of results such as completeness and decidability will be addressed. The same method will also be used in the quantization of logic.

Wednesday, April 14, 2010
5:15–6:15 p.m.
Speaker: Simon Thomas, Rutgers University
http://www.math.rutgers.edu/~sthomas/
Place: Monroe Hall (2115 G Street), Room 267
Title: *Ramsey Cardinals and the HNN Embedding Theorem*

Abstract: The Higman-Neumann-Neumann Embedding Theorem states that any countable group *G* can be embedded into a 2-generator group *K*. In the standard proof of this classical theorem, the construction of the group *K* involves an enumeration of a set of generators of the group *G*; and it is clear that the isomorphism type of *K* usually depends upon both the generating set and the particular enumeration that is used. In this talk, I will consider the question of whether there is a more uniform construction with the property that the isomorphism type of *K* only depends upon the isomorphism type of *G*.

Saturday, March 20, 2010
2:30–3:30 p.m.

Speaker: Vadim Puzarenko, Sobolev Institute of Mathematics of SD RAS, Novosibirsk State University, Russia
Place: Monroe Hall (2115 G Street), Room 267
Title: *Computability on Structures: Set Theoretic Aspects*

Abstract: I will talk about relationships between properties from the descriptive set theory on admissible structures such as the uniformization, the reduction, the separation, and the extension principles. Furthermore, I will consider the existence of a universal function. I will study in detail these properties on the hereditarily finite superstructures over classical and computable structures.

Wednesday, March 10, 2010
5:15–6:15 p.m.
Speaker: Christopher Shaw, University of Maryland
http://www-users.math.umd.edu/~schris/
Place: Monroe Hall (2115 G Street), Room 267
Title: *Definable Sets and Ordered Structures*, part II

Abstract: We will discuss ordered structures, look at various weakenings of *o*-minimality, and explore pathologies that occur in these cases. Included will be a primer on definable Skolem functions.

Wednesday, March 3, 2010
5:15–6:15 p.m.
Speaker: John Goodrick, University of Maryland
http://www.math.umd.edu/~goodrick/
Place: Monroe Hall (2115 G Street), Room 267
Title: *What Can the Category* Mod(T) *Look Like?*

Abstract: Suppose that T is a complete theory with infinite models. Let Mod(T) be the class of all models of T, considered as a category by letting the morphisms be all elementary embeddings. We ask: what can this category look like? More specifically, can we tell when a category is equivalent (in the sense of category theory) to Mod(T) for some T? It seems that the full answer to this question is not known, but we will state some basic facts about Mod(T) and present some conjectures. In particular, we will discuss recent joint work with Chris Laskowski on characterizing theories with the Schröder-Bernstein property (i.e., any two bi-embeddable elements of Mod(T) are isomorphic) and the conjecture that whenever the Schröder-Bernstein property fails, there is an *infinite* collection of pairwise bi-embeddable non-isomorphic models.

We will not assume any background in model theory or category theory beyond a familiarity with the definitions of a (first-order) theory, a model, and a category.

Wednesday, February 24, 2010
5:15–6:15 p.m.
Speaker: Michael Moses, GWU
http://home.gwu.edu/~moses/
Place: Monroe Hall (2115 G Street), Room 267
Title: *The Block Relation in Computable Linear Orders*

Abstract: I will explore the felicitous connection between syntactic complexity and computational complexity in the particular setting of Linear Orders.

I intend to follow the thread of investigation that leads to a recently submitted paper in which I establish conditions under which a computable linear order is guaranteed to have a computable copy with computable "block relation", which has as a corollary the somewhat surprising fact that every infinite computable linear order has a computable copy with a computable non-trivial self-embedding.

Wednesday, February 17, 2010
5:15–6:15 p.m.
Speaker: Joe Mourad, Georgetown University
Place: Monroe Hall (2115 G Street), Room 267
Title: *A New Look at Priority Arguments - Finite and Infinite Injury*

Abstract: I will continue an analysis of priority arguments from the point of view of second order arithmetic. The 2-dimensional tree method has the advantage of easily generalizing to higher level priority arguments. I will indicate how to extend the technique from finite injury contexts to a simple infinite injury context. We will prove a lemma generalizing König's Lemma for 2-dimensional trees. This will provide a basis for extending the methods from one level to another.

Wednesday, February 3, 2010
5:15–6:15 p.m.
Speaker: Christopher Shaw, University of Maryland
http://www-users.math.umd.edu/~schris/
Place: Monroe Hall (2115 G Street), Room 267
Title: *Definable Sets and Ordered Structures*, part I

Abstract: This talk is intended to be accessible to non-model theorists. Beginning with the definitions, we explore the concept of definability in the model theoretic sense, and in particular discuss why describing the definable sets of a model is an essential question. Included will be a discussion of the usual structures on the complex, real, and rational fields. We then restrict our view to the ordered structures and explore what happens when we enrich the language, with a particular focus on o-minimality.

Wednesday, January 27, 2010
5:15–6:15 p.m.
Speaker: Joe Mourad, Georgetown University
Place: Monroe Hall (2115 G Street), Room 267
Title: *A New Look at Priority Arguments - Finite Injury*

Abstract: An analysis of priority arguments will be presented from the point of view of second order arithmetic. The use of trees has been a useful and prevalent technique in previous analyses. A new analysis will be presented using 2-dimensional trees with an explicit focus on finite injury arguments to illustrate one of the simplest examples. This 2-dimensional method has the advantage of easily generalizing to higher level priority arguments. We will prove a lemma generalizing König's Lemma for 2-dimensional trees. This will provide a basis for extending the methods to higher levels.