RDF como modelo de datos lógico.

Claudio Gutiérrez (U. de Ch.), Sergio Muñoz (U.C.S.C.)

Abstract

We present RDF as a logical database model. In fact, we prove that Kuper and Vardi's Logical Data Model can be embedded in RDF. This mapping gives a query algebra for an important fragment of RDF. We study the properties of this algebra from the RDF semantics point of view.

Algebrizabilidad de algunas lógicas paraconsistentes.

Eduardo Hirsh (P.U.C.)

Resumen

En este Trabajo estudiaremos la algebrizabilidad de los sistemas deductivos $\mathcal{S}_{1,1}$, $\mathcal{S}_{2,1}$, $\mathcal{S}_{1,3}$, $\mathcal{S}_{2,2}$ y $\mathcal{S}_4$ descritos por R. Lewin e Irene Mikenberg en [1] usando el método descrito por Blok y Pigozzi en [2] y probaremos que las matrices paraconsistentes asociadas $\mathcal{M}^3_{1,1}$, $\mathcal{M}^3_{2,1}$, $\mathcal{M}^3_{1,3}$, $\mathcal{M}^3_{2,2}$ y $\mathcal{M}^4$ son las correspondientes semánticas algebraicas equivalentes para estos sistemas deductivos.

Bibiografía

[1] R. A. Lewin and I. F. Mikenberg: *Atom-Paraconsistent Matrices*. Preprint.
[2] W. J. Blok, D. Pigozzi: *Algebraizable Logics*. Mem. Amer. Math. Soc. Vol 77, nr. 396, 1989.

Matrices atómico-paraconsistentes.

Irene Mikenberg, Renato Lewin (P.U.C.)

Resumen

En este trabajo introducimos una familia de lógicas definidas a partir de matrices. En estas, la paraconsistencia ocurre sólo a nivel de las fórmulas atómicas, las fórmulas complejas se comportan de manera clásica. Damos una axiomatización completa y damos condiciones para la maximalidad de estas lógicas. También presentaremos varios ejemplos relevantes.

Algebras for non structural logics.

Sergio Muñoz (U.C.S.C.)

Abstract

This talk presents a partial extension of the theory of Abstract Algebraic Logic, named PNS-algebraization, by allowing the inclusion of non structural logics in its scope. This is done by the way of an equivalence between a given such logic and a suitable equational logic, using a pair of conjugated translations between formulas and equations. For a PNS-algebraizable logic (possibly non-structural algebraizable logic) many results of the standard theory are obtained, as, for example, about the Leibnitz operator acting as a isomorphism between the set of closed theories of a logic and the set of closed theories of a suitable equational logic, which also commutes with some set of substitutions, for the logic and, in some sense, also for its models. Some restrictions imposed to the notion of models, which are based on generalized matrices, allows us to obtain a class of algebras associated to a PNS-algebraizable logic that acts as an *algebraic counterpart* of the logic.

Homomorfismos y subálgebras regulares.

Elena Olivos (UFRO) **Resumen**

En el estudio de las álgebras parciales, el concepto de identidad se descompone en, al menos, cuatro conceptos distintos, lo que lleva a otros tantos tipos de variedades. Una s–variedad es una clase de álgebras parciales que satisface un conjunto de s–identidades. Al caracterizar las s–variedades mediante un teorema tipo Birkhoff aparece un nuevo concepto de homomorfismo y de subálgebra parcial, el de regularidad. En este trabajo definimos y estudiamos estos operadores desde dos perspectivas. Primero en su relación con otros conceptos conocidos de homomorfismo y subálgebra parcial y con el retículo de Pigozzi para los operadores H, S y P, y luego analizamos la preservación de los distintos tipos de identidades bajo estos operadores.

Bibiografía

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[G] G. Gratzer, *Universal Algebra*,. Van Nostrand Co. Inc., 1968.

[M] I. Mikenberg, *A Closure for Partial Algebras.* In Mathematical Logic in Latin America (Arruda, da Costa, Chuaqui, Eds.) North Holland Pub. Co., Amsterdam 1980.

[P] D. Pigozzi, *On some operations on classes of algebras.* Algebra Universalis **2** (1972), 346–353.

Abstract Algebraic Logic. Problems and results.

Don Pigozzi (I.S.U.)

Abstract

We will present some recent results and problems that are currently being studied in the area of Abstract Algebraic Logic.

Etiquetaciones en modelos sin regularidad.

Gloria Schwarze y M. Victoria Marshall (P.U.C.)

Resumen

Se estudia la noción de etiquetación para clases de equivalencia y se demuestra que es consistente con la teoría BG^- (teoría de clases de Bernays -G"odel sin regularidad) tener etiquetación para las clases, sin tener etiquetación por subconjuntos para la relación de equinumerosidad C.

Algebras for non structural logics.

Xavier Vidaux (U. de C.)

Abstract

Büchi's problem asked whether a surface of a specific type, defined over the rationals, has integer points other than some known ones. A consequence of a positive answer would be the following strengthening of the negative answer to Hilbert's Tenth Problem: the positive existential theory of the rational integers in the language of addition and a predicate for the property 'x is a square' would be undecidable. Despite some progress, including a conditional positive answer (pending on conjectures of Lang), Büchi's problem remains open.

In this article we prove

(A) An analogue of Büchi's problem in rings of polynomials of characteristic either 0 or $p \geq 17$ and for fields of rational functions of characteristic 0 and

(B) An analogue of Büchi 's problem in fields of rational functions of characteristic $p \geq 19$, but only for sequences that satisfy a certain additional hypothesis.

As a consequence we prove the following result in Logic :

Let F be a field of characteristic either 0 or ≥ 17 and let t be a variable. Let L_t be the first order language which contains symbols for 0 and 1, a symbol for addition, a symbol for the property 'x is a square' and symbols for multiplication by each element of the image of $\mathbb{Z}[t]$ in $F[t]$. Let R be a subring of $F(t)$, containing the natural image of $\mathbb{Z}[t]$ in $F(t)$. Assume that one of the following is true :

- $R \subset F[t]$.
- The characteristic of F is either 0 or $p \geq 19$.

Then multiplication is positive-existentially definable over the ring R, in the language L_t. Hence the positive-existential theory of R in L_t is decidable if and only if the positive-existential ring-theory of R in the language of rings, augmented by a constant-symbol for t, is decidable.