Publicacions més rellevants de la línia de recerca:

Fonaments i filosofia de la teoria de conjunts

Referència: Bagaria, J. Natural axioms of set theory and the continuum problem. *Logic, Methodology and Philosophy of Science. Proceedings of the Twelfth International Congress. Petr Hájek, Luís Valdés-Villanueva, and Dag Westerstål, Editors. King's College London Publications*, (2005), pp. 43–64.

Abstract: As is well-known, Cantor's continuum problem, namely, what is the cardinality of $\mathbb{R}$? is independent of the usual ZFC axioms of Set Theory. K. Gödel suggested that new natural axioms should be found that would settle the problem and hinted at large-cardinal axioms as such. However, shortly after the invention of forcing, it was shown by Levy and Solovay that the problem remains independent even if one adds to ZFC the usual large-cardinal axioms, like the existence of measurable cardinals, or even supercompact cardinals, provided, of course, that these axioms are consistent. While numerous axioms have been proposed that settle the problem–although not always in the same way–from the Axiom of Constructibility to strong combinatorial axioms like the Proper Forcing Axiom or Martin's Maximum, none of them so far has been recognized as a natural axiom and been accepted as an appropriate solution to the continuum problem. In this paper we discuss some heuristic principles, which might be regarded as *Meta-Axioms of Set Theory*, that provide a criterion for assessing the naturalness of the set-theoretic axioms. Under this criterion we then evaluate several kinds of axioms, with a special emphasis on a class of recently introduced set-theoretic principles for which we can reasonably argue that they constitute very natural axioms of Set Theory and which settle Cantor's continuum problem.

Referència: Jané, I. What is Tarski's common concept of consequence. *The Bulletin of Symbolic Logic*, **12** (2006), pp. 1–42.

Abstract: In 1936 Tarski sketched a rigorous definition of the concept of logical consequence which, he claimed, agreed quite well with common usage – or, as he also said, with the common concept of consequence. Commentators of Tarski's paper have usually been elusive as to what this common concept is. However, being clear on this issue is important to decide whether Tarski's definition failed (as Etchemendy has contended) or succeeded (as most commentators maintain). I argue that the common concept of consequence that Tarski tried to characterize is not some general, all-purpose notion of consequence, but a rather precise one, namely the concept of consequence at

play in axiomatics. I identify this concept and show that Tarski's definition is fully adequate to it.

Referència: Bagaria, J. and Bosch, R. Generic absoluteness under projective forcing. *Fundamenta Mathematicae*, **194** (2007), pp. 95–120.

Abstract: We study the preservation of the property of $L(\mathbb{R})$ being a Solovay model under projective ccc forcing extensions. We compute the exact consistency strength of the generic absoluteness of $L(\mathbb{R})$ under forcing with projective ccc partial orderings and, as an application, we build models in which Martin's Axiom holds for $\boldsymbol{\Sigma}^1_n$ partial orderings, but it fails for the $\boldsymbol{\Sigma}^1_{n+1}$.
