# The Logical Function of Property Talk

## Informe

Información del proyecto

**LOFUPRO**

Identificador del acuerdo de subvención: 792202

Sitio web del proyecto

**DOI**
10.3030/792202

Proyecto finalizado el 29 Febrero 2020

**Fecha de la firma de la CE**
20 Abril 2018

**Fecha de inicio**
1 Octubre 2018

**Fecha de finalización**
30 Septiembre 2020

**Financiado con arreglo a**
EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

**Coste total**
€ 165 598,80

**Aportación de la UE**
€ 165 598,80

**Coordinado por**
UNIVERSITEIT VAN AMSTERDAM
Netherlands

# Periodic Reporting for period 1 - LOFUPRO (The Logical Function of Property Talk)

**Período documentado:** 2018-10-01 hasta 2020-09-30

## Resumen del contexto y de los objetivos generales del proyecto

Talk about properties is ubiquitous throughout the sciences and everyday language, and raises difficult philosophical questions concerning the nature and existence of properties. The aim of this

project was to lay down a fundamental theoretical framework for a novel deflationary account of properties. In contrast to more traditional accounts of properties, which take metaphysical questions about properties as their starting point, deflationary accounts take questions about language to be primary. The project aims to advance and inform philosophical research by combining philosophical analysis with tools from mathematical logic, yielding novel insights in metaphysics (universals), the philosophy of language (the function of property talk, its connection to truth and reference), the philosophy of logic (unrestricted quantification), the philosophy of mathematics (the logicist thesis), and philosophical logic (type-free theories, paradoxes).

The project's principal objectives can be summarized as follows:

1. Developing a precise account of the logical function of property talk.

2. Developing a philosophical account of the nature of properties based on their role in language.

3. Developing formal theories of properties suitable for applications in the foundational studies.

## Trabajo realizado desde el comienzo del proyecto hasta el final del período abarcado por el informe y los principales resultados hasta la fecha

"Work package 1 (Months 1-6)

The aim of the first WP was to provide formally precise characterisation of the logical or linguistic role that the notion of property plays in our philosophical and scientific reasoning. Since the basic axioms for properties are known to be intertranslatable with the basic axioms of the notion of truth-of (i.e. satisfaction), we decided to investigate the logical function of truth-of, which allowed us to utilise the large literature on formal theories of truth.

The investigation of the function of truth-of led to the publication of the article "Deflationism and the function of truth", which appeared in the journal Philosophical Perspectives. The paper provides a precise characterisation of the logical function of truth and truth-of, by establishing a result of mutual interpretability between disquotational theories of truth and second-order logic. We concluded that the function of truth-of (and thereby of properties) is to mimic higher-order reasoning in a first-order framework. A sequel to this paper, "Is deflationism compatible with compositional and Tarskian truth theories?", will appear in the collection ""Modes of truth. The unified approach to truth, modality, and paradox", published by Routledge. This article develops a strategy for justifying more complex axioms on the basis of the basic axioms.

Work package 2 (Months 7-12)

The aim of the second WP was to situate the deflationary account of properties in the philosophical landscape, in particular, to clarify its relation to deflationism about truth and reference, easy ontology, internalism about properties, and fictionalism about properties.

The research resulted in two papers. In “Does semantic deflationism entail meta-ontological deflationism”, published in The Philosophical Quarterly, we argue against Amie Thomasson's claim that deflationism about truth and reference leads to meta-ontological deflationism, which consists in the rejection of the neo-Quinean approach to ontology. In our article “Deflationary accounts of properties and their ontology”, which will be submitted to a top-tier journal in philosophy within the next month, we provide several reductionist accounts of properties, and argue against internalism and fictionalism about properties.

Work package 3 (Months 13-18)

The aim of the third WP was to develop formal theories of properties that are type-free and can be applied in formal semantics and philosophical logic, in particular, theories that admit a universal property (and can therefore be used to provide a semantics for absolutely unrestricted quantifiers) and theories that can be used in the foundations of mathematics. The main challenge was to develop mathematically strong theories that are natural and conceptually simple while avoiding the logical paradoxes (e.g. Russell’s paradox).

The research resulted in the formulation of two mathematically rich theories. The first of these consisted in an Ackerman-style theory of properties that admits a relative interpretation of standard set theory, and has been presented to audiences in Amsterdam, Florence, London, and St. Andrews. The second theory was formulated in a non-classical logic and contained new operators that allow to recover the classical theory of types. It has been presented at the conference “Propositions, properties, sets and other abstract objects”, held in Amsterdam in February 2020, which was organised by the PI as part of the project. The results obtained in the third WP are currently in preparation for publication."

## Avances que van más allá del estado de la técnica e impacto potencial esperado (incluida la repercusión socioeconómica y las implicaciones sociales más amplias del proyecto hasta la fecha)

The main achievements of the project can be summarised as follows.

1. We showed that (impredicative) higher-order logics and disquotational theories of truth are mutually interpretable. This entails that the proof-theoretic power of truth is significantly higher than previously thought. From a philosophical point of view, these results provide new and substantial evidence for the claim that truth and properties are devices that enable us to increase the expressive power of our language, as deflationists have claimed all along.

2. We argued against the received view that deflationism is incompatible with compositional and Tarskian theories of truth.

3. We clarified the position of semantic deflationism by showing that the position is logically independent from existence deflationism and meta-ontological deflationism.

4. We provided new arguments against an internalist and fictionalist interpretation of our property talk.

5. We provided new axiomatic frameworks for formal theories of properties, concepts, and propositional functions. They are based on a top-down approach rather than the more standard bottom-up approach (in particular, theories based on some idea of grounding). The proof-theoretic strength of these systems is significantly higher than that of the alternative approach.

**Última actualización:** 11 Julio 2020

**Permalink:** https://cordis.europa.eu/project/id/792202/reporting/es