# *Unity and Plurality. Logic, Philosophy, and Linguistics*. Edited by Massimiliano Carrara, Alexandra Arapinis, and Friederike Moltmann. (Oxford: Oxford Universty Press, 2016. Pp. xv + 259. Price *£* 49.99)

“The students gathered”, “some musicians surrounded the piano”. These few examples make it clear that plurals are a fundamental phenomenon in natural language. As the examples show, natural language displays definite plural terms, plural quantification, and plural predicates. Over the past three decades, the theoretical interest in plurals has continued to increase due to the challenges and opportunities provided by plurals in logic, philosophy, and linguistics. There are two main accounts one may take to explain the logic and the semantic of plurals: the singularist approach and the plural reference approach. According to the singularist approach, a definite plural term like “the students” refers to a single entity, such as a mereological sum or a set. According to the plural reference approach, a definite plural like “the students” refers plurally to each student at once. The volume “Unity and Plurality. Logic, Philosophy, and Linguistics” edited by Carrara, Arapinas, and Moltmann brings together new contributions dealing with several questions concerning plurals from the perspectives of logic, philosophy, and linguistics. The book is divided in two parts. The articles in the first part address questions about plurals belonging to the field of logic. The articles in the second part focus on questions about plurals belonging to the field of linguistics.

In Chapter 1, Scaltsas investigates how to provide an account of related individuals within Plato’s Theory of Forms which does not contain any relational Forms. First, he shows that Plato admits plural-partaking in a Form, i.e. that a single instance of a Form can be shared by a number of individuals taken together. Then, Scaltsas argues that symmetrically related individuals are those individuals that plural-partake in the same Form. Finally, he introduces the notion of Opposite Forms and maintains that asymmetrically related individuals are those individuals that plural-partake in certain Opposite Forms. In Chapter 2, Linnebo provides a way of harnessing Basic Law V that does not lead to Russell’s paradoxes. Focusing on the plural version of such a principle, he first factors this law into a criterion of existence and a criterion of identity. Then, he argues for a modal version of the criterion of existence and shows that it does not lead to a Russellian paradox. In their contribution (Chapter 3), Oliver and Smiley argue for two theses. On the one hand, they aim to defeat a specific singularist strategy about plurals, named “the predicative analysis of plurals”. On the other hand, they argue that Boolos’s view according to which English plurals can be represented within monadic second-order logic does not stand.

In Chapter 4, Simons provides a theory of multitudes. In the first part of the paper, Simons investigates the ontology of multitudes. The notion of multitude is introduced by that of plurality, where a plurality is characterized as something that has more than one object as a member. According to Simons, a multitude is not an individual, but a plural object, a many, that has its members essentially, and whose unique requirement for its existence is that all its various members are to exist. Crucially, Simons maintains that there are higher-order multitudes, i.e. multitudes with other multitudes as members. Simons’s basic premise is that the theory of multitudes is part and parcel of logic – i.e. it is pure logic. In the second part, Simons sketches the core logical principles of any theory of multitudes and argues that this account can provide a nominalistically acceptable semantics for first and second-order logics. A worry may be raised against the logicality of those theories of multitudes that allow for higher-order multitudes. It has been argued by Linnebo that a theory to be a logic has to satisfy several requirements, one of those is that of Cognitive Primacy, i.e. that a theory to be a logic should not presuppose extra-logical ideas in order to be understood. Now, consider the following two second-order multitudes: *ab* | *cd* and *ac* | *bd*. Notwithstanding these multitudes come from the same individuals, they have different principles of organization, and so are different. Since these principles of organization intuitively involve some combinatorial notion, the notion of higher-order multitude seems to presuppose some mathematical ideas. But, then, it is at least an open question whether Simons’s proposal is able to satisfy the requirement of Cognitive Primacy, and so whether it should to be considered a pure logical theory.

In Chapter 5, Boccuni, Carrara, and Marino deal with the question of the logicality of monadic second-order logic. Starting with the premise that the ontological commitment of a formal theory *T* includes also the entities involved in the semantic of *T*, they first argue that Boolos’s account of plural quantification falls short of respecting logicality insofar as it commits to a set-theoretic notion of assignment. Then, they maintain that quantification, both singular and plural, has to be grounded in the notion of *arbitrary reference*, which in turn has to be explained by the introduction of *ideal agents*, who are capable to choose any entity of the domain by free and ostensive acts, named “*acts of arbitrary choice*”. Finally, they provide a semantics for second-order logic, named “SAC”, in terms of these ideal agents and their acts of arbitrary choice. In the last part of the paper, the authors clain that their view can be considered a pure logic.

The second part of the book opens with Moltmann’s contribution (Chapter 6). First, she argues that the plural reference approach to plurals has to be preferred over the singularist approach, both specified by the extensional mereological theory and by the information-based theory. Finally, she provides an account of higher-order plurality within the plural reference approach that is similar to the information-based theory. In Chapter 7, Yi deals with determiners and generalized quantifiers, that are expressions resulting from the combination of determiners and common noun-phrases. First, he shows that the *Generalized Quantifier Theory* – GQT, for short – falls short of giving adequate analyses of plural determiners. Then, under the assumption of the plural reference approach, he provides pluralist analyses of plural determiners which result in an improvement of GQT – named “*pluralist GQT*”. Finally, he modifies the latter theory so as to account for donkey-anaphora sentences. In Chapter 8, McKay investigates the semantics of mass expressions. First, he argues that mass reference and predication are not reducible to singular or plural reference and predication. Then, he formulates some principles governing mass expressions. Finally, McKay maintains that plural reference and predication are not reducible to mass reference and predication. In Chapter 9, Acquaviva proposes an account of mass plurals according to which these terms have to be understood as denoting over domains with a part-structure, and so as motivating the adoption of a singularist approach. In Chapter 10, Arapinis deals with the phenomenon of partial involvement. Under the assumption of the singularist approach, she characterizes the notion of integrative predicate, and then she argues that partial involvement is triggered by integrative predicates.

In Conclusion, *Unity and Plurality* successfully shows the importance of dealing with the phenomenon of plurals in logic, philosophy, and linguistics. It covers many of the fundamental debates concerning plurals and it provides accessible tools to venture further in those debates.