The Theory of *Suppositio* in the Mexican Golden Age

Atocha Aliseda

Abstract

In this paper, I treat the subject concerned with the theory of *Suppositio* in the Mexican golden age, as exposed by Alonso de la Veracruz [Ver82, ReBe85] and Tomás de Mercado [ReBe85]. According to this tradition, supposition is a property of terms occurring in propositions and are such that are *verifiable* of what they signify. On the one hand, there is a taxonomy in which suppositions are classified by their corresponding terms. That is, for example, whether a term stands for its meaning versus when it is used in a metaphor; or by its relative position with respect to the determiners of the proposition. On the other hand, two inferential rules, *ascent* and *descent* serve to further characterize this last kind of supposition, each one validating certain instances of these rules. Moreover, this inferential analysis extends to suppositions of 'grammatical relative terms', including (what we now call) anaphoric expressions. Besides its historical appeal, this theory of supposition suggests interesting connections to contemporary semantics, but only a few of them will be sketched at the end of this paper.

Contents

1 Introduction

While I was looking for a special topic to write about for this celebration, I organized a small workshop in honor of the founder of pragmatism, Charles S. Peirce. He was a persistent reader of scholastic philosophy and his work was very much influenced by it. Several aspects of this connection have been studied by two attendants to the workshop, and their overall work is the original inspiration of this piece. The first of them, Víctor Sánchez-Valencia, traced back the history of the (lexical) monotone rules, and found the first successful formulation in the work of William de Ockham, a medieval logician [San91, San98]. The other scholar, Mauricio Beuchot, has long been promoting and fostering the logic developed in colonial Mexico, where the scholastic tradition followed its own ways through the work of Spanish friars who came to *La Nueva España* (The New Spain) as evangelists. Beuchot has a long list of translations and critical studies of this phenomenon (most of it in Spanish), some of which served as the basis for this paper[ReBe85, Beu91, Red95]. Their approaches show the relevance of medieval logic in contemporary semantic theory and put in its agenda the logic developed in Mexico in the XVI century. Many themes in medieval logic are relevant to recent issues in contemporary semantics, such as presupposition, generalized quantifiers and theories of inference, many in which Johan van Benthem has contributed.

In this paper I treat the subject concerned with the theory of *Suppositio* in the Mexican golden age. According to this tradition, supposition is a property of terms occurring in propositions and are such that are *verifiable* of what they signify. On the one hand, there is a taxonomy in which suppositions are classified by their corresponding terms. That is, for example, whether a term stands for its meaning versus when it is used in a metaphor; or by its relative position with respect to the determiners of the proposition. On the other hand, two inferential rules, *ascent* and *descent* serve to further characterize this last kind of supposition, each one validating certain instances of these rules. Moreover, this inferential analysis extends to suppositions of 'grammatical relative terms', including (what we now call) anaphoric expressions.

I chose this topic because I think it is more novel for the purposes of this celebration than a more specialized version of the abductive theory I developed for my Ph.D. dissertation [Ali97] and which I continue to refine. However, the aims of this paper are rather limited. I restrict myself to describe the theory of supposition, as exposed by Alonso de la Veracruz [Ver82, ReBe85] and Tomás de Mercado[ReBe85]. The possible connections to contemporary theories of presupposition will be left for future work.

2 Preliminaries

2.1 Background History

The theory of supposition in the Mexican golden age has its roots in the philosophy of language of the middle ages [Beu91]. Although it was a philosophy of natural language, it offered some formalization in their theory of consequence (*consequentia*), through a formal representation of variables and terms, as well as clear rules involving copulated, disjunctive and modal propositions, some of which anticipate de Morgan's rules.

The main reference is from Pedro Hispano (1205–1277), a XIII century philosopher whose work was widely recognized in the *Mexican logic* as a key figure in supposition matters:

> "In fact, it was not Aristotle who edited a special small book on suppositions, extensions and appeals, but Pedro Hispano, and it is followed by everyone who speaks about this matters." [Ver82][p.356]

The main figures of this *logical evangelization* where Alonso de la Veracruz (1504–1584), Tomás de Mercado (1523–1575) and Antonio Rubio (1548–1615) (A good reference of their work in logic on which this essay is mainly based is found in [ReBe85]). All of them had original ideas in the logical themes they worked on, but their main contribution was in their teaching, in the textbooks they wrote to introduce the logical ideas into the new world. De la Veracruz declares the beginning of a "golden age" for the teaching of logic and the decline of a "decrepit era". The golden age was headed by the reformists who wanted to get rid of all extravagant and minutely precise details of which the previous logic was full of. In fact, the main purpose of de la Veracruz "Recognitio Summularum", a 100,000 words logic textbook (!), was to offer some 'efficiency' in the teachings of logic. However, rather than simplification he aimed at moderation and sobriety in the treatment of logical issues.

2.2 Properties of Terms

There are two main properties of terms, signification (*significatio*) and supposition (*suppositio*). Other properties include appeal, distribution, restriction, extension, alienation, reduction and analogy (cf. [ReBe85][159–165]).

Signification (or meaning) is the *"representation of the thing by the sign according to a convention"* [Beu91]. There are two kinds of signification: *substantive*, when it is done by a noun like "man", and *adjective* (or copulative), when it is done by an adjective or a verb like "black" or "runs". Supposition is a logical property of terms occurring in propositions, and consists of *"the meaning of the substantive term in place of something else"*[Beu91][p.126]. However, as we shall see, there is not a single definition of supposition. There is no supposition in a term by itself, there is only signification.

It has been claimed[Beu91, ReBe85] that the scholastic theory of properties of terms by itself is a considerable contribution to contemporary logical semantics. We can already find some Fregean elements in this distinction. While signification is close to the notion of sense (sinn), supposition seems to be what is understood by reference (bedeutung).

According to medieval logicians, while substantives suppose, adjectives and verbs copulate. But de la Veracruz ascribed suppositions to adjectives and verbs as well[Ver82] .

2.3 Inferential Rules: Ascent and Descent

In order to characterize supposition types (to be introduced in the next section), an inferential process is carried out. This is done via two rules: *Ascent* and *Descent*. The structure of these inferential rules resemble the usual (inductive) generalization and (multiple) existential instantiation.

Ascent and Descent are both defined as consequences which are *good* and *formal*. A consequence is good when it is not the case that the antecedent is true while the consequent false. A consequence is formal when it is good and all other "similar" consequences are good as well (roughly speaking, two consequences are similar when they agree on quality, quantity and on their copula). Each of these inferential rules has two basic forms, a conjunctive and a disjunctive one.

Ascent

Ascent is a formal and a good consequence in which the argument goes from *sufficiently* enumerated premises and a record premise ("cum constantia") –one in which it is declared that singulars exist and that there are all of them– to a universal proposition.

For example, to conclude "All men want to know", a conjunctive ascent (CA) is as follows:

> This man wants to know AND this (other) man wants to know (AND so it is of everyone else)
> These men are all men
> Therefore, all men want to know

An example of a disjunctive ascent (DA) is as follows:

> This man wants to know OR this (other) man wants to know (and so it is of everyone else)
> These men are all men
> Therefore, some man wants to know

Descent

Descent is a formal and a good consequence in which the argument goes from a universal proposition and a record premise to singular propositions.

An example of a conjunctive descent (CD) is as follows:

> All men are animals
> These men are all men
> Therefore, This man is an animal AND this (other) man is an animal

As for disjunctive descent (DD), an example is the following:

> Some man is an animal
> These men are all men
> Therefore, This man is an animal OR this (other) man is an animal

Ascent and Descent may also be conjunctive or disjunctive with respect to the term in the predicate of the proposition. For example, “Some man is an animal” may descend into “Some man is this animal OR some man is this (other) animal”. As we shall see, this distinction is of great importance for a supposition characterization.

The definitions given above are taken from de la Veracruz in [Ver82]. Mercado himself [ReBe85] considers that the record premise and the addition of “and so it is of everyone else” to the enumerated premises are both unnecessary restrictions (they certainly are in the case of DD). He is happy with sufficiently enumerated premises and no record premise to derive a generalization. Therefore, his idea of Ascent is closer to Aristotelian induction, but then it suffers from all the well–known problems of its validity.

3 Supposition

There is no single definition of supposition in either Hispano, de la Veracruz or Mercado. While Hispano defines it as *“the meaning of the substantive term in place of something else”* [Beu91][p.126], Mercado[ReBe85][p.151] makes a more precise statement specifying that something else: *“substitution of the term by its meaning”*. Alonso de la Veracruz[Ver82], on the other hand, introduces a verification aspect, defining supposition as follows:

> Supposition belongs to a term which is in a proposition and it is verifiable of the thing it signifies.

For example, “man” supposes in the proposition “The man is an animal” because it can be verified by the thing it signifies pointing at a specific man like Pedro and saying: “This is a man”. That is, “man” is accepted in the proposition by something to which it corresponds in virtue of the same meaning, ‘Pedro’.

Therefore, according to de la Veracruz, to find out whether a term supposes by a thing it signifies, one must construct an affirmative proposition in which the subject is a demonstrative pronoun which points at the thing the supposing term signifies. The predicate is the supposing term. If it is true, then the term does suppose.

For example, “chimera” does not suppose in “There is a chimera” because it does not verify in the thing it signifies, shown by the falsity of the following proposition:

“This is a quimera”

However, this is not to say that a term can have no supposition in a false proposition. Consider the following: “The man is a stone”. In this proposition both “man” and “stone” suppose, because they can both be verified by the thing they signify, pointing at a man (“this is a man”) and at a stone (“this is a stone”). Therefore, a term may suppose in true as well as in false propositions.

There is evidence that de la Veracruz’s verification aspect traces back to Hispanus, who also defines supposition as follows: *“the meaning of the term in place of what it is verified for”* [ReBe85][p.151].

The verification condition is a requirement for existence, in the lines proposed by Strawson for quantified sentences. However, Mercado makes the point that there need not be a requirement of existence, but its possibility must be required. This allows to provide an analysis for modal propositions, like “It is possible that Pedro comes”, which were also very much studied by this tradition.

3.1 Classification

There are also some variations as to how supposition types were classified. De la Veracruz taxonomy [Ver82] tends to be confusing because it combines realist and nominalist traditions. We present a later version, the one found in Mercado (taken from [ReBe85]) which describes the principal supposition types:

$$Supposition \left\{ \begin{array}{ll} Material & \\ Formal & \left\{ \begin{array}{c} Improper \\ Proper \end{array} \right. \end{array} \right.$$

The first division is between material and formal supposition. A material supposition appears in terms which represent themselves, such as “‘man’ is a substantive”. A formal supposition occurs when the term stands for what the word means, such as in “Men are rational beings”. Next there is a distinction between improper and proper supposition. An improper supposition occurs when a term is used in a rather different sense than usual, such as in a metaphor like “The lawn laughs”. A proper supposition occurs when the term stands by its ordinary meaning, such as in “The lawn is green”. This supposition type is further divided into proper simple and proper personal:

$$Proper \left\{ \begin{array}{ll} Simple & \\ Personal & \left\{ \begin{array}{c} Natural \\ Accidental \end{array} \right. \end{array} \right.$$

A proper simple supposition occurs when the term represents a concept, such as in: “Man is a species”. A proper personal supposition occurs when the term represents individuals, such as in “The man discusses”. Moreover, a proper personal supposition may be natural or accidental depending on predicate types, divided into those which are essential or necessary properties and valid regardless of time or existence of the individuals they represent, like in “Men are rational”, and those predicates which express an accidental or time dependent property of individuals like in ‘The man runs”.

The personal accidental supposition type is further divided into singular and common:

$$Accidental \left\{ \begin{array}{ll} Singular & \\ Comun & \left\{ \begin{array}{c} Distributive \\ Determinate \\ Confusing \end{array} \right. \end{array} \right.$$

The singular kind (also called “discrete”) includes propositions in which a proper name is the term with supposition like in “Peter is a man”, expressions with ‘determined singular names’, like in “This man is crazy” and those with ‘vague singular names’ like in “A man is crazy”. As for the common supposition, it is further divided into distributive (or universal), determinate and confusing. The first one of these represents those terms affected by a universal (quantifier), such as in “All men are animals”. The determinate type of supposition is that in which the expression is singular (an existential quantifier occurs), such as in “Some man is an animal”. The confusing supposition corresponds to the term which occurs in an affirmative proposition with a universal (quantifier) which is not immediately affected by it, such as the term “animal” in “Every man in an animal”. It also occurs when a term is affected by a special confusing sign, such as in “Two times I have been in Rome” (this kind deserves a special treatment which is not mentioned here).

3.2 Characterization by Inference Rules

The previously defined supposition types were characterized by the inferential rules they validated. In particular, there were precise characterizations of the common supposition type. A “modernized” version of these definitions is as follows:

Distributive supposition

> A term t has a distributive supposition iff it validates the rules for conjunctive ascent (CA) and conjunctive descent (CD).

Determinate supposition

> A term t has a determinate supposition iff it validates the rules for disjunctive ascent (DA) and disjunctive descent (DD).

Confusing supposition

> A term t has a confusing supposition iff it does not validate neither ascent nor descent inferential rules.

Examples

1. Every **man** is an **animal**

   The term ‘man’ has a distributive supposition and the term ‘animal’ a confusing one.

   Therefore, conjunctive ascent and descent must be valid with respect to the term ‘man’. Below is the corresponding conjunctive descent (conjunctive ascent is obtained by reading the argument upside down)

   Every **man** is an animal
   These men are all men
   This **man** is an animal AND this (other) **man** is an animal

   As for the term ‘animal’, the following argument shows that a conjunctive descent is invalid, since the antecedent is true while the consequent false:

Every man is an **animal**
These men are all men
Therefore, Every man is this **animal** AND Every man is this (other) **animal**

All other inference rules fail as well. Therefore, the term 'animal' does carry a confusing supposition within "Every man is an animal".

2. Some **man** is a **philosopher**

   Here both terms 'man' and 'philosopher' have a determinate supposition. To see this, we shall first show that both disjunctive ascent and descent are valid with respect to the term 'man':

   Some **man** is a philosopher
   These men are all men
   This **man** is a philosopher OR this (other) **man** is a philosopher

   As for the term 'philosopher':

   Some man is a **philosopher**
   These men are all men
   Some man is this **philosopher**r OR some man is this (other) **philosopher**

Therefore, ascent and descent inference rules serve to characterize supposition types occurring in the substantive as well as in the predicate part of the proposition, something which was widely recognized in scholastic logic as "multiple quantification"[Red80].

Moreover, this inferential analysis extends to suppositions of "grammatical relative terms", which are divided into two main categories: reciprocal of a *primitive species* and reciprocal of a *derivative species*. The former is further divided into reciprocal and not reciprocal. Reciprocal of a primitive species includes expressions like "himself" and "herself" and not reciprocal includes expressions like "he", "she" "this", "that", "the other one", all of which we label nowadays as anaphoric. Reciprocal of a derivative species is identified with words like "one", "mine" and "theirs" (Mercado's focuses only on those of a primitive species).

Here is an example in which "he" has a determinate supposition:

The lion is sitting and **he** does not move
The lion is sitting and **this lion** does not move

However, Mercado notes that in the case of the recipocral kind, the inferential rules are not observed. Rather, he states, the rule here is simply that the supposition type always agrees with that of the antecedent term. For example, in "The man is not himself" the term "himself" has a determinate supposition, just like the supposition of its antecedent term "man". Likewise, in "No lion is himself", "himself" has a distributive supposition in accord with the term "lion" which has a distributive supposition. The reason Mercado gives for this phenomenon is that reciprocal are such in agreement with their antecedent that they not only agree in number and gender, but also in their supposition type[ReBe85][p.158].

4 Conclusions

The theory of supposition in the Mexican golden age has not only historical appeal, it also suggests interesting connections to contemporary semantics. On the one hand, the supposition taxonomy offers, in its first three divisions, important distinctions later introduced by Frege[ReBe85]. The first of them, namely the division between material and formal supposition, resemble the Fregean use vs. mention distinction. Regarding the next division into improper and proper supposition, these two kinds express the relationship between sense and reference; when a term has a reference in addition to a sense, the sense is the "via" towards the reference. Finally, the division into simple and personal supposition corresponds to the distinction between a semantic intensional aspect versus an extensional one. On the other hand, the personal supposition type, together with its subdivisions, constitutes the basis for the development of a quantificational semantics, and therefore it comes at no surprise that it is the one that received most attention as to logical treatment[Moo52]. In our modern terminology, while the singular supposition type captures those suppositions carried by proper names, demonstratives and indefinite descriptions, the common supposition type identifies those terms occurring in propositions with universal or existential quantifiers.

A first moral to draw from this paper is that both the theory of supposition and contemporary theories of presupposition, show that the linguistic diversity of presupposition cannot be accounted for with a single analysis or rule. There are several supposition kinds, each one observing different rules, and therefore deserving a separate analysis.

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