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# Saturating syntax: Linkers and modification in Tagalog

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### Abstract

Not all instances of composition are saturating in the sense of functional application (McNally, in press). For example, intersective modification with adjectives or relative clauses requires a non-saturating mode of composition (cf., e.g., Chung and Ladusaw, 2004). To account for such semantic configurations, composition rules like Predicate Modification (Heim and Kratzer, 1998) or Restrict (Chung and Ladusaw, 2004) have been posited. In Tagalog, wherever we find instances of non-saturating composition, we also find the element *nal-ng*, known in the Austronesian literature as LINKER. Sabbagh (2009, fn.31) points out that LINKER may be analyzed either as a semantically vacuous element serving as a "morphological flag" for non-saturating composition (in the style of Chung and Ladusaw, 2004, or as an operator of type  $\langle et, et \rangle$  that composes with a predicate and adds the "instruction" to compose its output with another predicate via a non-saturating composition rule. Both options leave us with the need for a specialized composition rule in addition to functional application so that two properties may compose in the semantics. Alternatively, Rubin (1994) proposes that the grammar supplies a functional head of type  $\langle et, \langle et, et \rangle$  that composes with two predicates and returns a single predicate denoting the intersection of both – a head that does the work of modification. Following Rubin, we argue that in Tagalog this element is realized overtly as LINKER. Adopting this latter proposal allows us to simplify the compositional mechanism so that it need not rely on specific processes for modification in addition to functional application. It also makes strong predictions, consistent with the data, about the environments in which we expect LINKER to appear. We explore the possibility of expanding the predictive power of our account of LINKER such that modification is implicated wherever it surfaces. © 2014 Elsevier B.V. All rights reserved.

Keywords: Modification; Linker; Semantic composition; Tagalog

#### 1. Introduction

Modification poses problems to all sub-disciplines of linguistics (in addition to the issues raised by the papers collected in this volume, see McNally, in press, for a recent overview of the difficulties associated with modification, including defining the term itself). Here, we focus on a particular problem modification presents to theories of semantics, syntax, and their interface. Specifically, we concern ourselves with the modes of composition modification necessitates, not only in terms of meaning composition but also the phrase structure needed to generate these meanings (e.g., Chung and Ladusaw, 2004). As we show, accounting for modification in any cohesive theory of grammar requires a tradeoff between parsimony and complexity across the various modules of language involved: either we burden the syntax with additional structure so as to simplify our inventory of composition rules in the semantics, or we augment the semantics with non-saturating modes of composition so as to trim down our syntax.<sup>1</sup> Deciding the outcome of this tradeoff, both within languages and across grammar more generally, need not bottom out in an argument around preferences: our theory of

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<sup>&</sup>lt;sup>1</sup> We do not intend for this to be an exhaustive list of the options available to theorists as they allow for modification. For example, we make no mention here of lexical strategies that assign to modifiers an argument-taking semantics (e.g., McNally, in press, Section 1.3); but see Section 2.1 below.

modification should find its foundations in empirical facts. To this end, we offer the following case study of modification in Tagalog. Throughout our investigation, we are guided by the assumption that if modification proceeds on the basis of added functional structure, there ought to be a reflex of that added structure in all instances of modification.

We begin by considering what modification is and how it is handled in theories of formal semantics. Our discussion focuses on the process of non-saturating composition, which many accounts of modification assume yields the meaning that results when a modifier combines with another term. We then turn to the data from Tagalog, showing that whenever we find modification LINKER surfaces. This observation leads us to consider the syntactic, semantic, and morphological role of LINKER in Tagalog and linking particles more generally. We conclude that the evidence supports a view of LINKER under which it projects a Mod(ification)P in the syntax and, solely on the basis of saturating composition, performs the semantic role of modification by combining with the elements that flank it (Rubin, 1994, 1997, 2003). This approach has the advantage of reducing the modes of composition in Tagalog to just Functional Application, supporting the original intuition from Frege that all composition proceeds in a saturating manner. Establishing this precedent, we may then begin to wonder whether all composition within Language more broadly proceeds in a similar, saturating way.

# 2. Theoretical background: composition

The composition of the meaning of a whole out of the meanings of its parts is often viewed as a process of completion. Assuming that composition is binary, the meaning of one of the composing elements, often the predicate, is incomplete, or unsaturated; it combines with a complete, or saturated expression, and the meaning that results is a function of the meaning of the two parts.

This talk of meaning composition in terms of functions, saturation, and completeness finds its beginnings in the writings of Gottlob Frege. In his essay "Function and Concept" (Frege, 1891), Frege says of the elements involved in meaning composition that "a function by itself must be called incomplete, in need of supplementation, or unsaturated," whereas the argument to which the function applies is "a whole complete in itself, as the function is not." Here is where we find the famous example *Caesar conquered Gaul*, which Frege separates into the parts *Caesar* and *conquered Gaul*; the latter he views as a predicate function which applies to the individual argument Caesar and returns a truth value determined by whether or not Caesar conquered Gaul.

Modern theories of formal semantics build on Frege's characterization of meaning by assuming that semantic composition proceeds in terms of functional application (e.g., Montague, 1973): a predicate, viewed as a function, applies to its argument in order to saturate its otherwise unsaturated meaning.

(1) Functional Application (Heim and Kratzer, 1998):
If *α* is a branching node, {*β*, *γ*} is the set of *α*'s daughters, and [[*β*]] is a function whose domain contains [[*γ*]], then [[*α*]] = [[*β*]]([[*γ*]]).

Assuming the predicate *conquered Gaul* corresponds to  $\beta$  in (1) and the subject *Caesar* corresponds to  $\gamma$ , we can compose the meaning for *Caesar conquered Gaul* by applying the predicate to its argument. Functional application maps intuitively onto theories of argument structure in syntax: a head takes its complement (and then its specifier) as an argument.

Unfortunately, our theory is incomplete: not all instances of composition are saturating in the sense of functional application. Furthermore, head complementation is not the only option for combining elements syntactically. Consider, for example, what happens when two unsaturated, incomplete elements compose, say two predicates like *American* and *citizen*. Examining our intuitions on meaning, a phrase like *American citizen* denotes a hybrid of the two properties that constitute it: for something to hold the property *American citizen*, it must independently hold the properties *American* and *citizen*. Assuming both elements are property denoting functions, neither may serve as an argument of the other. As we shall see, all such instances of semantic modification ostensibly preclude functional application and head-complement structures.

## 2.1. Allowing modification

What we need is an account of modification, but before getting there we first must consider what the role of a modifier is. According to McNally (in press), modifiers satisfy the property in (2).

### (2) Modifier (McNally, in press):

An expression that combines with an unsaturated expression to form another unsaturated expression of the same type.

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