Language Sciences 51 (2015) 67–85

Contents lists available at ScienceDirect

Language Sciences

journal homepage: www.elsevier.com/locate/langsci

Compositionality, lexical integrity, and agglutinative morphology☆

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ARTICLE INFO

Article history:
Available online 10 July 2015

Keywords:
Compositionality
Lexical integrity
Word structure
Agglutinative morphology
Bracketing paradox
Japanese

ABSTRACT

Based on morphological phenomena found mostly in Japanese, a highly agglutinative language, this paper investigates how we might approach intra-word compositionality in a manner faithful to lexical integrity. First, we observe some word-formation phenomena that seem to apparently contradict lexical (or morphological) integrity and 'direct compositionality'. These involve mismatches – bracketing paradoxes – between morphological constituency vis-à-vis syntactic or semantic constituency. We also survey how researchers have dealt or would deal with instances of such mismatches. Upon concluding that these mismatches are not obstacles to direct compositionality or lexical integrity, an even more drastic bracketing paradox, namely, the one involving the sized inalienable possession construction is introduced as a case study to give the concept of direct compositionality a further stress test. The viability and, arguably, advantage of a direct compositional semantically-oriented (as opposed to syntactic) approach to word-formation is demonstrated. Finally, after a summary of the paper, further conceptual issues regarding compositionality and word-formation are taken up.

1. Introduction

The concept of compositionality plays a central role in both philosophy of language and linguistics. In this paper we consider the relationship between compositionality and word structure in the context of Japanese, a highly agglutinative language.

Compositionality is central to the study of language and given a special status in the form of the Principle of Compositionality (PoC). It is informally rendered as "the meaning of a complex expression is a function of the meanings of its constituents and the way they are combined" (Szabó, 2012: 64). (See Janssen (1986, 2011), Hodges (2001), and Hendriks (2001) for mathematical definitions. Also, consult the chapters in Werning et al. (2012) for issues surrounding compositionality including the topics found in this paper).

☆ Parts of this paper have been presented at the Western Conference on Linguistics 2003, the Chicago Linguistics Society 34/40, a Kansai Lexicon Project meeting, the 10th Korea-Japan Workshop for Linguistics and Language Processing, the 44th Meeting of Societas Linguistica Europaea, and the 8th Mediterranean Morphology Meeting. Many thanks to the audiences of the meetings for their input. The paper also benefited from intimate interactions at colloquia hosted by International Christian University, Waseda University, and Kobe University. I am grateful to individual contributions of Farrell Ackerman, Mark Aronoff, Daisuke Bekki, Olivier Bonami, Joan Bresnan, Dunstan Brown, Alastair Butler, Brent de Chene, Jae-Woong Choe, Bernard Fradin, Takao Gunji, Junko Hibiya, Hajime Hoji, Ikumi Imani, Brian Joseph, Taro Kageyama, Chiharu Kikuta, Jong-Bok Kim, Hideki Kishimoto, Terry Langedoen, Keiko Murasugi, Kentaro Nakatani, Norio Nasu, Dick Oehrle, Sadayuki Okada, Masaki Sano, Yutaka Sato, Yukinori Takubo, Tomoyuki Yoshida, and Yoko Yumoto. In addition, comments and suggestions from two anonymous reviewers and Raúl Aranovich (the guest editor) for *Language Sciences* are highly appreciated. I would also like to acknowledge the late Emmon Bach's contribution to linguistics, in particular, the role of semantics in morphology. He was a great friend the interactions with whom helped to enrich my perception of formal semantics. I am alone responsible for the shortcomings that may be found in this paper.

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http://dx.doi.org/10.1016/j.langsci.2015.05.012
0388-0001/

One of the first references to the concept within modern linguistics is found in Katz and Fodor (1964: 171) who state that "the way [a language user] understands sentences which he has never previously encountered is compositional". The earlier versions of transformational grammar along with generative semantics, for example, presupposed the notion in conjunction with the deep structure serving as the basis of semantic composition. This trend survived into more contemporary versions of transformational grammar where an abstract level of syntax, called Logical Form (LF), is designated as the input for semantic composition (see below for discussion regarding grammatical architecture and compositionality). However, compositionality remains to be taken for granted for the most part within the tradition of generative grammar.

In contrast, functionally oriented researchers tend to undervalue compositionality, if not completely reject it. We find a position like Contini-Morava (1995: 6) who states that "the meanings of individual linguistic signs are not always readily identifiable as functional components of a notional whole". She continues, "some sign based [functional] linguists prefer to describe the relationship between meaning and message as one of contribution rather than composition". Also, in conjunction with awkwardness of morphological decomposition, for example, treating *came* as *come* + 'past', Halliday and Matthiessen (2004: 9) say that "[c]omposition is an important semogenic (meaning-creating) resource; but it should not be allowed to dominate our thinking about grammar". It appears, then, that compositionality plays a role (albeit non-predominantly) for creation of meaning even for functionalists.

It was Montague (1973) that catapulted compositionality onto the center stage (semantics in particular). Montague revolutionized the perceptions of linguists and philosophers then concerning the (im)possibility of giving explicit, formal, and compositional semantic interpretation to natural language: e.g. a quantificational NPs as a generalized quantifier (GQ – Barwise and Cooper, 1981) constituting a syntactic and semantic constituent, and his handling of quantifier scope ambiguity. Compositionality is technically accomplished as a homomorphism (informally, one-to-one correspondence) between syntactic and semantic algebras (Montague, 1970). This is often described as the rule-by-rule requirement, meaning that when a syntactic constituent is built, there is an accompanying semantic rule that calculates the meaning of the syntactic constituent. Among different incarnations of the PoC (Janssen, 2011), Montague's idea gave rise to the development of the concept of 'direct compositionality' that plays a central role in this paper.

1.1. Direct compositionality and lexicalism

Direct compositionality is inspired by Montague's approach, one of the consequences of which is that the 'surface' structure can be the basis of semantic composition *as is*. Partee (1996: 24–25) epitomizes this state of affairs:

> The real excitement of this [i.e. Montague's program] was that natural language syntax suddenly looked much *less crazy*; instead of the great mystery of how English syntactic structure related to its putative logical form […], there suddenly arose the remarkable possibility that *surface structure* or something close to it […] *might be very well designed as a logical form* for expressing what natural languages express [my emphases].

This situation provided impetus to explosive explorations of surface-based grammatical theories like GPSG (Gazdar et al., 1985), HPSG (Pollard and Sag, 1987, 1994), and versions of categorial grammar (e.g. Oehrle et al., 1988), inter alia. These approaches have activated and facilitated reevaluation of the relationship between syntax and semantics, and contributed to crystallization of the notion of compositionality in the context of linguistics, ultimately giving rise to direct compositionality.

Direct compositionality (Jacobson, 1999, 2000, 2002, 2012, 2014; Barker and Jacobson, 2007) stands out as the straightforward semantic embodiment of the lexical integrity (the notion to be made explicit below).

The concept of direct compositionality is epitomized as the following:

> [T]he syntactic combinatory system and the semantic combinatory system work in tandem. The syntax can be seen as a recursive system which proves the well-formedness of expressions in a language (the base of the system being of course words, or – more accurately – the *morphemes*). DC [direct compositionality] claims each syntactic rule/principle which proves an expression well-formed is coupled with a semantics which specifies the meaning of the expression (Jacobson, 2012: 109) [my emphases].

And therefore, "there is actually no 'level of representation' [like LF of transformational grammar] which feeds into the compositional semantics" (Jacobson, 2012).

It is noteworthy that Jacobson points to morphemes as the base of the recursive system, which is more befitting to agglutinative Japanese than to more isolating English. In fact, the quote above can also be viewed as describing the relationship between lexical word-formation and the semantic interpretation. When a word is formed, its meaning is assigned based on the semantic properties of its components *once and for all*. As the reader may notice, this is nothing but a semantic counterpart of lexical integrity.

As shown in this paper, to afford compositional contributions of complex lexical items encapsulating bound morphemes, it is not necessary to break them up in such a way that the bound morphemes head their respective syntactic projections. The lexicalist approaches to morpho-sematic bracketing paradoxes introduced below elucidate direct semantic contributions of individual (bound) morphemes without mediation of intricate cartographic syntactic structure and, thus, embody direct compositionality on the most fundamental level.

Closely related to the issues of word-level (direct) compositionality is the notion of lexical integrity (Lapointe, 1980; Di Sciullo and Williams, 1987; Bresnan and Mchombo, 1995; Ackerman and Webelhuth, 1998, Booij, 2005; Spencer, 2005,