

## 語と統語文の起源論

### —第二部 形態論に関する考察と仮説—

#### Theories on the Origin of Words and Syntax

##### Part 2: Debates and Suppositions of Morphology

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#### 要旨

本稿は2部構成の論文「語と統語文の起源」の第2部の議論にあたる。第2部「形態論に関する考察と仮説」では、形態学の発展を言語学的レベルにおいて検証する。この論文では、音韻論と統語論の間の規律として、形態学の性質に焦点をあてる。時間の流れと理論の進展に伴い、これら2つの研究分野の中で形態学の概念は大幅に進化している。本論では、既存の語彙や新出語彙の派生を左右する形態学的な制約を取り巻く議論と原則を考察する。

#### Abstract

This paper contains the second of a two-part discussion of the Theories on the Origin of Words and Syntax. In this second discussion, Debates and Suppositions of Morphology, we will examine the development of morphology as a linguistic level. Central to this paper we will consider the nature of morphology as an intermediary discipline between phonology and syntax. With time and the expansion of theory, the conception of morphology within these two fields of research has evolved substantially. We will survey arguments and principles surrounding the morphological constraints that account for existing words and those that govern the derivations of new words.

●キーワード：派生した命名法 (derived nominalizations) / 形態素 (morphemes) / 分散形態 (distributed morphology)

We have at any moment only those thoughts for the words which we have to hand.

—Nietzsche

#### Introduction

Word formations, the building blocks in the cognitive architecture through which we express inferences, seem to follow predetermined structural formulas and semantic patterns. As we have previously discussed (in Part 1: *The Nature of Syntax and Morphology*), prior to Chomsky's publication of *Aspects of the Theory of the Syntax* (1965), henceforth referred to as *Aspects*, these morphological formulas and patterns were commonly accepted as being subcomponents of syntax. Identifying and analyzing morphologies, from their most complex syntactical computations to their simplest phonemes, was exemplified in Ferdinand de Saussure's posthumous

publication of *A Course in General Linguistics* (1916/1959). The impetus of Saussure's work was "to determine the forces that are permanently and universally at work in all languages, and to deduce the general laws to which all specific historical phenomena can be reduced." What emerged from these pursuits in the first half of the 20<sup>th</sup> century became known as *Structuralism*. The methodology that arose under this rubric primarily sought to observe, to record and to classify the disparate elements in the structures of all the known natural languages. Furthermore, *Structuralism* assessed the natural languages in terms of their social features, which exist in the collective mind of a given language community. In this view, the morphology of words in a language community was seen to be held as a subcomponent of its particular syntax. In *Aspects*, Chomsky first considered the notion of a prescribed

model of grammar consisting of discrete linguistic levels, which included a lexicon distinct from the operation of syntax. Followed up by *Remarks on Nominalization* (1970), henceforth referred to as *Remarks*, Chomsky first suggested that ‘word systems’ may require a separate system of generation, as opposed to the ‘phrase system’ produced in syntax. He observed that Derived Nominalizations (DNs), originating from verbs, do not appear to have the phrasal properties of the verbs from which they are derived. For example, let’s examine DN contrasted with comparable gerunds:

- (1) a. \* her stupid refusing the offer  
 b. her stupidly refusing the offer  
 c. her stupid refusal of the offer  
 d. \* her stupidly refutation of the offer

Clearly, we can observe that the gerund in (1a) is not grammatically equivalent to the DN in (1c). Unlike the DN in (1d), the gerund in (1b) is modifiable by an adverb. While the verbal character of gerunds has never been called into question, the verbal nature of the DN appears suspect. Chomsky suggested that while *-ing* gerunds appear to be obviously nominalized in the syntax, other types of DN, such as *refutation* in (1d) and *refusal* in (1c), are perhaps transformed morphologically in the lexicon, from the base verb *refuse*. The problem that Chomsky observed was that if we suppose the DN and gerunds are both derived from syntactical components in the same way, the disparity in their equivalence would seem unexpected. Chomsky concluded that transformations of DN like *refusal* and *refutation* are demonstrably different from gerunds like *refusing*. Therefore, there must be some form of an undetermined lexical transformation between nouns and verbs. It would appear that gerund phrases have a similar structure to that of verbal phrases, whereas DN have the structure of noun phrases. Thus, DN appear to pose an enigmatic obstacle to the notion of verb transformations being exclusively syntactic, the implication being that a DN like *refusal*, unlike the gerund *refusing*, is not derived syntactically, but rather lexically.

While the nominalization of gerunds is clearly a product of syntactic transformations (the affixing of *-ing*), after the publication of *Remarks*, it became difficult to view DN as having synonymous properties. Subsequent publications gravitated toward a hypothesis where base verbs like *refuse* and DN nouns like *refusal* share a different lexical category, which is separate and distinct from syntactic transformations. For the most part these lexical approaches were not meant to deny syntactic affixations, but rather an attempt to explain the uniform mechanisms of structural case assignment (i.e. true nominalizations).

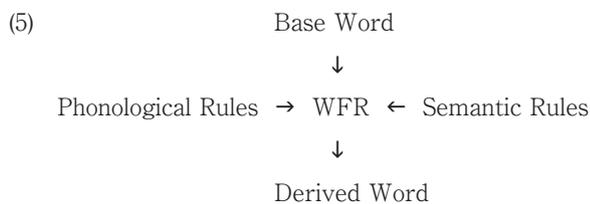
### Discussion

In response to *Remarks*, efforts to establish linguistic levels for word morphology emerged, in which syntactic transformations have no accessibility to insert, delete, modify, or supplant the sub-elements of words. One of the first, and perhaps most rudimentary, was Halle’s *Prolegomena to a Theory of Word Formation* (1973). Halle proposed that the syntactic component has direct access to a limited linguistic level, which he termed “the dictionary.” By this he deemed that syntactical transformations can only take place on wholly formed words, rather than from the sub-elements of a word’s morphemes. Halle viewed words and sentences as operating in fundamentally different linguistic environments. “In general, one uses familiar words, words one has heard and used before, and one does not expect to use or encounter new words, whereas one rarely uses sentences that one has encountered before” (p.16). Halle postulated a lexicon model which consisted of linear strings of morphemes without internal structure. In Halle’s model, words emerge as [STEM + AFFIX] or [AFFIX + STEM] to create words like: [serendip + i + ty] or [be + lieve].

- (2) a. serendip + i + ty vac + ant tot + al bro + ther  
 hand + some be + lieve  
 b. [STEM + i + ty]N [STEM + ant]A [STEM + al]A  
 [STEM + ther]N [STEM + some]A [be + STEM]V  
 (Halle, 1973: 10)



feature of this model was that morphological processes seem to be applicable to words but not their sub elementary morphemes. In this view morphemes that may otherwise be meaningless only enter the lexicon when combined to form meaningful words. This separation of linguistic levels held that while words were in the lexicon, affixes were merely parts of the rules that govern the lexicon, not actual lexical items. Termed the Unitary Base Hypothesis, this model posited a Word Formation Rule (WFR) as a type of instruction that functions to change the category of a base word to another category. The WFR interfaces phonological and semantical rules to transform the base word into a derivation of a new category.



In this model, the interface of the WRFs is permutation of phonological rules that contribute affixes and suffixes and semantical rules, which augment meaning of the base (e.g. noun → adjective). In Arnoff's perspective, the conformity of morphological rules is the determining factor in the production of a language's ever growing complexity of words. This model makes three stipulations: 1. the emergence of base words occurs at a predetermined lexical, as opposed to syntactical, level; 2. base words are maintained in a distinct lexicon; 3. only deviations of base words (not the emergence of the base words themselves) are constrained at a syntactic linguistic level.

Arnoff's model is essentially one concerning the production of word derivations, which requires firstly a definitive separation and secondly an interface between morphology and syntax. A central notion of Arnoff's proposal is that the lexicon is composed of wholly-formed base words, and morphemes exist only as sub elements of words. Thus, while morphemes are suggestive of meaning, actual meaning is an exclusive

feature of the lexicon. However, if we attempt to solely analyze words in terms of their morphemes, we are often imperiled with isolated strings of impenetrable meaning. Such arbitrary intersections of phonology and semantics are clearly observed in the so-called cranberry-morphs<sup>1)</sup> in (6a).

- (6) a. cranberry     huckleberry  
       b. strawberry   blackberry

All of the words in (6) refer to types of 'berries', however, by abstracting the unbounded morpheme *berry* in (6a) we are left with the independently arbitrary and meaningless bounded morphemes *cran* and *huckle*. As opposed to (6b) in which the same abstraction retains the base words *straw* and *black*. Furthermore, at the stem (bounded morpheme) level, if we hold morphemes to be meaningful lexical items of the natural languages, we face the conundrum of determining from which stage in the life of a stem is its actual meaning derivable. For example let's consider the decedents of the Proto-Indo-European etymon *-bher*:

- (7) a. X + fer: refer, differ, prefer, transfer  
       b. X + ber: gebären, беременная (*beremennaya*)

The English stem *-fer* in (7a), from its Latin root *-ferre*, also retains the Proto-Indo-European etymon *-bher* in (7b), meaning to carry or to bear. While we may be able to easily extract the meaning *carry* in a verb like *transfer*, it seems less likely a reduction from the verb *differ* would yield a similar conclusion. This would be made all the more inexplicable with additional affix derivations such as the noun *different*. Not to mention the lineal traits of the stem *-bher*, in words like the German verb *gebären*, meaning to bear, to give birth to engender, or the Russian noun *беременная* (*beremennaya*), meaning pregnant. The notion that a single stem is capable of yielding words with such diverse meanings, as *to differ* (7a) or *to give birth* (7b) lead Anorff to posit that the meaning of a word cannot be restricted to the sum of its morphemes.

Aronoff's hypothesis, of a word-based morphology as opposed to morpheme based theories of meaning, stipulated that the meaning of words must exist in a lexical category separate from their morphemes. If we were to analyze words exclusively at the linguistic level of morphemes, we would often be left with either isolated strings, from which no meaningful elements can be derived, or words that share a similar stem, but have bifurcated meanings, with little or no synonymous association.

Let us propose then, as a tentative hypothesis, that a great many items appear in the lexicon with fixed selection and strict subcategorization features, but with a choice as to the features associated with the lexical categories noun, verb, adjective.

(Chomsky, 1970, p.190)

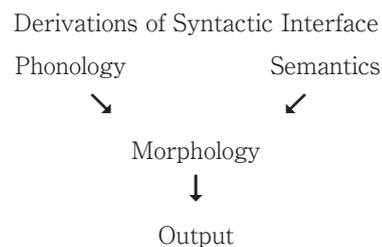
At Chomsky's prompting, two schools of thought in respect to distinguishing a lexicon which precedes syntax emerged. The first, led by Halle (1973) would contend that morphology and syntax are completely distinct linguistic levels. Those linguists assessing that both derivation and inflection belong to a category (termed the lexicon) separate from syntax, would become known as The Strong Lexicalist Hypothesis (cf. Jackendoff 1975, Lieber 1980; Williams 1981; Kiparsky 1982; Selkirk 1982; Levin & Rappaport Hovav 1986; Di Sciullo & Williams 1987). The second group, known as the Weak Lexicalist Hypothesis, followed the more mixed approach of Aronoff (1976). The premise behind this hypothesis assumes, while there is separation between word formation and syntax, there is nonetheless an interface amid morphology (derivations of the lexicon) and inflections of syntax (cf. Wasow 1977; Anderson 1982; Baker 1988; Booij 1996; Dubinsky & Simango 1996).

In reaction to both the Strong and Weak Lexicalist Hypotheses, Distributed Morphology (DM) (cf. Halle & Marantz 1993; Harley & Noyer 1999; Marantz 1997, 2001; Embick & Noyer 2007; Siddiqi 2009), proposed that there is no separate or distinct lexicon, but rather that morphemes are distributed in part pre-syntactically and

in part post-syntactically.

Two central features of DM included: 1. Late Insertion, which refers to the hypothesis that the phonological expressions of syntax are purely abstract with no pre-phonological content, which instead occur post-syntactically. Only after syntactic mappings are applied to phonological forms is phonological "Output" identifiable. We will henceforth refer to these mappings as terminals (i.e. the point where expression originate and terminate). 2. Syntactical Structures All the Way Down, which alludes to the notion that compositions of grammar and word formation occur both above and below the linguistic level of syntax. DM focuses attention on the syntactic relationship between phonology, semantics, and morphology.

#### (8) Generic Architecture of DM



In DM the derivation of words, from the simple to the more complex, is a syntactic process involving abstract phonological forms and general semantic principles. The resultant output is the product of morphological syntax. A key measure of this morphology, conceived of as the mapping from syntax of unitary morphemes to phonological forms, is the pairing of semantical terminals with phonological representations (i.e. word derivations). Each morpheme represents a unit of complex phonological and semantic features.

The theory of DM strove to illustrate that words are not occupants of any exceptional linguistic level. A primary goal of DM was to expose the notion of a lexicon, as a second generative system distinct from syntax, to be a redundant violation of Occam's razor. Making special assumptions about the atomic nature of words requires additional assumptions about a particular

linguistic level, which could be explained with a less complex description. DM was an attempt to make the unassuming explanation for the existence and the derivations of words —mainly, morphological structures are simply syntactical structures. If this theory is true, then there is actually no interface between morphology and syntax; there is only syntax all the way down. Furthermore, the internal structure of words is just another linguistic level of syntax.

## Conclusion

The hypothesis of an objective lexicon posits, more than just perceptual sub-units of meaning residing in a syntactical string, words are demonstrable entities that belong to a distinct lexical order. The central contention of DM is that there is no divide between the derivation of words and the emergence of sentences. Syntax is a single overarching generative engine; phonological forms, semantics and morphological functions do not exist or operate in separate realms.

Whereas, a lexical view assumes that sub elemental morphemes comprise meaningful atomic structures classified as words, a DM framework assumes that morphemes are merely the building blocks of syntax. This approach challenges the traditional notion of the lexicon as a category where derived words are formed and idiosyncratic word-meanings are deposited. In DM there is no distinctive Lexicon, pursuant to the formation of words, but rather principles ascribed to the Lexicon are distributed among the other components of grammar. A more detailed analysis of these differences is still forthcoming. However, as noted above, a theory with one component is generally preferable to an explanation that requires two. While the Lexical Hypothesis is a reasonable attempt to explain the origin of words, its need for complexity increases the likelihood that future theories will undermine its central principles.

## Notes

- 1) The term *cranberry morpheme* was coined by Leonard Bloomfield in *An Introduction into the Study of Language* (1933).

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