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MORPHOLOGICAL PROPERTIES OF NEOCLASSICAL FORMATIONS IN ENGLISH

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Abstract: *This paper investigates morphological properties of neoclassical formations in English. Two fundamental issues are addressed, first, the morphological status of neoclassical constituents, and second, the status of neoclassical elements. The status of neoclassical elements has a direct influence on how the morphological process which combines them can be defined. The answers to both issues depend on the theoretical framework adopted. Here, the issues involved in the treatment of neoclassical formations in Kiparsky's Lexical Phonology will be compared to those arising in Štekauer's onomasiological model of word-formation.*

Key words: *neoclassical word formation, lexical phonology, onomasiological model of word-formation.*

1. Introduction

Neoclassical formations consist of Greek or Latin elements which usually do not occur as independent items. Many of these morphologically complex words for instance *electromyography*, *virologist*, *phonocardiogram*, *rhinomanometer*, *photostethoscope*, *cyberphobia* have no corresponding equivalent in ancient Greek or Latin vocabulary, because they appeared in modern times. The phenomenon of neoclassical compounding occurs in many European languages as a productive word formation process in the sense of frequently producing new words, mainly scientific terms.

Defining neoclassical word formation is certainly not an unproblematic task and the main reason is the heterogeneous nature of this class. The research questions they raise include the following:

a) How are these neoclassical formations created?
b) Which word formation processes are involved?
c) What is the status of individual neoclassical constituents?

It is obvious that the answers to the abovementioned questions are theory-dependent and therefore may lead to different conclusions. The aim of this paper is to contrast the consequences of Kiparsky's Lexical Phonology and Štekauer's onomasiological model of word formation for the treatment of neoclassical formations in English.

This paper is organized in four sections. Section 2 outlines the fundamental principles of both theoretical frameworks. Section 3 demonstrates the consequences of each theory for the analysis of neoclassical formation and discusses the differences between both theories. Section 4 then summarizes conclusions.

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2. Neoclassical constituents and their status

The issue of the status of neoclassical constituents raised fundamental questions and the answers offered by different theoretical frameworks were often incompatible.

Early generativists often termed the initial elements of neoclassical formations as prefixes and suffixes. Bauer (1983, 1998) introduced the term Initial combining form (ICF) and Final combining form (FCF). His distinction of combining forms from affixes is based on phonological and semantic properties. This terminology is also adopted by most lexicographers. As van Niekerk (1992: 379) points out, "Linguists' inability to decide on the morphological status of these particular combining forms has meant that the lexicographical treatment of such sublexical items can not be based purely on linguistic principles".

The categorisation of neoclassical constituents as affixes proved to be problematic for two reasons. Firstly, it would lead to words formed by affixes only and, secondly, some elements would have to be analyzed in some cases as prefixes, e.g. *dactyloscopy* and in the others as suffixes, e.g. *arachnodactyly*. This fact was pinpointed by Bauer (1979), Scalise (1986).

Selkirk (1982), Scalise (1986), and ten Hacken (1994) classify neoclassical constituent elements as *bound stems*. The main reason why they are bound is the lack of categorial properties. It is obvious that the status of neoclassical elements has a direct impact on how the morphological process which combines them is defined. Examples such as *telephone*, *hydrosphere* or *nyctophobe* are referred to as neoclassical compounds. Formations like *electric* or *morpheme* can be described as derivatives. Finally, *lexicographer*, *hydrology*, or *laparoscopic* obviously combine derivation and compounding.

2.1 Kiparsky's Lexical Phonology

The Lexical Phonology model by Kiparsky (1982) is one of the level-ordering theories. It is based on the assumption that morphological and phonological rules are found in the lexicon where they are hierarchically organized in levels. Each level can be characterized by a particular set of morphological and phonological rules.

Kiparsky 's lexical phonology consists of two main parts: lexical and post-lexical. The model separates syntax from the lexicon, which makes it similar in this respect to Štekauer's onomasiological model (see 2.2).

The lexical part is arranged in three levels. Level 1 includes irregular inflection and derivation or in other words, Class 1 derivation and inflection. Regular derivation or Class 2 derivation and compounding are found on level 2. The third level is reserved for regular inflection. It will be argued that although this theoretical model can account for many morphological phenomena, it may not be ideal for neoclassical formations in English. This will be shown in more detail in section 3. Another type of phenomenon that it is difficult to account for in this framework is complex items such as the prepositions discussed by Vojteková (2009).

2.2 Štekauer's Onomasiological Model of Word formation

This section outlines the essential principles of Štekauer's (1998, 2005) onomasiological theory of word formation. This theory builds up on the tradition of the Prague school of linguistics. Štekauer (1996, 1998) emphasizes these fundamental tenets of his meaning-based theory of word formation:

a) word formation is an independent component separated from the Lexical component and the Syntactic component,

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b) word formation rules are considered to be productive and regular,
c) the onomasiological word formation theory is based on the Lexicon,
d) the bilateral nature of linguistic signs is stressed,
e) the speech community plays a crucial role in the naming process,
f) the traditional terminology of word formation processes such as prefixation, suffixation, compounding, blending, etc. is rejected and replaced by the so-called Onomasiological Types,
g) the notion of *word formation base* is central.

The model underlines the independence of the Word formation component. Although there is no doubt about a connection between word formation and the Lexical component, the separation from the Syntactic component is clear-cut.

Word formation rules in Štekauer's model are productive and regular. This should be understood in the sense that word formation rules are ready to 'fully respond to naming needs of a speech-community' (Štekauer 1998: 3). Once a new naming unit is formed in the Word formation component, it is passed on to the Lexical component. The Lexicon is the place where morphosyntactic features are assigned, other lexical relations are specified and all idiosyncracies are accounted for.

It is the sign-nature of the naming units that delimits the scope of Word formation in Štekauer's model. To put it differently, only the naming units with form and meaning fall within the scope of the Word formation component. The consequences for items such as *conceive*, or *Wednesday*, are that they are viewed as unanalysable items, i.e. monemes.

The notion of speech community is central in Štekauer's onomasiological theory, as the formation of a new naming unit is a response to a need in a speech community to find a name for a concept in the external world. A concept can be, for instance, a class of objects but also a process or an abstract notion.

Finally, the notion of word formation base is crucial in Štekauer's onomasiological model and it is defined as a bilateral unit.

In Štekauer's model there is a separate Word formation component, Lexical component and Syntactic component. These three components are related to each other and together they constitute the language. The Word formation component consists of semantic, onomasiological, onomatological and phonological levels that bridge the gap between meaning and form.

In order to understand how word formation in Štekauer's theory works, it is necessary to view the notion of language in relation to the speech community and the outside world. First of all, the language is used to express thoughts existing at the conceptual level. If a word already exists it is retrieved from the Lexicon. If not, word formation provides a way of finding a new name.

In word formation, the speech community identifies a new concept to be named in the external world. This concept is shaped at the conceptual level, passes through the remaining four levels in the Word formation component and receives a name in a language.

Štekauer emphasises the interrelation between the *onomasiological level* and the *onomatological level*, as this is a crucial fact, which results in replacing the traditional terminology of word formation processes, such as *suffixation*, *prefixation*, *blending*, *compounding*, etc. by the so-called *Onomasiological Types 1-5* in his model. The *Onomasiological Types* differ in the 'onomasiological structure' and their morphematic expression at the *onomatological level*.

Some more detailed observations about neoclassical compounds in English in the framework of Štekauer's theory can be

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found in Panocová (2012). Complex prepositions, mentioned as a problem in the context of lexical phonology can also be treated straightforwardly in the onomasiological approach.

3. Analysis of the neoclassical formation *colonoscopic*

The consequences of the previously mentioned issues can be seen if we examine the process how the neoclassical formation *colonoscopic* is formed in two different theoretical models, Kiparsky's Lexical Phonology model and Štekauer's onomasiological model of word formation.

As can be seen in (3) the analysis of *colonoscopic* in Kiparsky's Lexical Phonology is not unproblematic.

(3)

level 1 **[[colonoscop] +ic]*

⇃↾

level 2 *[[colono][scope]]*

The formation of *colonoscope* takes place at level 2, where regular compounding in Kiparsky's model occurs. The problem is that *–ic* is a Class I suffix, but a compound formed at level 2 cannot be passed back to level 1. This analysis clearly violates the fundamental principles of Lexical Phonology.

An alternative analysis in (4) applies the Bracket Erasure Convention.

(4)

level 1 **[[scope] +ic]*
Bracket Erasure: [scopic]
level 2 *[[colono][scopic]]*
Bracket Erasure: [colonoscopic]

The analysis shows that *–ic* selects the bound root *scope* to form the non-existing, but possible form **scopic*. This would of course have to be listed in the Lexicon. Bracket Erasure ensures that the internal structure of **scopic* at level 1 is irrelevant or invisible at level 2. At level 2 the bound base **scopic* combines with the bound root *colono* resulting in the formation of the compound *colonoscopic*. However, this analysis does not solve the problem whether it is justifiable to refer to *colonoscopic* as a regular compound generated at level 2.

Baeskow (2004) proposes an alternative solution, which is illustrated in (5).

(5)

level 1 neoclassical compound derivation
[[[colono][scope]]+ic]

Neoclassical compounds are considered to be instances of irregular compounding and are therefore placed at level 1. This means that if a neoclassical compound formed at level 1 is selected by a class I suffix *–ic*, it is no longer problematic as it also takes place at level 1. The mention of treating neoclassical formations as irregular compounding at level 1 can be traced back to Selkirk (1982: 99-100).

Unfortunately, Baeskow's solution is not applicable to the so-called hybrid formations combining native and neoclassical elements such as *teacherology* in (6).

(6)

level 1 *[[teacher-o] [log]]*
[[teacher-o] [log]]+y]

⇃↾

level 2 *[[teach] #er]*

A derivative *teacher* formed at level 2 would have to be passed back to level 1, where it would combine with *log* and *–y*. This obviously violates level ordering.

At this point let me present how the same neoclassical formation *colonoscopic* is formed in Štekauer's onomasiological model of word formation.

As mentioned in 2.2, in Štekauer's model there are separate Word formation, Lexical and Syntactic components. These three components are related to each other and together they make up the language. The Word formation component consists of semantic, onomasiological, onomatological and phonological levels that connect meaning and form.

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When a naming need comes in, the speech community determines whether it is covered in the existing lexicon or needs a new name. The concept is shaped at the conceptual level and then passes through the remaining four levels in the Word formation component.

Individual steps of the naming process of *colonoscopic* will now be illustrated in (7).

(7)

a) extralinguistic reality: 'pertaining to colonoscope'
b) conceptual level:
   It is a QUALITY.
   It is related to a SUBSTANCE.
   The SUBSTANCE is an INSTRUMENT
   etc.
c) semantic level:
   [+QUALITY],
   [+INSTRUMENT],
   [+ BODY PART], etc.
d) onomasiological level:
   OS:
   SUBSTANCE (OM) – QUALITY (OB)
   OC:
   [Obj - (Act) - Instr] - Qual
e) onomatological level:
   colono - 0 - scope - ic
f) phonological level:
   /kɒˌlənəˈskɒpɪk/

The naming process begins with the identification of an object in the outside world that needs a name. As illustrated in (7a) it is the quality 'pertaining to colonoscope'. This is a response to the needs of a particular speech community. The object is conceptualized by a set of logical predicates or noemes such as in (7b). It is a QUALITY. It is related to a SUBSTANCE, etc.

At the semantic level (7c), the most relevant semes are selected. Some of them become a part of an *onomasiological structure* (OS) at the onomasiological level (7d). One of the semes, in our example QUALITY is taken as the 'onomasiological base' (OB) and it is specified by an 'onomasiological mark' (OM). These two are linked by an 'onomasiological connective' (OC), which describes semantic relations between OB and OM. The reading of the semantic relations, i.e. OC, is 'pertaining to the Instrument for (examining) the colon'. The OM is in brackets, because it is an embedded structure, in detail referring to *colonoscope*.

At the onomatological level (7e), individual morphemes are assigned to the members of the OS, in this case - *ic* to Quality and *colonoscope* to the Instrument for (examining) the colon. Relevant phonological rules apply at the final level of the Word formation component (7f). Once a new word is created it passes to the Lexical component and from there it is ready to be used in syntax.

4. Conclusion

The analysis of the neoclassical formation *colonoscopic* in Kiparsky's Lexical Phonology model and Štekauer's onomasiological model of word formation suggests that onomasiological approach offers more advantages when contrasted with lexical phonology.

Firstly, Štekauer's model offers an elegant way of avoiding the ongoing discussion on the status of neoclassical constituents. As demonstrated in section 3, the analysis of *colonoscopic* in lexical phonology depends on determining the status of neoclassical elements. What is decisive in Štekauer's model, is the sign nature of the items listed in the Lexicon.

Secondly, Štekauer's onomasiological model of word formation does not require a precise definition which neoclassical formations are compounds and which are derivatives or a combination of both as in Kiparsky's Lexical Phonology. In Štekauer's model, traditional terminology including derivation and compounding is

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replaced by the so-called onomasiological types.

Last, but not least, Štekauer's model does not need to introduce any additional principles to account for neoclassical formation. In Kiparsky's model at least the Bracket Erasure Convention is necessary. As was shown, it is not ideal and even other additional modifications do not cover all the cases. Based on the results of the analysis it may be concluded that Štekauer's onomasiological model of word formation seems more advantageous to account for neoclassical word formation in English.

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