

PAVOL ŠTEKAUER

**FUNDAMENTAL PRINCIPLES OF
AN ONOMASIOLOGICAL THEORY OF ENGLISH WORD-FORMATION**

Abstract

This article presents an outline of the fundamental principles of an onomasiological theory of word-formation which departs from the existing theories of word-formation in English in a number of essential points. Word-formation is conceived of as an independent component interconnected with the lexical component and separated from syntax. Word-formation rules generate fully regular and predictable naming units. The conception of productivity as a cluster of word-formation types makes it possible to consider word-formation rules as productive as syntactic rules. The idea of the word-formation component that responds to naming needs of a speech community allows for elimination of the overgeneration principle in morphology. Introduction of the so-called Form-to-Meaning Assignment Principle makes it possible to put all the traditional word-formation processes on a unified basis. The advantages of the outlined theory are illustrated by a series of examples.

Introduction

A look at the theories of word-formation (derivational morphology) which have dominated the field since 1960 (the year when two highly important works appeared: Marchand and Lees) shows that, surprisingly, there is hardly any theory which takes the naming demands of a speech community as its point of departure. The following is an outline of the fundamental principles of my **onomasiological theory** (OT) of word-formation the individual aspects of which have evolved since 1992 when my article on conversion and zero morphemes appeared in *Linguistica Pragensia*. A number of points have been changed, reconsidered, and refined, and new generalisations have been made. In its general framework, this outline is based on Štekauer (1998), however, it elaborates on some of the points only hinted in it.

The theory presented here was inspired by two main sources. First, the work of Miloš Dokulil (1962, 1966, 1968), a prominent representative of the Prague School of Linguistics. From him, I took over the idea of an onomasiological structure. While there are a number of points in which I have deviated from Dokulil's approach (perhaps due to my reaction to the generative word-formation of the post-1970 period) I find his 1962 book one of the most ingenious works on word-formation, and a constant source of valuable ideas.

My next source is my teacher and the most prominent Slovak morphologist, Ján Horecký, in particular his multilevel conception of the linguistic sign (1983, 1989). Furthermore, the theory presented here came into existence as a reaction to the predominant formalism of generative morphology. Having been a student of Josef Vachek, the most prominent personality of the Prague School of Linguistics in the second half of the 20th century, I find the form-meaning unity to be a fundamental premise of my onomasiological theory. Consequently, the conception proposed here differs in many respects from the mainstream generative theories of word-formation, introduces a new approach to word-**formation**, and

demonstrates its advantages in treating some of the essential problems of word-formation in English.

It should be noted, however, that the onomasiological approach is not the only one to emphasize the necessity to examine both meaning and form of word-formation units and structures. A most valuable exception to the prevailing tendency in the generative word-formation is represented by Robert Beard's **Lexeme-Morpheme Base Morphology** (LMBM) elaborated in a series of works, with a comprehensive account being given in Beard (1995). With Beard I share the view that there exists a universal set of supralinguistic cognitive categories (Subjective [i.e. Agent], Objective, Instrumental, Locational, Diminution, Augmentation, etc.) from which the individual languages select, with the core of these categories appearing in all languages. Beard separates a deep, abstract, semantic process of the so-called Lexical derivation from affixation. The actual affixes (devoid of their independent meaning) articulate meaning indirectly, depending on the context, and are introduced by a separate, extralexical morphological spelling (MS) component.¹ While my OT may also be labelled as a 'separation hypothesis', with the cognitive processes preceding the affixation proper, my treatment of affixes significantly differs from that by Beard. In my theory, affixes are bilateral, meaning-form units, with their semantics playing an important role in the matching procedure at the onomasiological level (see below for the details). While Beard "evicted" affixes from the "community" of major classes (N, V, A) by claiming that—like articles, adpositions, conjunctions, and some pronouns—they "bear no semantic content but reflect grammatical functions which are managed by other components, specifically by the lexicon and syntax" (Beard 1995: 20) I find affixes to be on a par with lexemes (both are form-meaning units). These general differences find their expression in our respective treatment of a number of more specific issues.²

Cognitive grammar (CG), in reaction to the formalism of generative grammar, also offered a highly attractive alternative. Onomasiological theory and cognitive grammar have some features in common, notably the emphasis on the semantic facet as an indispensable facet of any unit above the level of phonology. I share the view of the cognitive grammar that all units above the phonological level are bilateral form-meaning complexes, a view which was very strongly articulated in the structuralist theories of the Geneva School and the Prague School. To use the terminology of cognitive grammar, grammar is "symbolic", and each symbolic unit has its semantic pole and phonological pole. Both OT and CG maintain that the overall meaning of complex words is not equivalent to the compositional value of the constituents. Langacker (1988b: 49) puts it to the very point: "a description of grammatical structure that makes no reference to meaning is ultimately no more revealing than a dictionary providing only a list of undefined forms".

Nevertheless, these common features concern the most general principles. The two theories differ in their scope, goals pursued, methods employed, and their respective internal organisation. The **scope** and **goals** of cognitive grammar are much more ambitious than those of my onomasiological theory. While the former covers grammar as a whole the latter focuses on one part of the grammar, i.e. the word-formation component (and accounts for its relations to the other components of grammar). The former provides a description of the system of grammar as it is and as it functions in *parole*, i.e. how symbolic units come to mean what they mean. It gives a description of the existing system of symbolic units used for communication purposes. On the other hand, onomasiological theory gives a dynamic account of how complex words come into existence. Its **scope** is thus the generation of new

¹ For a moderate version of this approach see Jan Don (1993).

² For a detailed analysis of Beard's theory see Štekauer (2000).

complex naming units, in accordance with Marchand's (1960: 2) requirement that "[w]ord-formation can only treat of **composites** which are analyzable both formally and semantically".

The account of the semantic structures in cognitive grammar is interwoven with pragmatics; in other words, cognitive grammar does not separate semantics from pragmatics:

"Cognitive grammar explicitly equates meaning with 'conceptualization' (or 'mental experience'), this term being interpreted quite broadly. It is meant to include not just fixed concepts, but also novel conceptions and experiences, even as they occur. It includes not just abstract, 'intellectual' conceptions, but also such phenomena as sensory, emotive, and kinesthetic sensations. It further embraces a person's awareness of the physical, social, and linguistic context of speech events" (Langacker 1988a: 6).

Langacker (1988a: 16) maintains that the non-compositional aspects of an expression's meaning are part of its contextual value (i.e. how it is actually understood) the very first time it occurs, and further become part of its conventional value when it is established as a unit in the grammar. On the other hand, OT proposes that the **original** meaning of a word is context-independent and is fully specified within the WF component, i.e. at the system level of language, in particular through the logical spectrum of the conceptual level.

Onomasiological theory in its fundamental focus is not concerned with pragmatic aspects, and concentrates on *langue*, on the system level of language. The principles of **internal organisation** of the two systems differ significantly. Langacker postulates different levels of abstraction both at the semantic level and phonological level. The higher level structures function as schemas for more specific symbolic units. Word classes such as Nouns, Verbs, etc. instantiate more abstract "things", and "actions", respectively. Thus, thing and action are schemas for the respective categories of word class. In OT, the parallel notions (SUBSTANCE, ACTION, CONCOMITANT CIRCUMSTANCE, QUALITY) represent the most general conceptual categories which are not instantiated as Nouns, Verbs, etc.; rather they range over word classes. Thus, for example, ACTION can be expressed by V and N, QUALITY by N, A, etc. Importantly, however, these conceptual categories operate in connection with what I call logico-semantic categories (i.e. theta roles, arguments, etc.) such as Agent, Instrument, Patient, Location, Temporal, Direction, Factive, etc. The relation of these conceptual categories to word-classes is (unlike CG) indirect, mediated, depending on the logical spectrum, the specific onomasiological structure, and the FMAP principle, i.e. on which morphemes are selected to match the semes of the onomasiological structure. In other words, they do not function as schemas for the respective word-classes.

In CG, suffixes do not fall within the schemas like Thing, Action. In the OT, affixes are on a par with stem morphemes, and can represent respective conceptual categories. In CG, a compound like *pencil-sharpener* instantiates a complex schema THING - PROCESS - ER, which, as a complex symbolic structure, is constituted by a hierarchy of symbolic structures of ever-increasing complexity. The individual constituents of the individual levels of complexity reflect the order in which symbolic units are successively combined in formation of a complex expression. Every node of representation of such a complex symbolic structure is a symbolic structure per se, incorporating both semantics and phonology.

The OT generation of such a complex word does not rest on several levels of bilateral units of different level of complexity. Rather, it starts from the conceptual structure, proceeds through the semantic structure which is then expressed morphematically by matching the

semantic primitives occurring in the onomasiological structure with the morphemes of the corresponding meaning. By implication, the “symbolic nature” is arrived at at the lowest but one level of the OT.

The CG schemas of various complexity level “capture generalisations by representing patterns observable across expressions” (Langacker 1988a: 30). In this respect they resemble Jackendoffian redundancy rules. OT works with Word-Formation Rules (WFR) which constitute/instantiate Onomasiological Types. Both WFRs and onomasiological types are given by the interaction between the Onomasiological and the Onomatological levels.

Before proceeding to an outline of the theory, some terminological remarks are necessary. The fundamental **method** applied in my approach is called *onomasiological*. This term should be distinguished from the term *onomatology*. Vilém Mathesius (1975: 16), the founder of the Prague School of Linguistics distinguishes between *functional onomatology* as the study of naming units, i.e. complex words, on the one hand, and *functional syntax* defined as the study of the means by which naming units are brought into mutual relation. The term *onomasiology* is usually used as an antonym to *semasiology*. While the latter concentrates on the analysis of an existing lexis in order to identify any regularities in the lexicon, the former concentrates on the dynamic aspect of word-formation: it accounts for the generation of new complex naming units. By implication, like onomatology, it also refers to the process of naming. Nevertheless, as demonstrated below, it is useful to distinguish between the level of onomasiology (naming in a more abstract sense) and the level of onomatology (naming process in a more specific sense).

Another new term which requires explanation is *naming unit*. This term was first introduced by Mathesius (1975). In my approach, it substitutes for terms like *word*, *lexeme*, *lexical unit*, etc., because of their inconsistent use and varying connotations in linguistic literature. *Naming unit* refers here to a complex unit generated by the Word-Formation Component. From this it follows that an onomasiological theory of word-formation deals with coining new naming units.

1. Word-formation as an Independent Component

The place of the Word-Formation Component in the system of linguistic components is schematically represented in Figure 1. The scheme represents important interconnections between the individual components and subcomponents. It illustrates a direct relation between the Word-Formation and the Lexical Components, on the one hand, and between the extra-linguistic reality and the naming demands of a speech community, on the other. Each naming process responds to a specific demand of a speech community for assigning a name to an extra-linguistic object (in the broadest sense of the word). For obvious reasons, the two levels are mutually interconnected. The notion of speech community should not be taken absolutely, i.e., there is hardly any word-formation process which responds to the naming demand of all the speakers of a particular speech community. Rather, such a demand is closely connected with a limited number of “first-contact” users, and a coinage may or may not subsequently find a wider use. An extreme (nowadays quite common though) case of such a demand of a “speech community” is the coining of names for new products by (advertising) companies, branding consultants, etc. It is exactly this limited group of speech community that needs new names for new things for practical reasons of naming new products and improving their sales. The former reason for naming is shared by customers (it would be difficult to purchase “anonymous” products), and this means the extension of the primary demand to a larger range of language users. Importantly, however,

not all new product names fall within the scope of the theory of word-formation because, many times, one encounters names resulting from an irregular process labelled by Marchand (1960) as word-manufacture.

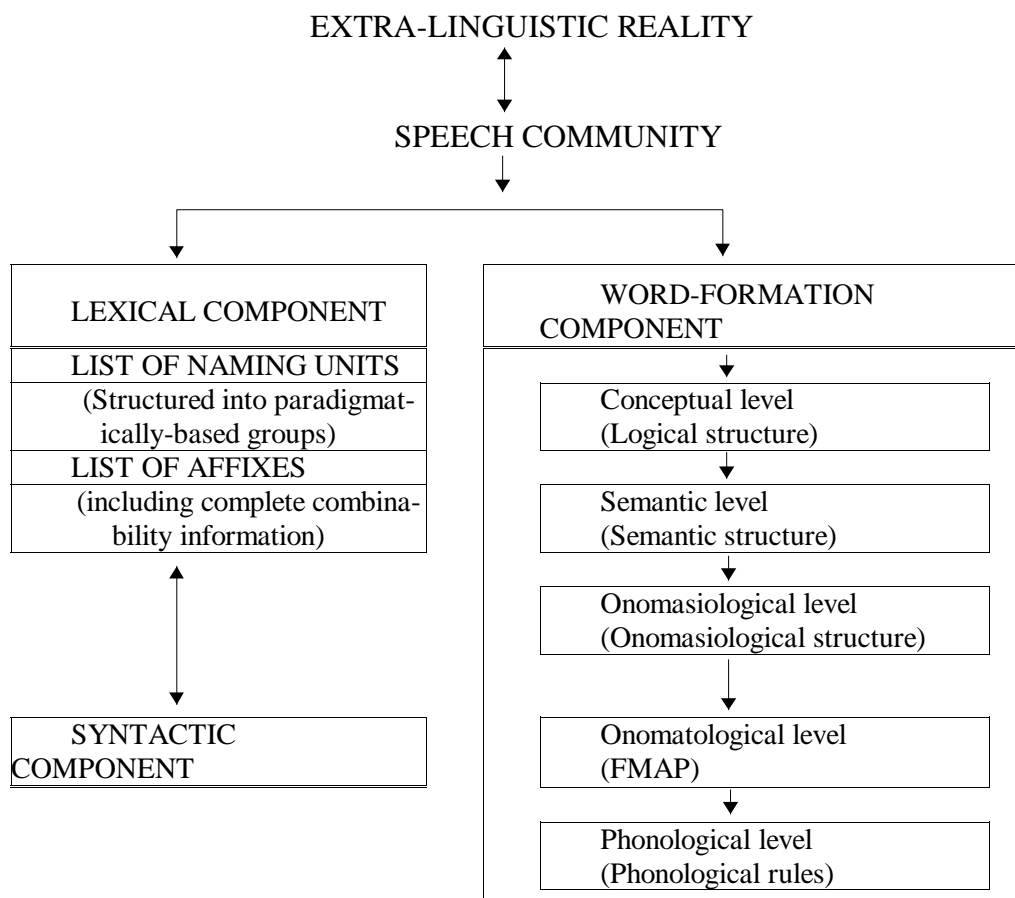


Figure 1: Word-Formation Component and its relation to other components

Each naming process is preceded by scanning the Lexical Component on the part of a particular member of a speech community who is going to assign a name to the object to be named. The scanning operation determines further procedure. Either a completely new naming unit is coined by taking the path of the Word-Formation Component; or, if a naming unit is found in the Lexical Component which can serve as a basis for semantic formation, it is the path of the Lexical Component which is preferred (hence, two downward arrows from “Speech Community” in Figure 1).

The Word-Formation Component is considered to be an **independent component** of linguistic description. No natural language is a static system, fixed once and forever. Rather, every language must be (and is) able to comply with an ever-changing extra-linguistic reality and the related language requirements of the particular speech community. From this it follows that every language is in a position to produce new naming units designating new “objects”, new-discovered phenomena, etc. It follows that every language needs a highly productive word-formation component. By implication, an independent word-formation component might qualify as language universal.

The Word-Formation Component is interconnected with the Lexical Component and separated from the Syntactic Component. There is no direct connection between word-

formation and syntax. These two independent components are related through the Lexical Component. The link to the Syntactic Component is exclusively via the Lexical Component. The principle of separation of the Word-Formation and the Syntactic Components indicates that new naming units are not generated from syntactic structures. The rejection of productive syntactically based word-formation processes follows naturally from my onomasiological model, which relies on the vocabulary material, on the material of the system level of language as contained in its Lexicon. The grounds for this claim are closely related to the assumption that it is the Word-Formation Component (in co-operation with the Lexical Component) which supplies syntax with material for its sentence structures, and not vice versa. The process of word-formation is not that of asserting something. It is the process of naming. Hence, the basic unit of word-formation is the naming unit. It suffices to add that word-formation is about naming units in isolation, and not about their use (the latter being the matter of syntax). Word-formation is about naming units coined as **signs** and analysed as units existing in paradigmatic relations in the vocabulary. Here, the term *paradigmatic relations* refers (a) to structural relations among naming units (synonymy, homonymy, hyponymy, etc.), and (b) to word-internal relations among word-forms. In the latter case, the paradigm is conceived as a set of forms provided with morphosyntactic characteristics; any such form can be retrieved by the Syntactic Component and inserted in the particular sentence structure.

Word-formation is divided, though not separated, from inflectional morphology. The relation is unidirectional. The Word-Formation Component feeds the Lexicon with naming units which are provided with inflectional features in accordance with their respective paradigms. The basic difference between word-formation and inflection stems from the fact that the former, and not the latter, generates new naming units. While word-formation is directly connected with extra-linguistic reality, no such connection exists between inflection and extra-linguistic reality.

2. Productivity and Regularity of Word-Formation Rules

2.1. All naming units falling within the scope of the onomasiological theory, that is to say, all naming units coming into existence in the Word-Formation Component, are coined by **productive** and **regular** Word-Formation Rules (= WF Types). Hence, each immediate output of a Word-Formation Rule is **predictable**. In addition, each new naming unit produced by a Word-Formation Rule is passed to the Lexical Component. This approach makes it possible to simplify and regularize the Word-Formation Component because any idiosyncratic changes take place in the Lexicon by way of **semantic formation** or **formal modification**. As a result, Word-Formation Rules are no less productive than Syntactic Rules or Inflectional Rules. This conclusion is in accordance with Dokulil's (1962: 223) view:

“If a naming unit, already existing in the language, is applied to a new concept (on account of a metaphorical or metonymical connection of the new concept with the one primarily referred to by the concerned naming unit), this can be denoted as a case of ‘formation’ of a new naming unit only in a conditional sense. In this case (the so-called semantic formation), that is to say, only the number of the meanings of a naming unit is increased, not the number of the naming units themselves. It is true that the resulting polysemy of the concerned naming unit may consequently lead to dissolution of the naming unit into a number of homonyms, but such dissolution does not constitute an active process of word-formation. One has to do here with the result of the semantic development of a polysemous word in specific historical conditions.”

2.2. Productivity itself is approached in a new way. It is conceived of as the ability of a language to fully respond to naming needs of a speech community. Consequently, it is defined as a **Cluster of Word-Formation Types** satisfying naming needs in a specific conceptual-semantic field of a language, for example, that of naming units representing Agents or Instruments. Then, a cluster of Word-Formation Types “guarantees” the coining of a new naming unit in the particular conceptual-semantic field whenever the need arises. Each such cluster is 100% productive. Then, the share of individual options within a particular Word-Formation Type Cluster with regard to the total productivity may be computed internally. From this point of view, the individual Word-Formation Types do not block each other; rather, they compete, and are mutually complementary in meeting the demand of a language community within their corresponding scope of activity. It is postulated that the selection of one of the options at hand is always influenced by both linguistic (productivity, constraints, etc.) and sociolinguistic factors (education, profession, social background, influence of one’s former linguistic experience, etc.).

This approach makes it possible to overcome the limitations of those conceptions of productivity which are restricted to affixation. (Thus, for example, the cluster of Word-Formation Types generating Agent nouns, includes—to use the traditional terminology—suffixation (*driver, politician, pianist, etc.*), conversion (*cheat*), compounding (*oilman, bodyguard*)). In addition, the OT approach to productivity argues against the frequently adduced view claiming that word-formation is typically of low productivity, or regularity. On the contrary, I assume that

- (a) productivity of Word-Formation Type Clusters is always 100%,
- (b) Word-Formation Types employed by the Word-Formation Component are productive and regular.

2.3. Since each act of naming responds to the immediate naming need of a speech community, the output of Word-Formation Rules is an **actual word**, i.e. a naming unit which was coined to satisfy a linguistic demand, be it the demand of a single member of a speech community, be it a single-act one-off demand. It should be emphasized that the frequency of usage, or the “common (general) use”, or “common parlance” as a criterion for the status of existing (occurring) words is unacceptable not only because of the vagueness of the notion “common (general) use”, but also because the frequency of usage can only be applied to words that have already been coined, i.e. to actual (existing) words (or to nonce-formations). Therefore, for a word to qualify for the status of an actual word, it must have been coined. Whether its use will be spread over the whole speech community (implying frequent use), or whether it will be confined to a single use on the part of a single speaker, is insignificant. What is important is that the respective language has manifested its productive capacity to provide a new, well-formed linguistic sign by its productive Word-Formation Rules whenever need arises. By implication, the inclusion in my system of the extra-linguistic factor (speech community) enables me to eliminate the notion of overgeneration.

3. Lexicon-Based Theory

3.1. It follows from the above outlined tenets that my theory is built up on the postulate that all new naming units are coined on the basis of the material available in the system of the language, notably in the Lexicon, or the Lexical Component. No use is made either of the speech level (*parole*) or syntactic constructions (*langue*) as possible sources of new, productively coined naming units. It may be added that no naming unit can be generated

from units smaller than the morpheme, with the morpheme being defined traditionally as the minimum bilateral sign, having its own specific form and specific meaning.

3.2. The Lexical Component is not a mere list. Given my paradigm-based approach to the Lexicon, I prefer to replace the term *list* with the term *component*, that is to say, the Lexical Component. It is subdivided into a number of groups (paradigms) reflecting manifold morphosyntactic, lexical, and semantic relations. The basic criterion is that of the category of word-class. In addition, each complex naming unit coined by a productive and regular Word-Formation Rule brings along the conceptual and the semantic structure and the phonological features as part of its “outfit”. The monemic part of the Lexical Component is specified for its features directly in the Lexical Component. And finally, any idiosyncrasies are, naturally, reflected in the changed location of a particular naming unit within the paradigmatic structure of the Lexicon.

3.3. Thus, the Lexical Component encompasses all monemes, all productively and regularly coined naming units, and irregular coinages as well as borrowings, plus a separate list including all productively used affixes, and finally phrase-based coinages which are apparently of syntactic origin and are characterized by a high degree of structural irregularity (see Point 11 for the discussion on these naming units).

3.4. It follows that (a) the Lexical Component contains both the regular naming units (products of Word-Formation Rules) and idiosyncratic coinages, and (b) a big part of the Lexicon is represented by all naming units which have been coined by regular and productive rules of word-formation in response to the naming needs of the particular speech community. The emphasis on the attributes productive and regular indicates that Word-Formation Rules do not generate idiosyncratic naming units. Any deviations from the fundamental regular and productive patterns take place in the Lexicon in connection with the process of lexicalization. Then, the irregular meanings of naming units such as *transmission* (a part of a car), *professor*, or to use Chomsky’s examples like *revolve* vs. *revolution* as in *the French revolution*, or *construct* vs. *construction* as in *the Anglo-Saxon genitive construction*, do not result from Word-Formation Rules. The idiosyncratic meanings of these and other regularly coined naming units are produced by operations of semantic formation (i.e., semantic shift—extension of meaning, specialisation of meaning, metaphor, metonymy, synecdoche, etc.) within the Lexicon. This is also the answer to the Chomskian claim that words which result from derivational processes often depart from their “expected meaning”. To sum it up, while the Word-Formation Component generates new naming units, the Lexical Component is designed for storing all naming units and affixes. The former are organised in external paradigms (the relationships of polysemy, hyponymy, synonymy, etc.) and internal paradigms (word classes, case paradigms, conjugation classes, etc.). This “store” feeds both of the components it is linked to. It feeds the Word-Formation Component with word-formation bases and affixes for the sake of generating new naming units, on the one hand, and the Syntactic Component with morphosyntactically specified word-forms from internal paradigms. In addition, since all naming units “spend their life” in the Lexical Component and since they are not absolutely resistant to the influence of linguistic and extra-linguistic factors they may undergo semantic and/or formal modifications traditionally labelled as lexicalization. This account overcomes the problem of semantically ‘irregular’ products of productive Word-Formation Rules by insisting on their absolute regularity, with any modifications and idiosyncratic changes taking place in the Lexicon.

3.5. By the same token, clippings (*ad, lab, maths*, etc.) cannot be included in the Word-Formation Component. First, word-formation deals with coining new naming units, new signs. Clipped words, however, are not new signs. They preserve the same meaning as their corresponding full forms. Hence, it is the mere process of **form-reduction** rather than the naming process which takes place. Wolfgang U. Dressler holds the same position; he does not include the formation of abbreviations among synchronic WFRs by emphasizing that (a) these result from diachronic changes and (b) there is no change in word-formation meaning (Dressler et al. 1987: 106-107). Klaus Hansen refers to them as “bloße Umformungen bereits vorhandener Lexeme” and “stilistisch markierte Wortvariante” (Hansen et al. 1982: 146).

Secondly, clipping is a highly unpredictable and irregular process. As such, it cannot be considered a word-formation process. Any changes of this kind bear on the ready-made naming units, and therefore take place in the Lexicon. This is not to say that clippings—in the same way as other units stored in the Lexical Component—cannot function as WF bases. Examples are numerous: *flu-epidemic, phone-call, pre-fab structure, pop-art*, etc. This is, however, a different question which has no effect upon the conclusion that clippings do not result from word-formation processes.

4. The Sign-Nature of Naming Units

4.1. This principle follows from de Saussure’s (1989) conception of sign and Ján Horecký’s (1983, 1989) model of linguistic sign. The basic tenet is that naming units are **bilateral signs**, including the meaning and the form. This determines the scope of word-formation: there are no naming units in the Word-Formation Component that are pure forms (formemes), i.e., formal elements without any meaning have no place in OT. Words like *perceive, conceive, contain, retain, receive, cranberry, vacant, paucity, possible, Monday*, etc., are treated as synchronically unanalysable units (monemes). “Bound morphemes” such as *per-, con-, re-, -ceive, -tain, pauc-, vac-, cran-*, etc., in no way comply with the traditional sign-based definition of the morpheme as a bilateral unit with two facets: the form and the meaning. They have form; however, they do not have any meaning that might take part in constituting the meaning of a new naming unit. Therefore, from the point of view of word-**formation**, words like those mentioned above should be conceived of as word-formation-irrelevant monemes. These segments resemble, in terms of their function, phonemes: the latter, too, are merely forms without any meaning. Their basic function is to distinguish the meaning of words. Hence, the function of *pauc-, vac-, cran-, Mon-*, etc., can be reduced to that of a phoneme, i.e., to the **meaning-distinctive function**, which cannot be confused with the **meaning-forming function**. The latter is bound to bilateral units, i.e., morphemes.

4.2. There is still one group of ambiguous naming units. It can be exemplified by *automatic, hierarchy, mechanism, friction, configuration*, etc. The analysis of these and similar naming units results in a suffix plus “another component” that, though not corresponding to any other root word, occurs in several formally and semantically related naming units (e.g. *automate - automatic - automation - automaton - automatics - automatism*). Obviously, the “another component” is not limited to single occurrence, and we can associate it with a distinct meaning. By implication, such a component functions as a word-formation base for the coining of all the related words. Therefore, it will be useful to consider this component as a word-formation base. In contrast with the former instances, one can apply the principle of double analogy (both constituents are bilateral and occur in other naming units, too).

5. Speech-community-oriented theory

The theory presented here does not rest on the intuition of a native speaker. Rather, it attempts to describe word-formation processes resulting from the **naming needs** of a given speech community. As a result, the theory takes into account only **actual naming units**; therefore, the notion of possible word plays no role in this theory, which makes it possible to do away with the overgenerating capacity of word-formation rules.

6. Discarding Traditional Word-Formation Processes

The method outlined below allows for doing away with the traditional notions of “compounding”, “prefixation”, “suffixation”, “back-formation”, “blending”, etc. As a result, it is possible to put all naming acts on a common footing, this being a considerable advantage in discussing the issues of productivity, “bracketing paradoxes”, “back-formation”, “exocentric compounds”, “blends”, etc. (see below).

7. Word-Formation-Base-Based Word-Formation Theory

The OT model of word-formation is based on the notion of **word-formation base**. The word-formation base is defined as a bilateral unit introduced by the Form-to-Meaning-Assignment Principle (see below) into a new naming unit in accordance with the conceptual analysis and the subsequent semantic analysis of the object to be named. It can be neither a syntactic phrase nor a unit smaller than morpheme. This means that Word-Formation Rules make use of bilateral units stored in the Lexical Component. They are, in the great majority of cases, morphosyntactically unformed stems (without any inflectional affixes). Nonetheless, the existence of cases with a pluralized onomasiological mark indicates that it would be erroneous to confine oneself to a purely stem-based approach.

8. Scope of Word-Formation

Based on the principles stipulated in 1 through 7, and keeping in mind minor exceptions, such as phrase-based formations, the scope of word-formation within the onomasiological theory presented here can be defined as follows: Word-formation deals with productive, regular, and structurally predictable onomasiological and word-formation types producing motivated naming units in response to the naming needs of a speech community, by making use of word-formation bases of bilateral naming units and affixes stored in the Lexicon.

9. An Onomasiological Model of English Word-Formation

9.1. It follows from Figure 1 that the model of word-formation includes the following levels:

1. Speech community
2. Extra-linguistic reality
3. Conceptual level
4. Semantic level
5. Onomasiological level
6. Onomatological level
7. Phonological level

As indicated in the Introduction, it is surprising that despite the generally recognized interplay between language-external and language-internal factors the preponderance of word-formation theories restrict their attention to the language-internal phenomena. This is justified if the centre of gravity of a theory is on capturing the regularities and structural relations in the system of already existing naming units. However, if a theory is aimed at accounting for the processes, mechanisms, and reasons underlying the existence of naming units in the Lexical Component, one cannot but extend the scope of such a theory and integrate in it the respective language-external factors. Naming units do not come into existence in isolation from factors such as human knowledge, its cognitive abilities, experiences, discoveries of new things, processes, and qualities, human imagination, etc. An object to be named is not named on its own but is envisaged in relation to the existing objects. Thus, the structural relationships in the lexicon are preceded (or dominated) by a network of “objective” relationships which, by implication, should be taken into consideration in the process of naming. This is the reason why I find it necessary—in defiance of the mainstream theories—to “shift” the starting-point of an onomasiological account of word-**formation** beyond the limits of language as such, and include in it a **speech community** and its **linguistic demand**, i.e., the need to name an object of the extra-linguistic reality, and the level of intellectual processing an object to be named. By implication, a speech-community through its manifold cognitive activities selects what is there in the extra-linguistic reality that deserves a name. This interrelation between the extra-linguistic reality and a speech community predetermines all the subsequent steps.

The primary task to be mastered is to analyze the object (in the broadest sense of the word) to be named (or better, a class of objects). This is the task of the **conceptual level** which, based on the processes of generalization and abstraction, reflects the complexity of the object in the form of a **logical spectrum** delimiting the object by means of **logical predicates** (noems), and by making use of the most general **conceptual categories** (SUBSTANCE, ACTION [with internal subdivision into ACTION PROPER, PROCESS, and STATE], QUALITY, and CONCOMITANT CIRCUMSTANCE [for example, that of Place, Time, Manner, etc.]).

Individual logical predicates of this **supralinguistic level** are captured by **semes** (the notion of “seme” is conceived of here in accordance with the notion of “semantic marker” used in the theory of componential analysis) constituting the **semantic structure** of the linguistic sign.

At the onomasiological level, one of the semes is selected to function as an **onomasiological base** denoting a class, gender, species, etc., to which the object belongs, and one of them is selected to function as an **onomasiological mark** which specifies the base. The mark can be divided into the **determining constituent** (which sometimes distinguishes the specifying and the specified elements) and the **determined constituent**. Both base and mark represent one of the above-mentioned conceptual categories. Moreover, they are connected by the so-called **onomasiological connective** which represents the **logical-semantic relations** between the onomasiological base and the onomasiological mark. The base, the mark, and the onomasiological connective constitute an **onomasiological structure** which represents the conceptual basis of the process of naming.

At the onomatological level, the onomasiological structure is assigned linguistic units based on the **Form-to-Meaning-Assignment Principle** (FMAP). Specifically, individual members of the onomasiological structure (selected semes) are linguistically expressed by

word-formation bases of naming units, or affixes, stored in the Lexicon. The fact that all naming units are based on assigning linguistic units (word-formation bases and affixes) to semantic components constituting an onomasiological structure enables me to dispense with the traditional notions of word-formation processes, including compounding, affixation, back-formation, or blending. In other words, generation of all naming units is put on a uniform basis. The advantages of such an approach will be demonstrated below.

9.2. From the point of view of the final form of a naming unit it is important to determine what kind of onomasiological structure will be employed in the naming act.

9.2.1. The first possibility is that all three constituents are included in the new naming unit (NU), i.e., the onomasiological base, and the determined and the determining constituents of the onomasiological mark (*language teacher, truckdriver, housekeeping*, etc.). Since all the three fundamental onomasiological constituents are linguistically expressed this onomasiological type can be labelled as **Complete Complex Structure** (CCS) (Onomasiological type I - OT I), and naming units coined according to this onomasiological type will be labelled as CCS naming units.

Example:

Let us suppose that we want to coin a naming unit denoting a person whose job is to drive a vehicle designed for transportation of goods.

Conceptual level:

It is SUBSTANCE₁.

SUBSTANCE₁ is Human.

The Human performs ACTION.

ACTION is the Human's Profession.

ACTION concerns SUBSTANCE₂.

SUBSTANCE₂ is a class of Vehicles.

The Vehicles are designed for Transporting various goods.

Etc.

Semantic level:

[+MATERIAL] [+ANIMATE] [+HUMAN] [+ADULT] [+PROFESSION];

[+MATERIAL] [-ANIMATE] [+VEHICLE] [+TRANSPORTATION], etc.

Onomasiological level:

The below representation indicates that—based on the conceptual analysis of the object to be named—the coiner identified the actional relation between the two SUBSTANCES as crucial for his naming intention. Therefore, in the process of naming, SUBSTANCE₁ and SUBSTANCE₂ were made the polar members of the onomasiological structure (the onomasiological base and the leftmost constituent of the onomasiological mark):

SUBSTANCE - SUBSTANCE

In addition, the CCS type (OT I) was selected. The onomasiological connective can be expressed as follows:

(Logical) Obj - Act - Ag

with *Ag(ent)* standing for SUBSTANCE₁ (onomasiological base), *Act(ion)* for ACTION (the determined constituent of the onomasiological mark), and *Obj(ect)* for SUBSTANCE₂ (the determining constituent of the onomasiological mark).

Onomatological level:

Based on the Form-to-Meaning-Assignment Principle, the onomasiological structure is assigned linguistic representation based on the material available in the Lexical Component (bilateral units included in the Lexicon, either in the form of naming units entering into new naming units as word-formation bases, or affixes). Here, there are several possibilities. Thus, *Ag(ent)* can be expressed by *man*, *-er*, *-ist*, *-ant* etc.; *Act(ion)* can be expressed by word-formation bases of naming units *drive*, *steer*, *operate*, etc., and (logical) *Obj(ect)* can be represented by *truck* or *lorry*. In general, selecting out of the available options partly represents the **creative aspect** within the productive process of coining a new naming unit and partly is controlled by the limitations of word-formation rules, affix subcategorization, specific constraints, sociolinguistic factors, etc.. The selected options in our particular case are as follows:

Obj - Act - Ag
truck drive er

Phonological level:

Here, the new naming unit is assigned its stress pattern and undergoes relevant phonological rules.

An example of Onomasiological Type I with the specifying and the specified elements is as follows:

SUBSTANCE		-		-		SUBSTANCE
Obj [+PLURAL]	-	Act	-			Ag
└───┬───┘						
computer		develop				er
systems						

where *computer* is the specifying and *systems* the specified elements of the onomasiological mark.

9.2.2. Another possible case is that the determining constituent of the onomasiological structure is left unexpressed. This type is labelled as **Incomplete Complex Structure R** (ICSR) (Onomasiological type II - OT II), and the respective naming units will be referred to as ICSR NUs (*writer*, *teacher*, *drive shaft*). Letter *R* refers to the expressed right-hand constituent, i.e., the determined constituent of the onomasiological mark.

Example:

Let us suppose that we want to coin a naming unit denoting a mechanical component used for securing other components.

Conceptual level:

It is SUBSTANCE₁.
SUBSTANCE₁ is Inanimate.
The Inanimate SUBSTANCE₁ is Material.
SUBSTANCE₁ is designed for ACTION.

Its characteristic ACTION is securing **some other** SUBSTANCE₂ in place.
Etc.

Semantic level:

[+MATERIAL] [+INANIMATE] [+MECHANICAL COMPONENT]
[+SECURING], etc.

Onomasiological level:

As indicated by the following onomasiological structure, the conceptual analysis led the coiner to put emphasis on SUBSTANCE₁ and ACTION, obviously for the reason that SUBSTANCE₂ cannot be precisely delimited, or its delimitation is insignificant. Hence, the onomasiological structure is as follows:

ACTION - SUBSTANCE

In addition, the ICSR type (OT II) has been chosen. The onomasiological connective can be expressed as follows:

Act - Instr(ument)

Onomatological level:

FMAP: Act - Instr
lock pin

9.2.3. The third type covers those cases in which the determined (actional) element is not linguistically expressed. What is included is the onomasiological base and the determining constituent of the onomasiological mark (called “motive” by Miloš Dokulil [1962]). I shall refer to this onomasiological type as **Incomplete Complex Structure L** (ICSL) (Onomasiological type III - OT III), and the respective naming units will be referred to as ICSL NUs. Letter *L* refers to the expressed left-hand constituent, i.e., to the determining constituent of the onomasiological mark. This type roughly corresponds to traditional “primary” or “root” compounds, but also to some affixation types (*policeman, honeybee, hatter*). An important subtype of OT III is that with the determining constituent of the onomasiological mark structured into the specifying and the specified elements.

Example:

Let us suppose that we want to coin a naming unit denoting a person making hats.

Conceptual level:

It is SUBSTANCE₁.
SUBSTANCE₁ is Human. The Human performs ACTION.
ACTION is the Human’s Profession.
ACTION produces SUBSTANCE₂.
SUBSTANCE₂ is a class of coverings for the head.
Etc.

Semantic level:

[+MATERIAL] [+ANIMATE] [+HUMAN] [+ADULT] [+PROFESSION];
[+MATERIAL] [-ANIMATE] [+COVERING FOR A HEAD], etc.

Onomasiological level:

In the process of naming, the coiner decided that the polar members of the onomasiological structure become SUBSTANCE₁ and SUBSTANCE₂, supposedly for the same reason as in the case of *truck-driver* above:

SUBSTANCE – SUBSTANCE

In addition, the ICSL type (OT III) has been selected. The onomasiological connective can be expressed as

Fact - (Act) - Ag

with *Ag* standing for SUBSTANCE₁ (onomasiological base), (*Act*) for formally unexpressed ACTION (the determined constituent of the onomasiological mark), and *Fact* for SUBSTANCE₂ (the determining constituent of the onomasiological mark).

Onomatological level:

FMAP: Fact - (Act) - Ag
 hat er

9.2.4. Moreover, there is also a group of **simple structure NUs** in which the onomasiological mark cannot be analysed into the determining and the determined parts (*lionhearted, restart*). This onomasiological type will be designated as **Simple Structure type (SS)** (Onomasiological type IV - OT IV), and the corresponding naming units as SS NUs.

Example:


Let us consider, for example, the OT account of coining the word *lion-hearted*. It is coined on the basis of the following conceptual analysis:

He/she is very courageous
This QUALITY resembles the general behaviour [(brave) heart] of the lion.
Etc.

The corresponding semes include [+QUALITY], [+BEHAVIOUR], [+COURAGE], [+PATTERN], etc. The polar members of the onomasiological structure naturally follow from relating QUALITY to SUBSTANCE functioning as a symbol of this QUALITY:

SUBST - QUALITY

If the onomasiological Type IV is chosen for naming, the onomatological structure after application of the Form-to-Meaning-Assignment Principle will be as follows:

Pattern - Quality


```

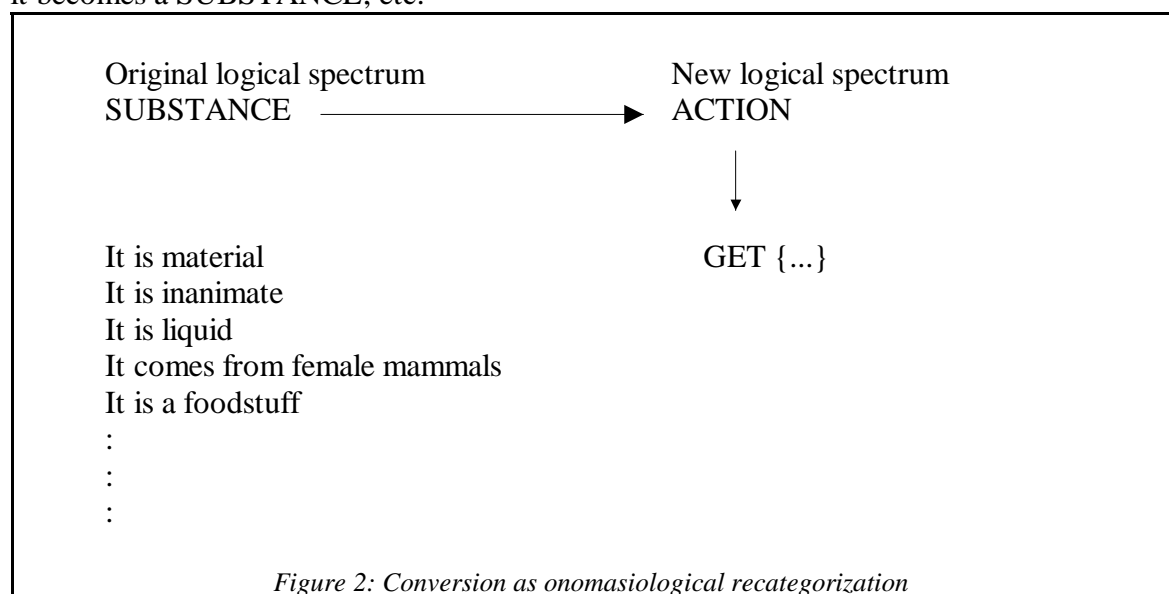
graph TD
    A[Pattern - Quality] --- B[ ]
    B --- C[lion]
    B --- D[heart]
    C --- E[ ]
    D --- E
    E --- F[ed]
    E --- G[ed]
  
```

where *lion* is the specifying and *heart* the specified element (not the determining and the determined constituents!) of the onomasiological mark.

9.2.5. The last type is represented by what is traditionally called *conversion* or *zero-derivation* (OT V), and which is based on the so-called **Onomasiological Recategorization**. Since this onomasiological type differs in its nature from the other onomasiological types, notably by absence of an onomasiological structure, I will briefly sketch its basic principles. The basic features of conversion in English are as follows:

- (a) conceptual recategorization
- (b) unanalysable onomasiological level
- (c) change of word-class
- (d) close semantic affinity between conversion pair members
- (e) phonematic/orthographic identity of fundamental forms
- (f) change of paradigmatic and syntagmatic relations at the system level (*langue*).

(a) In my approach to conversion, the first crucial point consists in the fact that each naming unit results from an intellectual analysis of an extra-linguistic object to be named. Within this analysis, the object is classed within one of the four above-mentioned conceptual categories: SUBSTANCE, ACTION (with subcategories ACTION PROPER, PROCESS, STATE), QUALITY, or CONCOMITANT CIRCUMSTANCE. The individual aspects of the extra-linguistic reality do not, however, exist in isolation; on the contrary, they can be conceived of and subsequently linguistically expressed in various relationships, from different points of view. These different “angles of reflection” of the extra-linguistic reality can be cognitively brought into a close relation by re-evaluating the already existing logical spectrum and all the related lower levels. Then, the most striking feature of conversion is that it always linguistically expresses the conceptual recategorization of the extra-linguistic reality (see Figure 2). Thus, for example, *databank* represents a SUBSTANCE. When, however, conceptually recategorized, it becomes an ACTION; *experiment* expresses a PROCESS—after recategorization it refers to an ACTION PROPER; *limit* is a CIRCUMSTANCE—after recategorization it obtains as an ACTION; *feature* is a QUALITY—its recategorization yields an ACTION; *insert* is an ACTION—when recategorized it becomes a SUBSTANCE; *stand* belongs to a STATE—when recategorized it becomes a SUBSTANCE; etc.



What is the mechanism of these changes? Individual logical predicates are of different levels of abstraction and generalisation, thus constituting a hierarchy. When a new, dominating, logical predicate is added to such a hierarchy or a former dominating logical predicate is removed, the hierarchy is changed, and becomes dominated by a new logical predicate which determines the conceptual category of a new extra-linguistic object to be named. The conceptual re-evaluation of the extra-linguistic reality precedes the linguistic processes proper. It is the conceptual recategorization which provides us with evidence that conversion cannot be identified with zero-suffixation: conceptual recategorization is vital for conversion while only possible for suffixation.

Let us illustrate the point. The naming unit *milk* belongs to the conceptual category of SUBSTANCE. It has its typical hierarchy of logical predicates (from the most general to the most specific one). When the hierarchy within the logical spectrum is changed, the recategorization from SUBSTANCE to ACTION takes place. Thus, a central position within the hierarchy of logical predicates in one of the converted meanings of *milk* ('to obtain milk from a female mammal') is assumed by a predicate focusing on the actional aspect of the extra-linguistic object (see the scheme above). The changed hierarchy within the logical spectrum is then reflected in the hierarchy of semes within the semantic structure of the converted naming unit.

(b) As opposed to Types I – IV, Type V is characterised by an unstructured onomasiological level mapping its onomasiological category from the conceptual level. Then, the onomasiological connective, as an expression of logical-semantic relations, does not relate the base and the mark; rather, it relates the motivating and the motivated conceptual categories. The following are some examples, which, at the same time, illustrate the way of classification of various Word-Formation Types within the Onomasiological Recategorization type:

Fact

bond_N - *bond_V*: SUBSTANCE ————— ACTION
 (in the meaning of a joint)
 Interpretation: Substance as a Result of Action

Instr/Purp

switch_N - *switch_V*: SUBSTANCE ————— ACTION
 (in the meaning of a device for completing or breaking an electric circuit)
 Interpretation: Substance as an Instrument of Action

Temp

time_N - *time_V*: CIRCUMSTANCE ————— ACTION
 Interpretation: Action in terms of Temporal dimension

Obj/Dir

magazine_N - *magazine_V*: SUBSTANCE ————— ACTION
 (the verb is a technical term for placing parts into a magazine)
 Interpretation: Substance specifies Object as well as Direction of Action

Fact

drift_N - *drift_V*: STATE ————— ACTION
 Interpretation: Action results in State

Obj

insert_V - insert_N: ACTION ——— SUBSTANCE

Interpretation: Substance as an Object of Action

Abstr

transport_V - transport_N: ACTION ——— PROCESS

Interpretation: Abstraction of Action

Fact/Dir

curve_V - curve_N: ACTION ——— CIRCUMSTANCE

Interpretation: Circumstance of Directional nature as a Result of Action

Hypost/Inh

terminal_A - terminal_N: CIRCUMSTANCE ——— SUBSTANCE

Interpretation: Hypostasis of Circumstance, which becomes Inherent to Substance

Fact

clear_A - clear_V: QUALITY ——— ACTION

Interpretation: Action Resulting in a certain Quality

Instr/Purp

switch_N - switch_V: SUBSTANCE ——— ACTION

(in the meaning of a device for completing or breaking an electric circuit)

Interpretation: Substance as an Instrument of Action

Fact

correct_V - correct_A: ACTION QUALITY

Interpretation: Action Resulting in a certain Quality

It follows from this account that what was necessarily expressed by the second (zero) constituent in the zero-derivation theory, governed by the binary-structure principle, is, in the OT approach, first integrated into the logical spectrum and then correspondingly reflected at the lower levels of the onomasiological model.

(c) A different word-class of a converted naming unit relative to its motivating counterpart is another striking feature of English conversion. It also presents another very strong argument against the zero-derivation theory. While suffixation can be divided into class-changing and class-maintaining, all new converted coinages—irrespective of considerable semantic differences—behave equally in this respect: all types of conversion are class-changing.

(d) Phonematic/orthographic identity of a converted naming unit with its motivating counterpart results from the operation at the onomatological level which makes use of the morpheme(s) of the motivating naming unit. The final form of a converted naming unit, however, definitely takes shape at the phonological level, where certain deviations may occur (cases where the phonological shape of the motivated naming unit differs from that of the motivating one in terms of stress, or the full vowel:reduced vowel opposition).

(e) Obviously, all previous changes must be reflected in the paradigmatic and syntagmatic behaviour of new coinages. Thus, for example, the conversion of *display_N* (meaning ‘a device for presentation of alphanumeric or graphic information’) to *display_V* (meaning ‘to

present on a display') changes the position of the new coinage within the sign-external paradigmatics (different relations of synonymy, homonymy, hyponymy, etc.) and the internal paradigmatics (*of the display, to the display, display (pl.) vs. I display, you display, he displays, ..., displayed, displaying, ...*) as well as different syntagmatic relations (following from different syntagmatic functions within sentences). The same applies to conversion in the *display*_{N→A} direction. Since this approach to conversion results from the application of the onomasiological theory, this onomasiological type is labelled as Onomasiological Recategorization.

9.2.6 Is conversion directional? The issue of directional nature of conversion has been discussed by a number of authors and would deserve a separate article. Therefore I will only briefly outline some of the existing proposals and then summarise the OT position as given in Štekauer (1996). Rochelle Lieber (1981) rejects the zero-morpheme theory of conversion and argues that no directional rules can account for the facts of conversion in English. In her view, conversion is a redundancy relation in the permanent lexicon. Individual items like *paint*_N and *paint*_V should therefore have separate lexical entries. Importantly, however, Lieber maintains that conversion is another field of word-formation which lacks isomorphy between the lexical structure and lexical semantics: while the "syntax" of conversion is non-directional, the semantics of conversion may be governed by directional rules.

Directionality is not entailed by Hockett's approach (1958: 221) postulating clusters of word-classes like AV, NA, VN, and NAV, depending on whether the respective lexeme functions both as Adjective and Verb, Noun and Adjective, etc., nor by Nida's approach (1948) who also admits the existence of classes of words that can function both as Verbs and Nouns. These views are difficult to accept because, as aptly pointed out by Arnold (1966: 32), it is inadmissible for a word to belong to several word-classes simultaneously, because it contradicts the basic definition of the word as a system of forms.

Zero-morpheme-based approaches to conversion inherently postulate a directional process. They, however, differ in identifying the criteria and/or methods of determining the direction of this word-formation process.

Marchand's "classical" account of zero-derivation rests on two sets of criteria determining the direction of zero-derivation. In 1963a, 1963b, and 1964 Marchand proposed two sets of criteria, the content-related and the form-related ones. None of his criteria, however, are of general validity, and even if they are taken as a whole they do not guarantee a conclusive answer. An extensive analysis of these criteria is provided in Štekauer (1996). Therefore, I will confine myself to illustrating the flaws of one of Marchand's criteria, the semantic dependence defined as follows: "The word that for its analysis is dependent on the content of the other pair member is necessarily the derivative" (Marchand 1964:12).

According to this criterion, the verb *saw* must be derived from the substantive *saw*. *Saw*_N is defined by Marchand as 'a cutting instrument with a blade, having a continuous series of teeth on the edge'. That the instrument may be used for the action of *sawing* need not be included, in Marchand's view, in the definition. *Saw*_V is defined by him as 'use a saw, cut with a saw', where the semantic features of the noun are included.

Marchand's criterion admits different interpretations, which allows us to adjust the definition of semantically related words in accordance with our intentions. A few examples will illustrate the point: the above-mentioned *saw* can be defined as follows: 'an instrument

for sawing’ and ‘to cut with a toothed instrument’. These definitions are perfectly acceptable though they would indicate a reverse ‘derivational’ dependence. Moreover, Marchand analyzes *knife*_V as ‘wound with a knife’ and notes that the “substantive *knife* does not lean on any content features of the verb *knife*, which does not exist in the vocabulary of many speakers who commonly use the noun”. These words indicate that his analysis is influenced by the frequency of use, a criterion separately mentioned later in his paper. On the other hand, his analysis of *whistle* takes the opposite direction in spite of the fact that both *knife* and *whistle* **semantically** are ‘instruments for performing some action’. In such a case, it is difficult to see any grounds for unequal semantic analyses of the relations between the members of the above-mentioned conversion pairs. Moreover, Marchand’s definitions of *whistle*_{V-N} ‘forcing the breath through the teeth or compressed lips’ vs. ‘instrument used for whistling’ do not appear to be more natural or obvious than the following pair: ‘to use a whistle’ vs. ‘an instrument operated by air expelled from lungs’.

The flaws of Marchand’s criterion were also noticed by Ljung (1977). Ljung (1977: 165) points out that “when we try to apply Marchand’s criterion [i.e. of semantic dependence, P.Š.], it immediately becomes clear how elusive it is. The criterion of semantic dependence rests on the assumption that there are ‘natural’ definitions for the members of the pairs under consideration here. A case in point is *saw*_N:*saw*_V. Contrary to Marchand’s assumption (1955: 172) it is possible to ‘saw without a saw’ just as it is possible to *hammer* without a *hammer*”.

Representatives of level-ordering theories (e.g., Allen, Kiparsky) maintain that the direction of conversion can be determined according to phonological (mostly stress) and morphological (combinability of affixes) criteria. For illustration, Allen points out the existence of *condition-al*_A, and the absence of **condition-ive*_A and other analogical cases. Both *-al* and *-ive* are Level 1 suffixes: *-al* attaches to nouns, *-ive* to verbs. The non-existence of **condition-ive*_A thus can be accounted for by the fact that *condition*_V is not available at Level 1. By implication, the direction of conversion in the case of *condition* (and other analogical words) is N → V.

In his highly interesting theory of conversion, Don (1993), who rejects zero-based accounts of conversion, derives the evidence of directionality from the analysis of morphosyntactic features of conversion pairs in Dutch. Thus, for example, conversion “determines gender if it is noun-forming, and mode of inflection when verb-forming. Furthermore, several distributional properties of conversion can only be explained if we assume that it is directional in nature” (Don 1993: 211).

What then is the OT approach to this issue? First, in view of the theory of onomasiological recategorization it is necessary to distinguish the word-formation process itself and its semantic aspect as expressed by the logico-semantic relation between the concepts interrelated by recategorization. The analysis of conversion pairs in Štekauer (1996) indicates that the logico-semantic relations between the related concepts do not depend on the direction of conversion. For example, based on the etymological data, the direction of conversion for *bond* is SUBSTANCE → ACTION (Noun → Verb) while that for *reject* is ACTION → SUBSTANCE (Verb → Noun). In both cases the concepts are related by the logical-semantic relation of Factitiveness.

On the other hand, the very fact that OT considers conversion to be the process of word-formation means that it is a directional process. Here it is worth returning to Marchand’s

example of *saw*. The account of directionality can possibly be based on the extralinguistic reality, i.e., on the natural subsequence of emergence of the respective phenomena. In this particular case, first, there must have been an instrument permitting the performance of an action by means of that particular instrument. With *whistle*, the direction is reversed. This is quite obvious, because the primary ‘instrument’ for the given action is our lungs, lips, etc. They permit the action. Thus from the point of view of the **criterion of extralinguistic subsequence**, *whistle* (instrument) is secondary with regard to the action of our body organs. It follows that the directionality criterion can in some cases be shifted to the highest levels (extralinguistic reality) of the word-formation model.

Nevertheless, in the vast majority of cases, this way of determining the “derivational” relation resembles the familiar “chicken-or-egg” problem: for instance, (*computer*) *program*, *interface*, *link*, *design*. There does not seem to exist any generally applicable criterion. Therefore, the only way out seems to consist in the complementary effect of a multiplicity of criteria, including the criterion of extralinguistic subsequence, diachronic data, formal criteria (like stress pattern), morphosyntactic effects (like in Don’s approach), structural relations (combinability with affixes), etc.

10. Determining the Morphosyntactic Features

10.1. In the present model of word-formation, the onomatological level is the place of determining the category of word-class and the related morphosyntactic features. The category of word-class is important because, among other things, there are some stress-assignment rules (phonological level of the model) which are word-class-dependent. For example, there are some conversion pairs (onomasiological type V) which depend for their stress upon the word-class of individual conversion pair members, for example, *construct*, *increase*, *replay*, *isolate*, *abstract*, *concrete*, *absent*, etc. These differences are not limited to the instances of the Onomasiological Recategorization type. Therefore, the phonological component must “know” the category of a naming unit to be assigned a stress.

10.2. A frequently discussed issue is how a new coinage is assigned its category of word-class and other related morphosyntactic characteristics. The majority of morphologists share the view that these features are inherited from the **head** (Marchand’s *determinatum*). Less agreement obtains in regard of how the head should be identified. Allen (1978) formulated her principle under the label of IS A CONDITION, Williams (1981) introduced the Right-hand Head Rule (RHR) which defined *head* positionally as the right-hand member of the word, and Selkirk (1982) proposed a revised RHR because the original RHR appeared to suffer from many flaws. Williams himself accepted the criticism and, in his joint work with Di Sciullo (1987), modified the RHR in the form of a relativized head always defined as the rightmost element of the word marked for the particular feature. In any case, the number of various approaches to “headedness” indicates the overall uncertainty of morphologists concerning its identification and overall function. Zwicky criticized those feature percolation conceptions according to which morphosyntactic features percolate to the complex word from the head constituent of that word. In his view, “the location of inflectional marks is not to be managed via percolation, [...] category of determination resides not in constituents but in **rules** [my emphasis, P.Š.] performing morphological operations” (Zwicky 1985: 2).

The OT theory presented here takes an approach different from the existing conceptions. Štekauer (in print) gives arguments in favour of identifying the head with the onomasiological base. It should be emphasized once more that the latter always refers to a

class of objects, a genus, etc. Consequently, rather than identifying head either positionally or morphologically (a particular morpheme of a naming unit) the proposed approach shifts the criterion of headedness to the extralinguistic level, in particular, to the conceptual level of coining new naming units. By implication, head can be a suffix, a prefix, or a word-formation base. Given this principle, *behead*, is analysed as follows:

ACTION	—————	SUBSTANCE
Act	→	Obj
be		head

where Act is the onomasiological base. It refers to a general class of FACTITIVE Actions directed at Objects. The Action is more general than the specific Object, in this case *head*. Similarly, the meaning of *re-* (REPETITION of an Action) in *restart* is more general than the Action specified. In other words, **any** particular Action can be repeated or returned to the original state. Another example, which is treated differently in the literature, concerns words like *greenish* (cf. Bauer 1990). Here, *-ish* is the onomasiological base because its meaning is much more general (APPROXIMATION) than that of *green*. Similar considerations apply to diminutives, such as *duckling*. *-ling* (DIMINUTIVE) is more general than *duck*. This assessment of evaluative affixes differs from that of Scalise (1988) who maintains that evaluative affixes violate the Unitary Output Hypothesis³ and, therefore, cannot function as heads.

A question may be raised concerning the identification of head in structures containing both prefix and suffix. The onomasiological model of word-formation does not (advantageously) generate naming units by means of concatenation of the individual word-formation processes (binary principle), for example, (de + ((centre_N + al_A)_A+ ize_V)_V)_V; rather new naming units are formed by the so-called FMAP principle which matches the morphemes stored in the Lexicon with the individual constituents of the onomasiological structure within a single act of assignment. Consequently, this theory may appear to be in a tight situation if it is required to determine which of the affixes stands for the onomasiological base (head) in words like *decentralize*, *ungrammatical* and a number of other similar prefix-suffix structures; that is to say, which of the affixes represents a more general class. The problem follows from the fact that it is hardly possible to classify various affixes in terms of more or less general semantic classes.

The OT model postulates that if a speech community needs a new naming unit, the object of the extra-linguistic reality is intellectually analyzed at the conceptual level by means of logical predicates. Thus the process of analysis which underlies, for example, the naming unit *decentralise*, is roughly ‘ACTION₁ of making something central which is Negated by ACTION₂’. Clearly, the ‘Action of Negation’ is logically superordinate to ACTION₁. This conceptual analysis is born out at the onomasiological level. The FMAP principle must observe the subcategorization of affixes stored in the Lexicon. Therefore, the operation of the FMAP principle is both vertical and horizontal. Vertically, the semantic facet of the morphemes must match the meaning of the semes of the onomasiological structure (in our example, *de-* stands for Negating Action; *central* corresponds to the specific Qual; and *-ize*

³ The Unitary Output Hypothesis assumes that the “output of a rule of suffixation is always the same independent of the base (1988: 232)”, which means, for example, that the form of a rule such as

[[]X +hood]N, <+abstract>,<-count><+common><...>

will have the same form irrespective of the content of X, that is, no matter whether X is a Noun or an Adjective (*wifehood/livelihood*) or whether X is a proper Noun or a common Noun (*Christhood/sisterhood*).

to the specific Act); horizontally, the individual morphemes must be mutually compatible. Thus, *de-* requires verbal category on the right-hand side (no matter what the right-hand constituent's internal structure is, i.e., whether it is a single morpheme or a combination of morphemes); on the other hand, *ize-* subcategorizes for both adjectival and substantival partners on its left-hand side, and is thus semantically less coherent (see Aronoff 1976). In addition, it does not combine with negated adjectives or nouns. The onomasiological structure delimited by its polar members

ACTION – ACTION

will thus be

Neg Act – Qual – Act.

The FMAP principle assigns the specific word-formation base and affixes. In addition, the FMAP evaluates the respective compatibilities of *de-* and *-ize*, and permits the combination:

Neg Act	- Qual	- Act
de	central	ize

Since it is the Negating Action which dominates the conceptual and onomatological level analyses, the head is represented by the prefix *de*.

Štekauer (in print) demonstrates that all heads identified as onomasiological bases are in a position to transfer their features to the respective naming units. The morphosyntactic information need not, however, percolate directly from the head. Prefixes are envisaged to have a **decision-making capacity**—they either **determine** the category directly (class-changing prefixes) or indirectly (class-maintaining affixes); in the latter case, they **acknowledge** the category of the particular naming unit. While suffixes seemingly fulfil the same function, as it were, straightforwardly (inflectional morphemes as indicators of morphosyntactic features are simply attached to them), prefixes seem to do it as mediators.

10.3. Thus, the onomasiological base is postulated to determine the word-class category and the related morphosyntactic features of a new naming unit. Furnished with this information, each coined naming unit is passed to the phonological level where it can be specified in terms of stress, and other rules determining the phonological form of naming units, for instance, the Trisyllabic Laxing Rule. The phonological aspects of word-formation have been much discussed in literature under various labels (for example, Siegel's Level Ordering Hypothesis, Allen's Extended Ordering Hypothesis, Kiparsky's Cyclic Phonology, etc.), and a number of rules were aptly formulated.

10.4 These issues are closely related to the relation between the Word-Formation Component and the Lexical Component in terms of **restrictions** imposed on the combinability of individual word-formation constituents. It is generally known that not all combinations of morphemes are permissible. Generally, the permissibility is governed by specific properties of an affix, and can be expressed in its subcategorization frame. In my model, it is supposed that affixes represent a separate list in the Lexicon, with each affix (just like any other naming unit in the Lexicon) having its specific entry. While morphosyntactic properties of naming units, necessary for combining them to form sentences, follow from their membership in the respective paradigm (to which each naming unit is automatically integrated according to the features of the onomasiological base in

regular cases; or by individual idiosyncrasy-capturing specifications if the feature(s) deviate(s)), affixal entries contain (in addition to the word-class specification where applicable) the information necessary for combining affixes with word-formation bases to form naming units. In addition, affixes may cause some phonological changes. It follows, then, that the onomatological level and the phonological level of the Word-Formation Component must be directly interconnected with the affixal part of the Lexicon, too. The following are a few examples of treating restrictions within the present model:

10.4.1. Kiparsky (1982a) mentions the suffix *-al* which is only added to verbs stressed on the last syllable, e.g. *arríval*, *revérsal* vs. **depósital*, **recóveral*. In his view, the cyclic rule of stress assigning to verbs must precede the suffixation by *-al*, which is predicted by Kiparsky's scheme of lexical phonology. In my model, this condition would be specified in the entry of the suffix *-al*. Since the phonological level of the model has access both to the list of affixes and to the paradigmatically classified naming units in the Lexical Component, the condition (restriction) is simply applied by checking both the affix for the respective condition, and the naming unit (whose word-formation base is assigned to the respective logical-semantic unit by the FMAP) for its stress.

10.4.2. The frequently adduced (e.g. Halle 1973) example of restrictions imposed by the inchoative suffix *-en* can be explained in a similar way. It means that the condition according to which the affix attaches only to monosyllabic stems and, moreover, only if they end in an obstruent, optionally preceded by a sonorant (*blacken*, *whiten*, *toughen*, *dampen*, *harden*, **dryen*, **dimmen*, **greenen*, **laxen*) will be stated as a specification of the affix. Moreover, there are also examples in which this restriction appears to have been violated, for *-en* has attached to a stem ending in two obstruents /ft/ or /st/: *soften*, *fasten*, *moisten*. These examples illustrate an operation of the phonological rule which deletes the /t/. Then the *-en* is attached to a stem which complies with the phonological condition, namely *sof-*, *mois-*, or *fas-*. This form-adjusting rule is included in the phonological level of my model, and operates in close "co-operation" with the suffix because, thanks to the direct interconnection of the phonological level and the list of affixes, it can "see" the restriction specified in the affixal entry.

10.4.3. The entry for the suffix *-able* must contain the information that this suffix combines only with transitive verbs. In other words, the onomatological level has access to the Lexicon. In this particular case, it has access to the paradigm containing the respective verb whose word-formation base is to be combined with the suffix *-able* by means of the FMAP. Logically, the onomatological level does not "scan" all the verbs in the Lexicon. Its task is simplified by all transitive verbs being grouped in the "Transitive Verb Paradigm".

10.4.4. The suffix *un-* will be specified for stress assignment. In particular, it is provided with information that it carries a secondary stress when occurring in adjectives containing the suffix *-able*. As mentioned above, the word-class category of a naming unit being coined is specified at the onomatological level. Therefore, the phonological level at which stress changes occur can act based on the word-class specifications imposed by the onomatological level plus the stress condition specified for the suffix in its entry. Certainly, the entry of *un-* contains another condition, notably that it can be combined with word-formation bases of adjectives, and that the meaning of such adjectives should be positive. Therefore, the onomatological level automatically "retrieves" the "Adjectives with Positive Meaning Paradigm".

10.4.5. The example of the ‘truncation rule’ (*nominate* - *nominee*, *evacuate* - *evacuee*) mentioned by Aronoff (1976) fits my scheme, too. The entry of the suffix *-ee* contains a condition stating that if the immediately preceding constituent (word-formation base of a verb) assigned by the FMAP ends in the *-ate* cluster, the latter will be deleted. The operation of form adjustment takes place at the onomatological level based on the information from the affixal entry. The same principle applies to Aronoff’s examples of allomorphy rules (*electrify* - *electrification*).

10.4.6. Certainly, selectional restrictions apply to word-formation bases, too. It is assumed that selectional restrictions are not changed by application of Word-Formation Rules. Therefore, if the verb *refuse* requires an animate subject, this restriction is also transferred to the noun *refusal* coined by employing the word-formation base of the naming unit *refuse*. As a result, *refusal* automatically takes over this feature in the Lexicon, and is classed in the paradigm containing all similar nouns. Any deviations are reflected in the changed place of the respective naming unit within the system of paradigms of the Lexical Component.

10.5. Let us illustrate the way the individual naming units are represented in the Lexicon. As already mentioned the Word-Formation Component forms new naming units by means of word-formation bases of naming units stored in the Lexicon, and it supplies the Lexicon with new naming units. Each new naming unit comes to the Lexical Component with its specific categorial features. Thus, for example, a new-coined noun is allocated to the respective class of regular or irregular nouns based on the nature of the naming unit/affix which enters into a new naming unit as its onomasiological base. Based on these features, the new naming unit is classed with a large group of naming units, each of them having the same paradigm (in inflectional languages, for example, identical noun case endings, or verbal person endings, etc.). Each such paradigm-based group can be further subdivided, for example, in terms of the transitive-intransitive opposition, etc. This approach can best be illustrated by inflectional languages like Slovak. Here, for example, agent nouns can be formed by the suffix *-el’* added to verbal stems: *riadiť-el’* (manage-er), *učiť-el’* (teach-er). Individual case-morphemes, specific for the seven cases of declension both in singular and plural, depend on the category of word-class (noun, in this particular case), gender (masculine), gender declension pattern (each formal gender (masculine, feminine, neuter - the latter is of formal nature in Slovak; therefore, for example, *dievča* (girl) is a neuter gender noun) distinguishes four patterns depending on a feature like [Animate], the vowel/consonant opposition with regard to the final phoneme, the nature of the immediately preceding phoneme, etc.). Syntax, then, has access to the individual paradigm-based groups, and retrieves those word-forms which correspond to its particular sentence-generation needs. The same principles can be applied to English in a fairly simplified way owing to the lack of inflectional morphemes in English. Moreover, the same principle holds for the argument structure of verbs. The constituent underlying the onomasiological base assigns a new naming unit the respective word-class and subcategory (e.g. intransitive/transitive). Based on this criterion, or any other criterion defining the argument structure, a new coinage is identified with a particular argument structure subcategory in the Lexical Component, and is taken from the Lexicon when syntax requires it.

11. A Problematic Case: Syntax-Based Word-Formation

It was already mentioned above that not all naming units neatly fit the ideal onomasiological model (actually, is there any model without exceptions?!) of word-formation according to which all naming units are formed by productive WFRs and the linguistic material is taken by FMAP from the Lexical Component. An obvious exception to the rule is a group of syntax-based formations like *sit-around-and-do-nothing-ish*, *leave-it-where-it-is-er*, *son-in-*

law, lady-in-waiting, pain-in-stomach-gesture, what-do-you-think-movement, milk-and-water, save-the-whales campaign, etc.). They make use of typical syntactic elements (synsemantic words like articles, prepositions, conjunctions, etc.) and are structurally unpredictable in the sense that the FMAP of the onomatological level cannot make use of the stock of word-formation bases and affix morphemes stored in the Lexical Component. It must work with syntactic combinations of both autosemantic and synsemantic words, i.e., with typical syntactic structures. Consequently, the onomasiological approach to word-formation necessarily faces a problem because the linguistic material cannot be drawn from the Lexicon.

Admittedly, in the original version of my onomasiological theory (Štekauer 1998) the treatment of these naming units was superficial and simplistic. It was concluded that they were generated at the Lexicon-Syntax interface. This does not seem to be the whole truth. First of all, it must be taken into account that these naming units feature an internal structure, and thus they require the same kind of word-formation mechanism (including conceptual, semantic, and onomasiological analyses and the application of FMAP at the onomatological level) as the naming units formed by regular and productive WFRs. If they were generated at the Lexicon-Syntax interface one would have to postulate another model of word-formation with all the individual levels. Rather than the naming function, the Syntactic Component fulfils the descriptive function. Therefore, it would be awkward to expect from syntax to use word-formation instruments. Equipping the Lexicon with another complex word-formation mechanism seems fallacious because (a) this would unnecessarily increase the complexity of this component, and (b) the Lexicon fulfils other, above mentioned, functions. Moreover, given the relative paucity of syntax-based naming units, such a word-formation mechanism would be rather underloaded. Therefore, it may be postulated that this type of naming units is also formed in the Word-Formation Component; they usually fall within Onomasiological Type II or III.

For illustration, naming units, such as *sit-around-and-do-nothing-ish, leave-it-where-it-is-er* can be—based on a conceptual analysis—represented as the onomasiological structures of ACTION - QUALITY and ACTION - SUBSTANCE, respectively. They can also be formed by the FMAP principle which, however, operates in view of the “explicitness instruction”. Otherwise, the latter naming unit might be something like *stuff-leaver*, or some other “standard product” of the WF Component. The “explicitness instruction”, however, means that the Lexical Component cannot fulfil its typical function of feeding the required word-formation bases to the WF Component for the simple reason of not having them in stock. Therefore, the Lexical Component mediates the required material from Syntax. In any case, I do not find it proper to represent this kind of units as (V + -er) structures because the first constituent is not a Verb as might perhaps be proposed by a generative, form-based approach. While Verbs are stored in the Lexicon, none of the structures in question can be found there.

A question may be raised at this place: Do these naming units comply with one of the basic tenets of the theory presented here, i.e., the premise that new naming units are coined by productive and regular WFRs? The answer cannot be unambiguous. OT distinguishes between the onomasiological level and the onomatological level. The former generates a structure constituted by semes which come to be represented by morphemes. By implication, any WFR results from an interaction between the two levels. As indicated above, no problems concern either onomasiological structure or the application of FMAP to the onomasiological base. The pitfall concerns the application of FMAP to the onomasiological mark. Given these circumstances, it may be concluded that the basic

principle is partly complied with: these naming units might be said to be generated by productive rules which result in a partly irregular structure.

12. Nonce-Formations

Hohenhaus (1998) defines nonce-formations as ad-hoc formations, the dominating characteristics of which are (a) context-dependence, (b) deviance (they are “not conforming to the language’s word-formation rules or well-formedness conditions” [Hohenhaus 1998: 240]), and, primarily, (c) non-lexicalizability (which means that they cannot become established [listed] items). Since nonce-formations are not listed, they are, by implication, “formed anew, put together actively, creatively” (Hohenhaus 1998: 238) each time they are used in speech. It follows naturally from these defining features that not all neologisms are nonce-formations. I will briefly comment on these statements.

(a) It goes without saying that from the point of view of a speaker (or better, a coiner), every nonce-formation is accurately delimited and well defined. Consequently, context-dependence is the matter of the listener/reader, and it takes the nature of degree: monosemous naming units are less context-dependent than polysemous naming units; morphologically transparent naming units are less context-dependent than the morphologically vague ones (compare the lower dependence of words with unambiguous word-class compared to converted naming units, or the context-dependence of lexicalized naming units [in Bauer’s sense of this term] vs. fully transparent naming units); naming units of the core part of the lexicon are less context-dependent than those at the periphery (compare the words of everyday use and those of any scientific terminology, or commonly known words vs. slang or argot expressions).

Context-dependence is a vague notion at least for the following reasons: (i) each naming unit, no matter how well it is integrated in the system, is used in its typical “context”, unless certain stylistic objectives require its use in the “context” of a different register; (ii) context-dependence is always the matter of speech (*parole*) and never that of system (*langue*): at the system level, every naming unit is accurately defined and has its distinct meaning and function; (iii) a closely related issue is the meaning of “context” based on which a naming unit may be context-free for a specific subset of a speech community (for those in the know, e.g. experts in a particular field of science) and fully context-dependent for another subset of a speech community; (iv) and finally, context-dependence (again at the speech level) may also result from the analytic nature of English (for example, the identical external form of conversion pairs; but the same holds of word-forms—because of the lack of inflectional morphemes it is only the specific context which determines the function of the respective form in a sentence—this is, however, not to say that such word-forms are not distinctly defined by their fixed place in the paradigmatic **system!**).

(b) Deviation from the regular patterns of word-formation is a frequent argument; it is as vague and inconclusive as the previous one though. One of the essential claims of OT is that all new naming units formed in the Word-Formation Component are coined in accordance with productive and regular WFRs. Štekauer (manuscript) demonstrates that examples presented as evidence of the idiosyncratic nature of “nonce-formations” (cases like *unmurder*, *oid-y*, *ultra-alphabetically*, expletive infixation, etc.) are regular coinages.

(c) Since nonce-formations are, in Hohenhaus’ view, not listed, they must be interpreted “in a constructive way”. The interpretation of nonce-formations cannot rely on “genericness” considered by Hohenhaus to be a crucial factor conditioning the listing of a naming unit. In

his view, genericness means “keeping a word in order to have it at hand ready-made for future use, which must be worth it. Listing something which is highly unlikely ever to be usable again would not make much sense” (Hohenhaus 1998: 263).

This account necessarily raises doubts. What does it mean “to be worth listing” and “highly unlikely to be usable again”? How can anybody know whether or not a particular new coinage is worth storing in the Lexicon? By exaggerating a little bit: should these decisions be taken by a special-purpose linguistic institution? And furthermore, how can we foretell the fate of the *apple-juice seat* type words, or any other “nonce-formation” types? How can one be sure about *apple-juice seat* not becoming one of the central items of household architecture or restaurant organisation sometimes in future (for example, conditioned by a new trend in nutrition, architecture, etc.)?

When coined each naming unit is an attempt, a very real word-formation attempt, i.e. an **actual naming unit**. It comes into existence as a response to a specific demand of (a certain number of members, or only one member of) a speech community, and it is this demand which justifies the existence of such a coinage. As such, it becomes an offer for the remaining part of the particular speech community. If accepted by (a specific group, i.e. subset of) the speech community, it becomes integrated for (possibly) long-term use, if not, it drops out of the system. In any way, however, the worthiness and the likeliness of use are terms upon which no theory of word-formation can be built.

In addition, it should be noted that the frequency of usage, or the “common (general) use”, or “common parlance” as a criterion for the status of existing (occurring) words is unacceptable not only because of the vagueness of the notion “common (general) use”, but also because the frequency of usage can only be applied to words that have already been coined, i.e. to actual (existing) words (or, to nonce-formations conceived of as the first stage in the “life” of any new naming unit).

By implication, the notion of nonce-formation in the onomasiological model just outlined differs from that proposed by Hohenhaus. Rather than being non-lexicalizable, deviant and “context-dependent” units representing a distinct group of coinages different from all the “listemes”, OT conceives of nonce-formations - in accordance with Bauer (1983) - diachronically, as a certain specific stage in the “life” of naming units, the stage from the “birth” (the act of coining) to their dissemination in the target group of a speech community (which may be a small group of friends, a professionally, socially, culturally, etc., delimited group of different size, or an (almost) complete speech community), that is, to the stage of what is labelled as institutionalization by Bauer. Being products of the Word-Formation Component all “nonce-formations” pass to the Lexical Component where they “wait” for their destiny: they can become well-integrated in the system, remain at its periphery, or can simply be discarded from the system.

This issue, however, is not so unproblematic. There is a hitch in it. It concerns some syntax-based formations. The majority of “shorter” syntax-based formations fit well the conception of nonce-formations outlined above. They are productively coined (though feature partial structural irregularity) and some of them even survive the test of time (for example, *matter-of-factness*, *out-of-the way*, *son-in-law*, *lady-in-waiting*, *milk-and-water*, *save-the-whales campaign*, etc.) and become integrated in the system of language; some “longer” units are no doubt disposable coinages. A case in point is Jerome K. Jerome’s “pearl” from his *Three Men in a Boat: There is a sort of Oh-what-a-wicked-world-this-is-and-how-I-wish-I-could-do-something-to-make-it-better-and-nobler expression about Montmorency...* It goes

without saying that such a coinage has no chance to survive in the Lexicon. In principle, there is no structural difference from the other syntax-based units. It differs from the storable ones in extreme length which is obviously the main obstacle to memorizing and, therefore, to keeping this unit in the Lexical Component. Thus, rather than the structural factor, or the factor of context-dependence (this naming unit can be perfectly understood out of context) it is an utmost pragmatic factor of human memory capacity which makes this naming unit an ad-hoc coinage. A similar view is presented by Dressler (1982: 174): “If we take one of the (universally accepted) functions of WFRs, i.e. that of enlarging the lexicon [...] by the labelling of concepts, then clearly there is less pragmatic need to label concepts of such complexity that phrasal or even sentential bases must be used [...] Here the semiotic principle of the optimal size and sign may be invoked: Too big a sign(ans) is difficult to perceive for the hearer and to store for the speaker and hearer”. A question is whether, how, and to what degree this kind of factors should be incorporated (is incorporateable) in any theory of word-**formation**. For the time being, I must leave this question open.

13. Some Applications of the Theory

13.1. “Bracketing paradoxes”

One of the advantages of the onomasiological theory proposed in Štekauer is that it eliminates the problem known in the literature under the heading of “bracketing paradoxes”. Thus, for example, *transformational grammarian* is said to have the following morphological structure:

[[[transformational]][grammarian]],

while semantic considerations require the structure

[[[transformational grammar][ian]],

Unhappier must be analysed as

[un [happy er]]

in terms of morphology because the comparative affix *-er* only attaches to monosyllabic and some disyllabic words; however, the meaning of *unhappier* is ‘more unhappy’ rather than ‘not happier’. Therefore, semantically it must be bracketed as

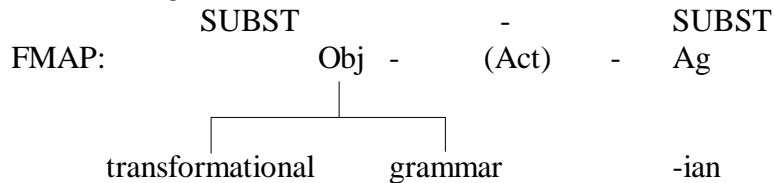
[[[un happy] er].

This kind of paradox follows from the generally applied binary principle. Since the onomasiological theory with its FMAP does not rely on a binary word-formation structure, the problem of bracketing paradoxes is meaningless. Moreover, the proposed approach is based on the principle that the relations in question are not hierarchical. The members of the onomasiological structure (the base, the determining and determined constituents of the mark, and the specifying and specified elements of the determining constituent) function at the same level of description (onomasiological level) Thus, *transformational grammarian* can be analysed as follows:

Conceptual level:

‘a person dealing (professionally) with transformational grammar’

Onomasiological level: ICSL (OT III)



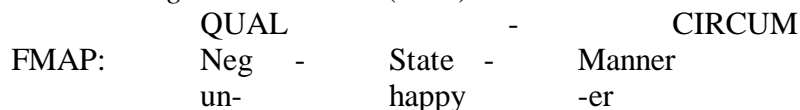
(where *transformational* is the specifying element and *grammar* the specified element of the onomasiological mark).

The latter of the above-mentioned examples, *unhappier*, is analysed as follows:

Conceptual level:

‘a state of not being happy; this state is characterised by a higher degree relative to the original state’

Onomasiological level: CCS (OT I)



13.2. Exocentric compounds

13.2.1. One of the traditional divisions of compounds in English is that into endocentric and exocentric compounds. While the former are characterised by the binary structure of *determinant - determinatum* with the compound being a hyponym of its *determinatum* (head), the latter (*redskin, pickpocket, hunchback, paleface, five-finger, scatterbrain*, etc.) are said to have zero *determinatum*, i.e., one lying outside the compound (Marchand 1960: 11); therefore, the compound cannot be a hyponym of the *determinatum*. In this section, I will present a different approach and argue that these compounds are generated in the same way as endocentric compounds. The reasons for this assumption are as follows:

(i) The psychological reasons for this approach can be found in both classical structuralist and onomasiological approaches. Marchand (1960: 11) points out the general tendency of speakers “to see a thing identical with another already existing and at the same time different from it”. This principle, labelled by Kastovsky (1982: 152) as an “identification-specification scheme” is a key to one of the fundamental principles of Marchand’s and Kastovsky’s theories based on the binary, syntagmatic, structure of motivated words. Each word-formation syntagma is based on the *determinant/determinatum* relation, where the latter “identifies” and the former “specifies”. The same principle underlies the onomasiological conception. Dokulil (1962: 29) maintains the following:

“The phenomenon to be named is usually identified with a specific conceptual class having its categorical expression in the particular language and subsequently, within the limits of this class, it is determined by a mark. The conceptual class enters the onomasiological structure as a determined constituent—the onomasiological base, the mark as a determining constituent—the onomasiological mark. The onomasiological base may stand for a conceptual genus or a more general conceptual class”.

Finally, natural morphology claims the same, though in a different way. The most “natural” are those coinages which are most diagrammatic (a new meaning is accompanied by a new form), for instance, *read-er* where there is “a diagrammatic analogy between semantic and morphotactic compositionality (or transparency)” (Dressler et al. 1987: 102).

(ii) There is no reason to surmise that there is any other cognitive process underlying a small group of “exocentric compounds” deviating from the identification-specification scheme because this way of conceptual analysis is the essence of naming in general.

13.2.2. I propose to explain “exocentric compounds” by a two-step process in which only the first has word-formation relevance. The first step consists in the formation of an **auxiliary, onomasiologically complete** (i.e. with both the base and the mark included), **naming unit**. The second step is based on mere **elliptical shortening**. Certainly, shortening is not a word-formation process (see above the comments on clippings). Therefore, this type of naming units can be analysed on a par with the underlying “full”, auxiliary, version, although the latter has not come to be used (institutionalised).

13.2.3. An important piece of evidence supporting the approach outlined here is the irregular plural. It is generally known that compound nouns are not pluralised by attaching a plural ending to the compound as a whole; rather, they take over its plural form from the right-hand constituent. Therefore, the plural of *milktooth* is not **milktooths*, but *milkteeth*, the plural of *postman* is not **postmans*, but *postmen*, etc. Now, taking the example mentioned by Sproat (1988: 349), the expected plural of the “exocentric” *sabertooth* is **saberteeth*, which is not the case. Implicitly, *tooth* is not the right-hand member. Since I—as opposed to Kiparsky (1982a) or Sproat (1988) (who accounts for exocentric compounds by applying the so-called Mapping Principle primarily used in his approach to “Bracketing Paradoxes”)—reject the notion of zero-morpheme in word-formation, a solution must be sought elsewhere. The “elsewhere” is provided by the above-given approach. Based on a conceptual analysis we can identify the onomasiological base as a SUBSTANCE representing a class of animals (or more specifically, a class of tigers). The onomasiological mark identifies its subclass. The FMAP then yields an auxiliary naming unit *saber-tooth tiger*, or more generally, *saber-tooth animal* (both the more general and the more specific forms fit our purpose; in other words, what matters here is the onomasiological structure, and not the onomatological structure). In any event, the actual onomasiological base, and—at the same time—the right-hand constituent of the naming unit forms its plural in a regular way (i.e., *tigers*, *animals*). Since it is the plural of the right-hand member (onomasiological base) of a complex naming unit, the plural of *sabertooth* is *sabertoosths*.

13.2.4. Let us illustrate this theory by presenting some more examples. The naming unit *redskin* has been traditionally identified as an “exocentric compound” because (as opposed to “endocentric compounds”) *redskin* is not a kind of skin. By applying the onomasiological model of word-formation we arrive at the following abridged analysis of *redskin*:

The object to be named is HUMAN

The HUMAN is characterised by the red colour of his/her skin.

Clearly, the object to be named is “identified” with a whole class of objects; in this case, these are “people”, “human beings”, or “persons”. It is this seme which becomes an onomasiological base in the new naming unit. The seme indicating the colour of skin is a

specification seme. Hence, it becomes an onomasiological mark. Then, the onomasiological structure will be as follows:

SUBST - SUBST
Stative - Patient

By applying the FMAP to this structure, we obtain:

Stative - Patient
redskin person

The auxiliary naming unit obtained is an “endocentric compound”. The second step consists in elliptical shortening, which is reflected in the notation by bracketing the base member of the structure. As with all clippings, the lexical and grammatical features of a full naming unit are passed over to its clipped version (in this particular case, it is the word-class of Noun, and lexical class of Human Beings). This is indicated by an arrow:

redskin person → redskin [person]

Similarly:

killjoy is ‘a *person* who usually kills joy’ (*killjoy person*);
wagtail is ‘a *bird* that characteristically wags its tail’ (*wagtail bird*);
turnstone is ‘a *bird* that typically turns stones’ (*turnstone bird*);
catchfly is ‘a *plant* that typically catches flies’ (*catchfly plant*); etc.

To sum it up, this account rests upon the principles of Marchandian structuralist theory, the onomasiological principles of the functional Prague School tradition, and on the principles of Natural Morphology. It should be stressed that the facts of naturalness should not be confined to the processing stage of language use, i.e. to *parole*. Naturalness is an indispensable feature of dynamic processes shaping the *langue*. Therefore, we may assess word-formation units in terms of what is the most natural way of their coming into existence.

It might be objected that “exocentric compounds” should be accounted for as metaphorical shifts. However, I believe that the previous account made it clear that the explanation proposed here is more “natural” in terms of word-**formation** principles and corresponding to the psychological reality of coining new naming units.

13.3. Back-formation

13.3.1. Back-formations are approached in the onomasiological theory in a similar way as exocentric compounds. What I claim is that the notion of “back-formation” has no place in the theory of word-formation as presented here. The conceptual fallacy in traditional accounts of back-formation is that they explain the origin of a “shorter” naming unit (e.g., *stage-manage*) without accounting for the way in which a “longer” (*stage-manager*) naming unit came into existence. “Longer” naming units must have been somehow coined, they could not merely have appeared “out of the blue”. Moreover, the suffixes included in “longer” naming units have all the features of “normal” suffixes. Therefore, I believe that both members of the “pairs” related by the notion of “back-formation” are generated

separately, fully consistent with the onomasiological model and the Form-to-Meaning-Assignment Principle. This can be exemplified by *stage-manager* and *stage-manage*:

Conceptual level: ‘a person who manages a stage’

Onomasiological level: CCS (OT I)

SUBSTANCE		-		SUBSTANCE
Obj	←	Act	-	Ag
stage		manage		er

Conceptual level: ‘to manage a stage’

Onomasiological level: SS (OT IV)

Obj	←	Act
stage		manage

13.3.2. In the case of naming units of the *peddler* type only the “longer” word falls within the scope of word-formation: As indicated above, *peddler* must have come into existence in some way. Therefore, an auxiliary naming unit *peddle* is postulated for the sake of coining the “longer” word. Later on, it became “actualised” based on the demand of a speech community. However, being a moneme, it became actualised directly in the Lexicon.

13.4. Blending

The process of “blending” can also be treated as a two-step process. The first step consists in coining an auxiliary “full version” naming unit consistent with the onomasiological model of word-formation. Such a naming unit is then formally reduced in an unpredictable (and hence, irregular) way which cannot be captured by a regular Word-Formation Type. Such a change then necessarily takes place in the Lexical Component.

14. Iconicity

14.1. In the following paragraphs I will attempt at outlining the OT approach to the much-discussed problem of iconicity (for example, Mayerthaler 1977, 1981, Dressler 1977, 1981, 1982, Dressler et al. 1987). An ideal case of constructional iconicity in word-formation is one in which a new meaning is represented by a specific morpheme: “An icon is established as in the sign *read-er*. There is a diagrammatic analogy between semantic and morphotactic compositionality (or transparency). Let us denote semantic compositionality with (A+B) and morphotactic compositionality with (a+b) [...] Then we can say that A, the meaning of *read*, is represented symbolically/conventionally by $a = E[\text{nglish}] \text{ read-}$, B, the meaning of agency, by $b = \text{suffix } -er$ ” (Dressler et al. 1987: 102). This account is based on the binary principle in describing complex naming units. Here, as already indicated above, one can see a substantial difference between the OT and the generative approaches. A complex word, such as *structuralization* has been traditionally generated in three steps, each including two constituents, which may be represented by labelled bracketing in:

$$(((structure_N + -al_A)_A + -ize_V)_V + -ation_N)_N$$

All of the structural constituents are bilateral signs, thus representing an ideal case of constructional iconicity in word-formation. On the other hand, OT forms this naming unit in a different way. It proceeds from conceptual representation through semantic one towards

formal representation, and the bilateral units are introduced by the FMAP principle at the onomatological level. By implication, unlike the generative treatment, *structuralization* is formed within a single step by matching the morphemes (stored in the Lexicon) with the semes of the onomasiological structure. From this point of view, an ideal case of iconicity (diagrammaticity) is one in which all constituents of the onomasiological structure are matched with corresponding morphemes. It is Onomasiological Types I and IV which meet this requirement. For convenience, let us reintroduce the examples:

Obj - Act - Ag
truck drive er

Obj ← Act
stage manage

Onomasiological Types II and III are less iconic because either the determining or the determined constituent is left unexpressed. No iconicity can be found in OT V, i.e., onomasiological recategorization (conversion). Interesting cases in terms of iconicity are represented by the so-called exocentric compounds, blends, and back-formations.

14.2. As envisaged above, exocentric compounds are generated in two steps, with the first step postulating the morphematic representation of the onomasiological base. From this point of view, these naming units mostly fall within Onomasiological Type III. What, however, one encounters in a language is a significantly curtailed naming unit stored in the Lexicon, with no morphemes representing the onomasiological base and the determined constituent of the onomasiological mark. Similar considerations apply to blends. While iconicity is fairly high at the word-formation stage, it disappears in the subsequent stage.

While conventional approaches to back-formation face anti-iconic subtraction, the OT treatment avoids the anti-diagrammatic coining technique, and works with full iconicity in cases like *stage-manage* (Type IV) and *stage manager* (Type I).

14.3. The traditional word-formation process of conversion deserves an extensive explication, in particular with regard to the conception of zero-derivation. Since the new, converted meaning is not represented by any surface morpheme one might speak of zero iconicity. Nevertheless, the postulate of theoretical zero might be interpreted as an attempt to introduce iconicity into this word-formation process. This kind of iconicity might be labelled as “phantom iconicity”. In the following, therefore, I will briefly discuss the adequacy of “phantom iconicity” introduced through a zero morpheme into English morphology. The notion of zero morpheme has primarily been used in inflectional morphology. Therefore, to understand the background of the introduction of a zero morpheme into conversion and its role in it, I find it useful to give an account of its position within English inflectional morphology. The conclusions I will arrive at are equally applicable to generative models of “phantom iconicity” of zero-derivation.

The plural of nouns will be used here as a case in point. The regular plural has three allomorphs /-s/, /-z/, and /-ɪz/. There are also other means of forming plural nouns, including *-en* (*oxen*), stem vowel alternation (*goose – geese*, *mouse – mice*), and identical forms for sg. and pl. (*sheep*, *fish*). The first group does not require any comments. The plural meaning is based on the **contrast** based on the absence of a formal element in sg. and its presence in pl. The second case does not pose any problems either if accounted for as internal

modification, or vowel alternation. Which zero-based options are available to the case of *sheep-sheep*?

The first one is based on the contrast between sg. and pl. In this particular case it is the contrast between sg. without any morpheme expressing this grammatical meaning, on the one hand, and pl. which also lacks any overt representation. If we wish to contrast these two grammatical meanings, we can do it in the following way:

(i) We can assume that sg. has no inflectional morpheme while pl. is represented by zero, which would introduce a contrast between the absence of any inflectional morpheme and the presence of a zero form of an inflectional morpheme. This introduces a theoretical contrast between the presence and the absence of an abstract component. This option poses the question of the adequacy of introducing zero to basic forms I do not think this to be an appropriate approach simply because the basic form (nominative sg. (N), present tense (V), positive (Adj), etc.) serves as a reference form, as a **contrast-establishing form**. It is the **unmarked member** of any contrastive relation. It embodies the grammatical meaning **via its status** of being a fundamental form. Hence, zero would be redundant, superfluous with respect both to the grammatical meaning (sg) and form (unmarked member). A similar position is taken by Haas (1974: 47) who emphasizes that the pl. suffix contrasts with its absence, and not with zero in sg.. Moreover, Haas maintains that “while an overt element may have its distinctive value established by contrasting either with overt elements or with zero, zero itself can contrast only with an overt element, never with acoustic zero. To suppose this would make nonsense of the notion of contrast”.

(ii) We can assume that sg. is represented by a zero morpheme. By implication, the contrast can be achieved by introducing another zero with the meaning of plurality. Or, possibly, we can postulate that sg. zero is replaced by the plural one.

Obviously, this theorizing, in effect a double zero morpheme, develops the binary structure principle to absurdity.

(iii) There is one more possibility to establish a contrast of zero plural, in particular, if pl. zero is contrasted with overt plural morphs /-s/, /-z/, /-tʒ/, /-ən/ rather than with the sg. form. This approach follows from the premise that zero is justified by its functional identity (synonymy) and formal contrast with other plural morphs or stem alternations. In fact, this conception is based on the **double-contrast** principle involving the contrast between sg. and pl. forms and that between synonymous formal elements expressing the meaning of plurality. This principle complies with two basic postulates set out by Bloch (1947) and Haas (1974), respectively:

- (a) one of the alternants of a given morpheme may be zero but no morpheme has zero as its only alternant;
- (b) zero itself can contrast with an overt element, never with acoustic zero.

By implication, the existence of zero is preconditioned by the existence of other elements with which it could enter into contrastive relations. These conditions seem to be correct, however, with certain reservations. The contrast of functionally synonymous means can be theoretically established without introducing a zero morpheme, in which case it would be based on the presence vs. absence of an inflectional morpheme: {-s, -z, -tʒ} – {ən} – {umlaut} – {zero morpheme} establish the same functional contrast as {-s, -z, -tʒ} – {ən} – {umlaut} – {absence of an inflectional morpheme}. Thus, this way of introducing zero does not seem to be acceptable either. It is not the contrast between functionally identical forms

which is significant. Rather we need a **contrastive relation between the basic form and other forms of the respective paradigm**. One can draw an important conclusion from these considerations: In a two-member system, in which the basic element is unmarked, zero morpheme has no justification.

Another important implication is that this issue should be treated at the **system level** of a respective grammatical category. It cannot be reduced to the subsystem level (e.g., the relations between allomorphs, or synonymous grammatical morphemes expressing the particular category). Contrast is one of the universals of language: the articulatory-acoustic contrast between phonemes, the contrast between both formal and semantic facets of signs, the contrast between naming units, the contrast between various intonations, etc. Contrast delimits mutual positions of the individual elements in the structural relations within a system. Grammatical categories are also built up on contrast: sg. vs. pl., present tense vs. past tense, positive vs. comparative/superlative, case contrasts in synthetic languages, etc. Various possibilities of expressing a grammatical meaning, plural in our example, are—in regard to the fundamental contrast—irrelevant, or secondary. For illustration, let us take phonemes. The contrast between, for example, /p/ and /b/ is primary, the relations between various allophones of /p/ and /b/, respectively, are secondary in view of the basic function of phonemes—their capacity to distinguish the meaning of words. While the contrast between sg. and pl. can be called **categorial contrast** (the category of number) the relations between the individual synonymous morphemes within one and the same category can be labeled as **allocategorial contrast**. It follows from the previous account that the latter is not relevant for our purpose.

To summarise, phantom iconicity introduced through a zero morpheme has no justification in a binary system the basic form of which is unmarked. This is the case of generative approach to word-formation. As soon as a theory of word-formation is proposed which does away with the binary structure the reasons for postulating zero-morpheme, and—consequently, for introducing the phantom iconicity—disappear.

15. Advantages of the Onomasiological Theory

The advantages of the proposed onomasiological method of research into word-formation can be briefly summarised as follows:

- (1) Word-formation is given the status of an independent, full-fledged component characterised by its independent field of activity and specific rules of operation. It is treated on a par with other language system components; i.e., with syntax, inflection, and phonology.
- (2) The method dispenses with the traditional word-formation processes (prefixation, suffixation, compounding, conversion, back-formation, and blending) by putting the generation of all naming units on a uniform basis. This makes it possible to avoid a number of serious problems connected with various versions of the Level Ordering Hypothesis (Siegel 1979, Kiparsky 1982a, 1982b, 1983, 1985, Mohanan 1982, Kaisse / Shaw 1985, etc.).
- (3) Morpheme is uniformly and consistently treated as a bilateral unit, as opposed to some other approaches in which it is an ambiguous unit of language: sometimes a pure form, sometimes a meaningful unit. This fact allows me to maintain the hierarchical structure of

linguistic planes, with smaller units representing building blocks out of which higher level units are formed.

(4) The theory refers to the pragmatic naming needs of a speech community within the theory of word-formation itself, which makes it possible to do without the principle of overgenerating morphology, and its related notions, like possible naming units, lexical gap, etc.

(5) Word-Formation Rules (called Word-Formation Types here) are—unlike the previous linguistic tradition—considered to be as productive as the rules of syntax and inflection. They are regular and predictable.

(6) Computation of word-formation productivity is not limited to affixation; it allows for relating various Word-Formation Types of any structural composition.

(7) The theory is not bound by the Binary Branching Hypothesis.

(8) The theory offers a new explanation of the so-called “exocentric compounds”, bracketing paradoxes, and other issues of word-formation.

I am far from pretending that the theory outlined here is a panacea for all the problems that have emerged in word-formation since 1960. Rather, the onomasiological theory should be envisaged as a viable alternative to the prevailing mainstream generative theories. Moreover, I hope that this article will give rise to a fruitful discussion regarding various aspects of onomasiological theory, because discussion remains the main driving force in any field of research.

Pavol Štekauer
ul. 17. novembra 1
Katedra anglistiky a amerikanistiky
Prešovská Univerzita
08116 Prešov, Slovakia
stekpal@unipo.sk

References (and further reading)

- Allen, Margaret (1979), *Morphological Investigations*, University of Connecticut, Connecticut: Storrs.
- Anderson, Stephen R. (1982), “Where’s Morphology?”, *Linguistic Inquiry* 13: 571-612.
- Anderson, Stephen R. (1992), *A-morphous morphology*, Cambridge: Cambridge University Press.
- Anderson, Stephen R. (1993), “Morphological Theory”, in: Newmeyer, F.J. (ed.), *Linguistics: The Cambridge Survey, Vol. 1: Linguistic Theory: Foundations*, Cambridge: Cambridge University Press; p. 146-191.
- Arnol’d, Irina V. (1966), *Leksikologija sovremennogo anglijskogo jazyka*, Moskva-Leningrad: Prosveščeniye.
- Aronoff, Mark (1976), *Word Formation in Generative Grammar*, [Linguistic Inquiry Monograph 1], Cambridge (Mass.): MIT.

- Bauer, Laurie (1979), "Against word-based morphology", *Linguistic Inquiry* 10: 508-509.
- Bauer, Laurie (1983), *English Word-formation*, Cambridge: Cambridge University Press.
- Bauer, Laurie (1990), "Be-heading the Word", *Journal of Linguistics* 26: 1-31.
- Beard, Robert (1987a), "Morpheme Order in a Lexeme/Morpheme Based Morphology", *Lingua* 72: 1-44.
- Beard, Robert (1987b), "Lexical Stock Expansion", in: Gussmann, E. (ed.), *Rules and the Lexicon: Studies in Word Formation*, Lublin: Catholic University Press; p. 24.
- Beard, Robert (1988), "On the Separation of Derivation from Morphology: Toward a Lexeme/Morpheme-Based Morphology", *Quaderni di Semantica* 9,1: 3-59.
- Beard, Robert (1995), *Lexeme-Morpheme Base Morphology*, New York: State University of New York Press.
- Bloch, Bernard (1947), "English Verb Inflection", *Language* 23: 399-418
- Botha, Rudolf P. (1984), *Morphological Mechanisms*, Oxford: Pergamon Press.
- Brekle, Herbert E. (1970), *Generative Satzsemantik und transformationelle Syntax im System der englischen Nominalkomposition*, München: Fink.
- Brekle, Herbert E. / Kastovsky, Dieter (eds) (1977), *Perspektiven der Wortbildungsforschung*, Bonn: Bouvier Verlag Herbert Grundmann.
- Bresnan, Joan W. (ed.) (1982), *The Mental Representation of Grammatical Relations*, Cambridge (Mass.): MIT.
- Bybee, Joan L. (1985), *Morphology: A Study of the Relation between Meaning and Form*, Amsterdam / Philadelphia: Benjamins.
- Carroll, John M. / Tanenhaus, Michael K. (1975), "Prolegomena to a Functional Theory of Word-Formation", in: *Papers from the parasession on functionalism*, Chicago: Chicago Linguistic Society; p. 47-62.
- Carstairs-McCarthy, Andrew (1992), *Current Morphology*, London / New York: Routledge.
- Chomsky, Noam (1970), "Remarks on Nominalization", in: Jacobs, R. / Rosenbaum, P. (eds.), *Readings in English Transformational Grammar*, Waltham (Mass.): Ginn; p. 184-221.
- Chomsky, Noam / Halle, Morris (1968), *The Sound Pattern of English*, New York: Harper & Row.
- Clark, Eve V. / Clark, Herbert H. (1979), "When Nouns Surface as Verbs", *Language* 55,4: 767-811.
- Di Sciullo, Anna M. / Williams, Edwin (1987), *On the Definition of Word*, Cambridge (Mass.): MIT.
- Dokulil, Miloš (1962), *Tvoření slov v češtině I. Teorie odvozování slov*, Praha: ČAV.
- Dokulil, Miloš (1966), "Zum wechselseitigen Verhältnis zwischen Wortbildung und Syntax", *Travaux linguistiques de Prague* 1: 215-224.
- Dokulil, Miloš (1968), "Zur Frage der Konversion und verwandter Wortbildungsvorgänge und -beziehungen", *Travaux linguistiques de Prague* 3: 215-239.
- Don, Jan (1993), *Morphological Conversion*, [OTS Dissertation Series], Utrecht: Research Institute for Language and Speech.
- Dressler, Wolfgang U. (1977), "Elements of a Polycentric Theory of Word Formation", *Wiener Linguistische Gazette* 15: 13-32.

- Dressler, Wolfgang U. (1981), "On Word Formation in Natural Morphology", *Wiener Linguistische Gazette* 26: 3-33.
- Dressler, Wolfgang U. (1982), "On Word Formation in Natural Morphology", in: *PICL* 13: 172-182.
- Dressler, Wolfgang U. et al. (eds.) (1987), *Leitmotifs in Natural Morphology*, Amsterdam / Philadelphia: Benjamins.
- Evaraert, Martin; Evers, Arnold; Huybregts, Riny and Trommelen, Mieke (eds.) (1988), *Morphology and Modularity*, Dordrecht: Foris.
- Guerssel, Mohand (1983), "A Lexical Approach to Word Formation in English", *Linguistic Analysis* 12: 183-243.
- Haas, W. (1974), "Zero in Linguistic Description", in: *Studies in Linguistic Analysis. Special Volume of the Philological Society*, 33-54. Oxford: Basil Blackwell.
- Halle, Morris (1973), "Prolegomena to a Theory of Word Formation", *Linguistic Inquiry* 4,1: 3-16.
- Hansen, Barbara et al. (1982), *Englische Lexikologie. Einführung in Wortbildung und lexikalische Semantik*, Leipzig: VEB Verlag Enzyklopädie.
- Hockett, Charles F. (1958), *A Course in Modern Linguistics*, New York: Macmillan.
- Hohenhaus, Peter (1998), "Non-Lexicalizability As a Characteristic Feature of Nonce Word-Formation in English and German", *Lexicology* 4,2: 237-280.
- Horecký, Ján (1960), "Vzt'ah pojmu a termínu", *Jazykovedný časopis* 11: 97-102.
- Horecký, Ján (1962), "K definícii morfémy", *Slavica Pragensia* 4: 145-149.
- Horecký, Ján (1983), *Vývin a teória jazyka*, Bratislava: SPN.
- Horecký, Ján et al. (1989), *Dynamika slovnej zásoby súčasnej slovenčiny*, Bratislava: SAV.
- Horecký, Ján (1994), *Semantics of Derived Words*, Prešov: Univ.
- Jackendoff, Ray S. (1975), "Morphological and Semantic Regularities in the Lexicon", *Language* 51: 639-671.
- Jensen, John T. (1990), *Morphology. Word Structure in Generative Grammar*, Amsterdam / Philadelphia: Benjamins.
- Kaisse, Ellen and Shaw, Patricia (1985), "On the theory of lexical phonology", *Phonology Yearbook* 2: 1-30.
- Kastovsky, Dieter (1969), "Wortbildung und Nullmorphem", *Linguistische Berichte* 2: 1-13.
- Kastovsky, Dieter (1977), "Word-formation, or: At the Crossroads of Morphology, Syntax, Semantics, and the Lexicon", *Folia Linguistica* 10: 1-33.
- Kastovsky, Dieter (1982), *Wortbildung und Semantik*, Düsseldorf: Francke/Bagel.
- Kastovsky, Dieter (1995a), "Wortbildungssemantik: Ein historischer Lagebericht", in: Hoinkes, U. (ed.), *Panorama der Lexikalischen Semantik. Thematische Festschrift aus Anlaß des 60. Geburtstags von Horst Geckeler*, Tübingen: Narr; p. 385-398.
- Kastovsky, Dieter (1995b), "The Syntactic Aspects of Word-Formation: Where Are We Today?", in: Melchers, G. / Warren, B. (eds.), *Studies in Anglistics*, [Acta Universitatis Stockolmiensis 85], Stockholm: Univ.; p. 157-169.

- Kiparsky, Paul (1982a), "Lexical Morphology and Phonology". in: *Linguistics in the Morning Calm*, Seoul: Hanshin.
- Kiparsky, Paul (1982b), "From Cyclic Phonology to Lexical Phonology", in: van der Hulst, H. / Smith, N. (eds.), *The Structure of Phonological Representations, Part I*, Dordrecht: Foris; p. 131-175.
- Kiparsky, Paul (1983), "Word Formation and the Lexicon", in: Ingemann, F. (ed.), *Proceedings of the 1982 Mid-America Linguistics Conference*, Lawrence: University of Kansas; p. 3-22.
- Kiparsky, Paul (1985), "Some consequences of Lexical Phonology", *Phonology Yearbook* 2: 85-136.
- Langacker. Ronald W. (1988a), "An Overview of Cognitive Grammar", in: Rudzka-Ostyn, Barbare (ed.), *Topics in Cognitive Linguistics. Current Issues in Linguistic Theory 50*, Amsterdam / Philadelphia: Benjamins; p. 3-48.
- Langacker. Ronald W. (1988b), "A View of Linguistic Semantics", in: Rudzka-Ostyn, Barbara (ed.), *Topics in Cognitive Linguistics. Current Issues in Linguistic Theory 50*, Amsterdam / Philadelphia: Benjamins; 49-69.
- Lees, Robert B. (1960), *The Grammar of English Nominalizations*, Bloomington (Indiana): Indiana University Press.
- Lees, Robert. B. (1966), "On a Transformational Analysis of Compounds: A Reply to Hans Marchand", *Indogermanische Forschungen* 71: 1-13.
- Lees, Robert. B. (1970), "Problems in the Grammatical Analysis of English Nominal Compounds", in: Bierwisch, Manfred / Heidolph, K. E. *Progress in Linguistics*, The Hague: Mouton; p. 174-186.
- Lieber, Rochelle (1981), *On the Organization of the Lexicon*, Bloomington: IULC.
- Lieber, Rochelle (1983), "Argument Linking and Compounding in English", *Linguistic Inquiry* 14: 251-86.
- Lieber, Rochelle (1992), *Deconstructing Morphology. Word formation in Syntactic Theory*, Chicago: The University of Chicago Press.
- Ljung, Magnus (1977), "Problems in the Derivation of Instrumental Verbs", in: Brekle Herbert E. / Kastovsky Dieter (eds.), *Perspektiven der Wortbildungs-forschung*, Bonn: Bouvier Verlag Herbert Grundmann; p. 165-179.
- Marchand, Hans (1955), "Synchronic Analysis and Word-formation", *Cahiers Ferdinand de Saussure* 13: 7-18.
- Marchand, Hans (1960), *The Categories and Types of Present-Day English Word-Formation*. Wiesbaden: Harrassowitz.
- Marchand, Hans (1963a), "On a Question of Contrary Analysis with Derivationally Connected But Morphologically Uncharacterized Words", *English Studies* 44,3: 176-187.
- Marchand, Hans (1963b), "On Content as a Criterion of Derivational Relationship with Backderived Words", *Indogermanische Forschungen* 68: 170-175.
- Marchand, Hans (1964), "A Set of Criteria for the Establishing of Derivational Relationship between Words Unmarked by Derivational Morphemes", *Indogermanische Forschungen* 69: 10-19.
- Marchand, Hans (1965a), "The Analysis of Verbal Nexus Substantives", *Indogermanische Forschungen* 70: 51-71.
- Marchand, Hans (1965b), "On the Analysis of Substantive Compounds and Suffixal Derivatives not Containing a Verbal Element", *Indogermanische Forschungen* 70: 117-145.

- Marchand, Hans (1969), *The Categories and Types of Present-Day English Word-Formation*, 2nd revised edition. München: C. H. Beck.
- Marchand, Hans (1974), *Studies in Syntax and Word-Formation*, edited by D. Kastovsky. München: Fink.
- Mathesius, Vilém (1975), *A Functional Analysis of Present Day English*, The Hague: Mouton.
- Mayerthaler, Willi (1977), *Studien zur theoretischen und französischen Morphologie*, Tübingen: Niemeyer.
- Mayerthaler, Willi (1981), *Morphologische Natürlichkeit*, Wiesbaden: Athenäum.
- Mohanan, Karuvannur P. (1982), *Lexical Phonology*, Diss. Bloomington.
- Newmeyer, Frederick (ed.) (1988), *Linguistics: The Cambridge Survey, Vol. 1: Linguistic Theory: Foundations*, Cambridge: Cambridge University Press.
- Nida, Eugene A. (1948), "The Identification of Morphemes", *Language* 24: 414-441.
- Pennanen, Esko V. (1966), *Contributions to the Study of Back-formation in English*, [Acta Academiae Socialis ser. A 4], Tampere: Yhteiskunnallinen korkeakoulu.
- Pennanen, Esko V. (1971), *Conversion and Zero-Derivation in English*, [Acta Universitatis Tamperensis ser. A 40], Tampere: Univ.
- Pennanen, Esko V. (1972), "Current Views of Word-formation", *Neuphilologische Mitteilungen* 73: 292-308.
- Pesetsky, David (1985), "Morphology and Logical Form", *Linguistic Inquiry* 16: 193-246.
- Roeper, Thomas (1988), "Compound Syntax and Head Movement", *Yearbook of Morphology* 1: 187-228.
- Roeper, Thomas and Siegel, Muffy. E. A (1978), "A Lexical Transformation for Verbal Compounds", *Linguistic Inquiry* 9: 199-260.
- de Saussure, Ferdinand (1989), *Kurs obecné lingvistiky*, Praha: Odeon.
- Scalise, Sergio (1984), *Generative Morphology*, Dordrecht: Foris.
- Selkirk, Elisabeth O. (1986), *The Syntax of Words*, 3rd printing, Cambridge (Mass.): MIT.
- Siegel, Dorothy (1979), *Topics in English Morphology*, New York: Garland.
- Spencer, Andrew (1991), *Morphological Theory*, Oxford: Blackwell.
- Sproat, Richard W. (1988), "Bracketing Paradoxes, Cliticization and Other Topics: The Mapping between Syntactic and Phonological Structure", in: Everaert 1988: 339 - 360.
- Štekauer, Pavol (1992), "On Some Issues of Zero Morpheme in English", *Linguistica Pragensia* 2: 73-87.
- Štekauer, Pavol (1994a), "On Productivity in Word-Formation", *Linguistica Pragensia* 4: 67-82.
- Štekauer, Pavol (1994b), "Hapax Legomena and Word-Formation", *ASA Journal* 1: 6-9.
- Štekauer, Pavol (1996), *A Theory of Conversion in English*, Frankfurt am Main: Peter Lang.
- Štekauer, Pavol (1998), *An Onomasiological Theory of Word-Formation in English*, Amsterdam / Philadelphia: Benjamins.
- Štekauer, Pavol (in print), "Beheading the Word? Please, Stop the Execution", *Folia Linguistica*.
- Štekauer, Pavol (manuscript), "On the Theory of Nonce-Formations".

- Štekauer, Pavol et al. (1997), "Getting Beyond the Rules of Language", *Acta Facultatis Philosophicae Universitatis Safarikanae* 83], Prešov: Univ.
- Strauss, Stephen L. (1982), *Lexicalist Phonology of English and German*, Dordrecht: Foris Publications.
- Williams, Edwin (1981a), "On the Notions 'Lexically Related' and 'Head of a Word'", *Linguistic Inquiry* 12: 245-274.
- Williams, Edwin (1981b), "Argument Structure and Morphology", *Linguistic Review* 1: 81-114.
- Zimmer, Karl E. (1964), *Affixal Negation in English and Other Languages: An Investigation of Restricted Productivity*, [Word Supplement Monograph 5], New York: Linguistic Circle.
- Zwicky, Arnold (1985), "Heads", *Journal of Linguistics* 21: 1-20.

first version received 25 November 2000
revised version received 26 March 2001