An integrated theory of word-formation and word-interpretation. Research into sociolinguistic and psycholinguistic factors of formation and interpretation of novel complex words[1]

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The paper outlines the fundamental methodological principles of a research project that, as the first one, interrelates research into the formation and meaning predictability of novel complex words. Furthermore, it lays emphasis on selected psycholinguistic and sociolinguistic factors that condition both of these facets of novel complex words.

Keywords: *word-formation, meaning predictability, psycholinguistic factors, sociolinguistic factors, integrated theory of word-formation and meaning predictability*

1. Theoretical background

Research into word-*formation* and word-*interpretation* (meaning predictability) have unequal histories. Both of these areas have been intensively explored within various theoretical approaches. While word-formation concentrates on the examination of **productive** word-formation rules (no matter how this term is understood within different theoretical frameworks) based on which new complex words are formed, word-interpretation aims to reveal the mechanisms of understanding and/or predicting the meaning of new complex words. This indicates close interrelationship between these two areas of research, i.e., the formation and the interpretation of novel complex words. Unfortunately, the situation is not that simple and the relationship is not so straightforward as one might expect at first sight. The reason consists in the fact that there are a number of factors influencing and conditioning both the formation and the interpretation of complex words.

While productivity is one of the key terms in any approach to word-formation, its accounts vary. Moreover, the mainstream theories of word-formation mostly confine themselves to **formal** aspects of productivity and of constraints on productivity. While Bauer (2001) and Plag (1999), for example, indicate the relevance of some factors other than purely linguistic ones no in-depth research has been implemented in this field within the mainstream derivational morphology. On the other hand, members of the onomasiological school recently contributed to the investigation of this more or less untilled area in Štekauer et al. (2005), Körtvélyessy (2010), Körtvélyessy and Štekauer (2014), and Körtvélyessy, Štekauer, Zimmermann (2015) where they made first steps to the evaluation of the influence of sociolinguistic factors (age, education, profession, language background in bilinguals) upon the preferred **word-formation strategies** of language speakers. These works demonstrate that a strictly language-internal approach to word-formation cannot provide an objective account of the productivity of word-formation rules and that additional factors play their important

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role in the way a coiner forms a new complex word. This is captured in the **Creativity within the Productivity Constraints** principle (Štekauer 2005b) that provides relevant space for capturing the role of an individual speaker as a coiner of novel complex words in reflecting the naming needs of a speech community, and for taking into account all of the afore-mentioned sociolinguistic factors.

As indicated above, the relationship between word-*formation* and word-*interpretation* (meaning predictability) is close but not straightforward. These two areas are related by the concept of a new complex word and the cognitive reflection of extra-linguistic reality determining its formation and interpretation.

On the other hand, there are at least two crucial reasons preventing productivity of word-formation rules from becoming the only factor that determined the formation and the meaning predictability of new complex words. First, while word-formation productivity is the matter of the **speaker/writer**, meaning predictability bears on the **listener/reader**. While the former coins a new complex word with a **single** and **definite** meaning in mind on the basis of cognitive reflection of a specific class of objects to be named, the number of possible combinations resulting from the semantic compatibility of the motivating morphemes (word-formation bases and affixes) available to the latter, abounds in the majority of cases.

The second reason concerns the crucial difference that any treatment of the productivity-predictability relation must take into account. While productivity pertains to **generalized** word-formation rules based on which new complex words are formed meaning predictability concerns potential meanings of **individual** complex words.

By implication, while productivity is about the **general**, predictability is about the **individual**. In other words, this relation exemplifies the classical philosophical dichotomy of the universal and the particular.

In spite of these circumstances, the role of productivity in the meaning-prediction process cannot be disregarded. On the one hand, its role follows from the above-mentioned principle of *Creativity within Productivity Constraints* that suggests that even if the process of word-formation is significantly creative in the sense that coiners of new complex words can usually choose from several word-formation options (strategies) these options do not cross the boundaries of productive rules of word-formation. On the other hand, the publications mentioned above demonstrate that (a) word-formation strategies preferred by different sociolinguistically determined groups of language speakers precondition the easiness/difficulty with which the meaning of a new complex word is interpreted/predicted, and (b) that the selection of a particular word-formation strategy can have either meaning-predictability-boosting or meaning-predictability-reducing effects (Štekauer 2005a)

It is for the reason of interrelatedness of these two aspects of complex words, i.e., their formation and their meaning predictability that underlie a new project which aims to examine both the formation and the predictability of meaning of novel complex words with regard to a selected **sociolinguistic factor** (**age** of language speakers) and with regard to the **psycholinguistic factor** of **creative abilities** of language speakers.

This sort of psycholinguistic aspect of the formation and meaning predictability of novel complex words **has not yet been studied** either in word-*formation* or in word-*interpretation*, not to speak of its **comprehensive analysis** in an **integrated formation-interpretation** research project.

In fact, systematic research into the interpretation of novel complex words started a few decades ago. It was implemented along two lines, in particular, by morphologists (e.g. Allen 1978, Lees 1970, Levi 1978, Zimmer 1971) and, primarily, by psycholinguists (Libben to appear, Gagne and Spalding 2014, and many others). The major focus has been on the interpretation of Noun+Noun compounds. This is quite obvious because the absence of any morphological representation of the semantic category relating two concepts that underlie a new compound word (new conceptual combination, to use the psycholinguistic term) projects itself on the multiplicity of potential interpretations of a new complex word and the uncertainty of a listener/reader in interpreting such a word. A new pioneering approach to the problem in question was introduced by Štekauer (2005a) with his **theory of meaning predictability** which was innovative in two respects.

First, instead of accounting for the interpretation of the postulated meaning of a novel Noun+Noun compound, the concept of meaning predictability deals with the question of which of the (usually) multiple possible readings of a new complex word, always coined (obviously) with one specific meaning in the coiner's mind, becomes the best candidate for the interpretation of that complex word from the listener's/reader's point of view. Put differently, it aims to answer the question which of the number of the possible readings of such a complex word comes most readily to the interpreter's mind as the most acceptable one. Meaning predictability is therefore defined in relation to all the possible meanings of a new complex word, in particular, as the **degree of probability** that a particular meaning of a naming unit, encountered for the first time by a language user, will be picked up in preference to other possible meanings of that naming unit.

Second, unlike previous works in the field of meaning interpretation Štekauer's conception ranges over all types of complex words (all types of compounds, derived words and converted words). Crucially, although not investigated in depth, Körtvélyessy (2010) and Körtvélyessy and Štekauer (2014) emphasize the idea that – analogically to the closely interrelated field of word-formation, meaning predictability also depends on various **sociolinguistic factors** like age, education, profession, language background (bilinguals) and also, potentially, on **psycholinguistic factors**. While there have been obtained the first results confirming the influence of the above-mentioned sociolinguistic factors on the formation of new complex words (Körtvélyessy 2010, Štekauer et al. 2005) **no research** has ever been done in the field of the dependence of meaning predictability of novel complex words upon either of these factors. Therefore, the proposed project is viewed as a challenge to pave the way to investigation in this *terra incognita*.

Methodological principles

The proposed research project is a truly interdisciplinary one, combining research methods of linguistics, sociolinguistics and psychology. From the psycholinguistic point of view, cooperation with a professional psychologist makes it possible to divide our respondents into cohorts representing different types of creative personality by means of an appropriate psychological test, in particular, the Torrence creativity test. From the linguistic point of view, the method of meaning predictability computation as introduced in Štekauer (2005a) will be employed.

The research project is based on the following methodological principles:
(i)   Six cohorts of respondents, each of them counting 50 respondents.

The basic division will be that into two different age groups, a group of students attending the first year of a secondary comprehensive school and a group of students attending the MA level of university education.

Both of these two groups will be subdivided into three partial cohorts on the basis of a psychological test evaluating the level of creative abilities.

This will make it possible to determine whether / to what extent there are differences among

- speakers of a different age (sociolinguistic aspect of research)
- speakers of different creative abilities (psycholinguistic aspect of research).

(ii) All the respondents will be tested and evaluated for both the formation and meaning predictability of potential complex words by the methods proposed and used for the former research projects. In particular, the formation experiment will include three sets of tasks of giving names to Agents based on a multiple choice and on drawings of persons in specific situations (Štekauer et al. 2005, Körtvélyessy, Štekauer and Zimmermann 2015).

The meaning predictability experiment will include 20 potential complex words. In a time-controlled experiment, the respondents will be asked to propose as many meanings for the first 10 of them as they can think of, and to rate their level of meaning predictability on a scale from 10 to 1. The meaning predictability of the individual potential complex words will be determined by computing the **Objectified Meaning Predictability Rate** (Štekauer 2005). In the subsequent association experiment, the respondents will be asked to propose, for another group of ten potential complex words, one particular meaning that comes to their mind as the first one. The results of both partial experiments will be compared and evaluated for each of the cohorts.

3. Project objectives

The project pursues the following major objectives:
- (i) to evaluate the (extent of) the influence of the type of a language speaker's personality (the creativity factor) upon the **formation** of novel complex words.
- (ii) to evaluate whether this influence changes with the **age** of language speakers.
- (iii) to evaluate the (extent of) the influence of the type of a language speaker's personality (the creativity factor) upon the **meaning predictability** of novel complex words.
- (iv) to evaluate whether this influence changes with the **age** of language speakers.
- (v) to evaluate potential **correlations** between word-formation and meaning interpretation in terms of age and psychological types.

As emphasized above, the proposed research project is unique in pursuing the objective of an **integrated theory** of word-formation and word-interpretation which reflects relevant sociolinguistic and psycholinguistic factors.

4. Project conception

The research is based on the former theoretical and experimental achievements of the principle investigator and the members of the research team, in particular:

- onomasiological theory of word-formation, in particular, the **Principle of Creativity within Productivity Constraints** and the **Morpheme-to-Seme-Assignment Principle** (Štekauer 1998, 2005b)
- onomasiological theory of meaning predictability (Štekauer 2005a)
- research into sociolinguistic factors in word-formation (Štekauer et al. 2005, Körtvélyessy 2010, Körtvélyessy and Štekauer (2014), and Körtvélyessy, Štekauer, Zimmermann (2015)
- the achievements of psycholinguistic research into the interpretation of Noun+Noun compounds, primarily, the findings of Libben (to appear), Gagne and Spalding (2014) and many others.

5. Significance

The research hypotheses draw on the preliminary results arrived at in research into the interdependence of word-*formation* and word-*interpretation* strategies (Körtvélyessy, Štekauer and Zimmermann, 2015) and the results obtained within our research into sociolinguistic factors in word-formation that suggest that different age groups of language speakers prefer different naming strategies.

By implication, the hypotheses of the proposed research project are as follows:
(i) There are differences in word-formation strategies among different age groups
(ii) There are differences in word-formation strategies among different creative-ability cohorts of language speakers.
(iii) There are differences in the prediction of meaning of novel complex words among different age groups
(iv) There are differences in the prediction of meaning of novel complex words among different creative-ability cohorts of language speakers.
(v) There are correlations between the individual cohorts of language speakers in terms of word-formation and meaning predictability.

6. Conclusions

An integrated theory of word-formation and word interpretation / meaning predictability is a challenge for the coming years for all those who try to better understand their interrelationship. The integration of linguistic, sociolinguistic, and psycholinguistic factors into a comprehensive integrated theory is an even more demanding task. Nevertheless, no progress in discovering the complexity of factors affecting the working of such a complex system as human language is easy. I believe that the implementation of the project outlined above will be an impetus for this direction of research unifying the efforts of morphologists, sociolinguists and psycholinguists.

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