A comprehensive cognitive-perceptual model of analysis for contextually determined components of a conceptualized term

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Abstract. The authors analyze major features of complex multidisciplinary analysis models of the recipient’s perceptual capacity related to desobjectifying contextually determined transdisciplinary borrowing of newly emerging components within a semantic hierarchy. Critical analysis and comparison are applied to some alternative approaches in linguistic studies of transdisciplinary terminologization. There is a role revealed, which belongs to the cognitive-perceptual aspect in the respective knowledge field. The comprehensive phenomenon of component transgression within the meaning hierarchy is viewed from different angles: metaphoric and metonymic explication, and from the stance of conceptual integration of mental spaces and grammatical constructions of implicit meaning generation. The semantic foundations of the frame & semantic model of the borrowing theory serve a prototype of a comprehensive analytical model relevant not only in Linguistics, yet in other humanities (Literature, Psychology, Sociology). The comprehensive method of bottom-up analysis in studying explication of contextually determined overtones (forced reinterpretation of terms and terminoids) implies desobjectification of the semantic hierarchy at several levels. The analysis suggests that standard linguistic mechanisms can be employed through deautomation in the said cognitive modeling function. Reactivating a prototypical mental image within a new reflexive space is viewed as the most effective way of explicating the respective components.

1 Introduction

This study represents an attempt to analyze the major cognitive models of explicating contextually determined components within the hierarchy of a meaning conceptualized in various knowledge fields of terms, in the context of transdisciplinary borrowings, as well as to consider the recipient’s perceptual capacity to desobjectify these components of the hierarchy. The progress, which we can observe in this rather new field of study is due to two factors, which are rather different, namely, certain cognitively and linguistically oriented approaches imply reliance on the prevailing frame-oriented theories behind the

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explication of contextual elements [1]. It is to be born in mind that the frequent issue of unjustified schematization and formalization, which will often arise when dealing with such models – although the very original concept of a frame structure does not imply any rigid or static arrangement, yet offers ground for dynamic changes and so-called migration of peripheral components to the core area – still most researchers who prefer to stick to this approach, will invariably get deep into the creation of clear algorithms for the intimatization process. These studies will turn quite strong and will feature quite a wide range of explanatory properties when coupled with the general theory of the meaning actualization and alternative cognitive-perceptual ways of desobjectifying context-bound components within the semantic hierarchy. Our comprehensive model stands only as a test case used to explain semantic phenomena and the potential of desobjectifying the noematic hierarchy of elements that are newly introduced in a semantic construction when transposing terms into another subject area. However, it can also prove applicable as an argumentative evidence to theories, which are of purely linguocognitive nature [2]. In fact, the argumentative stage of definitive analysis is what involves the consideration of the apperceptive aspects of secondary distribution within the horizontal context of a particular research work, i.e., arriving at the third level of abstraction in the “connotosis” situation (this means the creation of additional semantic elements that are often not to be seen in the original term’s structure), as well as their further consolidation through frequent use – conceptualization. This current research, therefore, is never aimed at offering criticism to the respective existing studies but rather is meant to identify linguocognitive variative means to product new derivational models in productive way, it could be idioms, metaphors, some transformation in inner structure, integration of conceptual fields, etc. within it’s specific context. In contrast to the general field of linguistic research into transdisciplinary borrowing, the relatively young linguocognitive method offers much wider opportunities for further analysis.

Note to be made that Rachel Giora [3] and Seana Coulson [2] made significant contributions to the progress of mental process frame modeling, along with the creation of linguocognitive foundations for studying the transposition of semantic hierarchy newly introduced overtones into the nuclear sphere of the meaning. These studies, though, focused mainly on interiorization of psycho-emotional overtones, which do not just feature some contextual characteristics, yet, above all, actualize the author’s individual vision never taking into consideration the addressable focus. This suggests that it is basically impossible for the recipient to desobjectify the meaning that was planted by the author who shaped the conceptualized terminological unit.

R. Giora, for instance, mentioned the basic requirements for the informative indicators semantic content. She also designed an optimal advanced hypothesis, which, in our works, was in the basis of optimal interpretative expectation principle. This principle states a stereotyped perception of the familiar, even due to some external (phonographic) parameters of the term, and excludes any possible intentional creation in the recipient’s mind of so-called “semantic wells”, which can offer as a basis for creative desobjectification of the semantic structure.

Salvatore Attardo’s researches of contextual meaning derivation within usual utterance, which belong both to lexical semantics and discourse, and to Psycholinguistics, have influenced strongly the linguocognitive approach in the part related to analyzing connotative formant explication within emotive, not cognitive-oriented, utterances [4]. It is important, though, to note that the authors in question followed the formal-structural approach, while they abandoned the cognitive & linguistic paradigm. The analysis was performed based on certain selected language units alone, which means it does not include the grounds for conceptualizing the information & knowledge continuum within a separate influence of a certain sphere.
The major requirements for ensuring informativeness actualize the effect of cognitive modification of the meaning from the stance of the text informational structure [5]. The optimal innovative hypothesis still fails to offer proper analysis of the cognitive mechanisms, which are used for semantic aspects objectifying and desobjectifying. However, there is quite a wide range of research opportunities because it outs forth the requirements for the recipient to obtain “acting schemes” to produce newer semantic hierarchy component. These elements, in turn, can be activated by stimuli – either verbal or nonverbal.

Here, the authors will make an attempt of going beyond just linguistic and cognitive examination of generative features of the meaning new components. We will also try to identify some special ways to launch proper interpretative expectations, and define the principles of cognitive processing of the meaning-filled and innovative optimal stimuli within the explication of noems (peripheral and linguocultural foundations) based on separate methodologies of the theories and components we mentioned above.

2 Materials and methods

Based on the sequence of steps pertaining to the hermeneutic & noematic method, we viewed the information value principle as a potential for the desobjectifying contextual components of the meaning of the transposed term, based on semantic ambiguity, i.e., on the meaning amphiboly transformation, which implies an intentional ambiguous multidimensional interpretation, adjacent or totally identical quanta of meaning both in the major noem-dominants’ spot, as well as in whole, and in some ways – opposite piece of meaning within the metaunit structure fields, which include more than just one level (units implying the presence of peripheral noems or noems-linguocultural-bases) [6]. In terms of labeling, the least amphibolic ones are the unnamed components of this hierarchy. This said, they are loaded with informativeness in terms of explicating connotative components pertaining to cognitive information, i.e., they are prototypical. And it is they that offer the most acceptable representation of the entire set. They are the most accessible in the perceptual plan, and nonetheless, the number of amphibolic noems that they carry is the lowest. Elements, which are viewed as carrying the most information, which means they are at least equally accessible, equally typical, the most effective in terms of arriving at the effect of transposition and conceptualization within the receiving domain, are those elements of the hierarchy, which bear some marking in the category in question. If we consider this from the philological phenomenological hermeneutics angle, then it is easy to conclude that this offers us grounds to define the optimal interpretative expectation principle: the more of a difference we can observe in a segment of a scientific text (such segment may be represented by a lexeme, a phrase or by an utterance) from the pre-set one, the more is informatively conected with, and dependent on the cognitive & perceptual potential of the respective interpretation, as well as on the context – either horizontal or vertical. This is exactly the point or the principle, if we must call it that way, which lays the basis for identifying the requirements concerning the informativeness of contextually marked elements to be observed in a semantic unit, namely: the relevance requirements are met by the text, and cases where text breaks the requirements claiming the need for a gradual unfolding of the informational unit (the gradual informativeness demand). This means that it the end comes with a marked informative element, so the text is, actually, constructed on possible quantum transitions from one of the elements belonging to semantic hierarchy, to another, with no touching upon the argumentative base. Yet another factor to be mentioned here implies that the text contains intentionally placed there schemes of acting with it, which serve to facilitate change in the recipient’s interpretative models – the recipient has to suppress the first unmarked interpretation in favor of the marked one.
[7]. In case the first condition is met, there is an indication that the secondary interpretation is relevant to the semiosis situation of the discussion topic. Now, although the marked elements prove to be different, they still bear the potential to be compatible with the context – both horizontal and vertical. The second condition will depend on the already depicted marking of the last component within the text, i.e., the last element is seen as a marginal member of the prototypical category built earlier, which occurred prior to the generalized semantic hierarchy being desobjectified. Given that, the quantum transitions can be taken from the mental distance angle – the last marked element of the term culmination, i.e., contextual actualization is the most distant within the cognitive aspect, while bearing the lowest number of common features with the pre-set elements [8].

Within the third condition (c), the first two conditions are met as well. Following the perception model as determined by the producer, the recipient, in contrast to meaning decoding in a common routine instance of communication, suppresses the unmarked interpretation in favor of the marked one, at the same time maintaining the potential for amphiboly, which is explicated within word usage in discourses of another orientation and subject area.

3 Results and discussion

Following the ideas expressed by R. Giora and S. Coulson, the recent years have witnessed the fact that numerous experts in cognitive linguistics have special special focus on such speech phenomena perceptual aspect, which explicates context-bound meaning overtones within a new term being coined. The above mentioned new methods, actually, may be subdivided into four major spheres, which based on the research subject: level of metaphoric expression initionalisation, level of metonymic interrelation explication, the level of conceptual integration of different correlated mental spaces, and the level of grammatical constructions of implicit meaning generation. The location of these methods used for intensifying secondary desobjectification, as well as for re-encoding of elements that are of significance for a particular research school or for a particular author does not come out of nothing. Most Indo-European languages feature these mechanisms, which are presented in this sequence according to the productivity of the models. Here below we will offer a description of their hierarchy, following the order of their representation and the process of them being mastered by various language systems.

3.1 Metaphoric explication

The construction mechanism that has received the widest study in cognitive linguistics is definitely a metaphor. In contrast to this, linguistic studies of terminological transgression in related fields have rather a restricted basis on metaphorization, which is an effective cognitive mechanism. This idea may appear not as something expected since linguocognitive definitions offered for the metaphor could be called quite identical to the concept of the intersection of mental spaces and the implementation of contrasting scenarios. Models, though, which are based on the convergence of the contrasting components of the source sphere and the target sphere imply an intensification of the semantic fields displacement, getting beyond the conventional use of the terminoid in the birth of a new term. This is, actually, the paradox, which, in actualizing the non-trivial in the meaning (personal allusive element, situational similarity, phonographic intersection) generates the primary cognitive dissonance, and, respectively, a “semantic well” that the recipient will have to fill through the process of predicted meaning desobjectification and further active reading of the written work. In this sense, they take their own path of
desobjectification, however, as is inevitable under the “dictatorship” of the language system and cultural space, arrive at the meanings immanently assigned by the producent.

G. Lakoff et al. [9] explains metaphors as systematic projections between two cognitive spaces. One of these is the source whereas the other is the target sphere, through the process of cascading changes in the semantic hierarchy. Given that, for instance, within the conceptual metaphor “frame – boundary”, the concept “frame” terminologized within cognitive linguistics and discourse studies is represented by the target function of transferring the features of a specific source concept of the “sphere restriction”. A metaphoric projection manifests itself in a conceptualized similarity between these two concepts in motivational constructions (to build a frame/to draw (outline) the boundaries) [10]. The term “frame” is also overgrown with the components pertaining to the “objectification” meaning, “verbalization”, which are not specific even to the cognitive linguistics discourse, which can eliminate the original nuclear element of the “mental structure”: ... the main frame-bearers in the sentence [11]. After all, what is meant here is the material carriers, i.e., the verbal markers of the frame structure, which – in view of the conventional understanding of the term “frame” – is absolutely not typical. The implementation of a mental structure in a verbal code creates a certain “semantic well”, through filling which the recipient will create the required and proper conditions for further conceptualization of the term within the mental-verbal construction format.

Such a schematized perception in the metaphoric transplantation of contextually oriented meaning components resembles the basic frame-semantic model, where two opposite scenarios can be employed, actualized in the additional peripheral overtones explication. These may features a local connection, so the local resolution of non-compatible areas is more than just possible. The correlation of a local connection for different scenarios, then, with a mental space combination and an intersection between the metaphor’s source and target spheres is likely indeed [12].

The linguistic tradition, including some concepts of recent times, mainly has’t take in account this issue but even more – it actually misinterpreted mental spaces conversivity favoring the binary potential ambiguity pertaining to metaphoric expressions [13]. There are researchers who claim contextual biamphibolisms to be different from metaphoric conceptualization as long as the domain boundary profiling is concerned [14]. And yet, the metaphoric expression’s source sphere just like the target sphere of the metaphoric projection, blend while creating something single, and thus the domain’s boundaries get unclear and blurred, and the two scenarios get matched within the metaphoric explication of the contextual component in the interdisciplinary transplantation of the term.

Following the optimal interpretative principle, we can view numerous examples featuring verbal implementation of the context-bound element within the initial features within semantics of rotation. Besides, notable is that the semantic rotation mechanism in individual components, just like the fundamental semantic rotation, is not limited to metaphoric conceptualization.

Such a model of explicating the cognitive contextually oriented component in case of a term transplantatin is very productive in various linguocultures while can be used as a commonly employed mechanism for creative deconstruction, that one involved in desobjectifying gestalts at different strata of the linguistic order

3.2 Metonymic explication

The cognitive approach will offer the metonymy the definition, within which is appears a conceptualization with a certain marked area residing within a domain similar to another conceptualization [15]. This suggests that metonymic explication relies on an integration including two-levels. At one level, it still remains a classic example of explication of the
contextual and of the situational, like, for instance, the transposition of an initial term into
the receiving sphere of the information & knowledge continuum. At the other level,
metonymic explication is based on broad associative links of the language expression
horizontal context.

In this sense, the borrowed term no longer stands as a representation of a closed system,
yet it assumes its constant dynamic unfolding within the context of a changing discursive
practice, i.e., this happens via the introduction of the element “chronotopicity” into the
nuclear domain, which is typical of most cognitive and discursive terms. This development
of the meaning determines the potential for the expansion of the associative arrow with
clarifying components, and for the introduction of different frames and their relationships
within the general cognitive space: **Frame-to-frame relations include composition, by
which a complex frame is shown to be decomposable as a temporal structure – often a
structured procedural sequence of simpler frames – and inheritance** [11]. In this example,
the construction that connects various mental structures sharing a **Frame-to-frame relation**
relation is the only element that is organic in its nature and does not create a “semantic
well”, while other intensifiers of non-usual meaning are represented by complex formations
combining the true reality (temporal features of the frame) with the reflexive reality
(structural complexity or simplicity of the mental construct).

There can be two main levels of metonymic explication identified, namely, metonymic
expressions processing and metonymic processing of expressions lying within the domain
of the daily language. However, in any of the cases, the point where a certain prototypical
scenario is initiated is to be found in a marked conceptualization element, which in its
functioning belongs to a completely different structure, while the latter is already employed
for designing a description to the whole situation.

The process of re-presenting metonymic explication in a new context is a concomitant
type of argumentation in creating new knowledge elements in the format of a special text.
The holistic situation of the proof within a non-usual horizontal context creates a precedent
for the dominance of “episodic memory” over “socio-cultural memory”. However, it would
be wrong to postulate an absolute leveling of the generally accepted conventionalized
informative elements within the definition of the term. On the contrary, the mechanism of
this contaminated representation is as much complicated as it can be, and not only due to
lack of adequate units in the usual term system that could accurately and unambiguously
explicate the mental images of new knowledge, yet also because it is impossible to bring
together the elements of verbalized (existing) and generated “internal” knowledge (at the
stage of the the pre-term appearance). This can be accounted for by the very dual nature of
the information-knowledge continuum, which, with no leaving the hermeneutic spiral of
constant clarification of itself, is both the source and the result of expansion, just like the
basic principle of the potential creation of new meaning components within new contexts.

This fashion text processing, which rests on metonymic explication is frequently
promoted through prototypical metonymic associations, which the recipient has available
within his/her cognitive arsenal. Metonymic associates here offer a driving force through
scenarios, which are subject to change.

Based on verbal and nonverbal types of explication, interpretation of contextually
determined conceptualized overtones can often be complicated by marked noematic
structures of metonymic references. This deautomation process ensures a balanced volume
of processing based on prototypical metonymic models within operations with noem-
culture-bases, which facilitates the perlocative predictive effect (optimal interpretative
expectation).

Metonymic explication within a relatively complex form, implies a double cause-and-
effect relationship ([there is X, which means Y], A causes B). Metonymy can be viewed as
a mechanism that is employed to expand the semantic hierarchy relying on intersections of
domains, since it can be involved any time in controlling newly emerging points of start. Highlighting these points is possible through the reflection pertaining to the third level of abstraction.

Schematically, the double reciprocal relationship within the process of metonymic explication can be depicted as follows:

![Diagram of generalized semantic hierarchy derivation by the metonymic explication.](image)

**Fig. 1.** Model of generalized semantic hierarchy derivation by the metonymic explication.

### 3.3 Mental fields and conceptual integration

Special stress is to be placed on the effect that the interpenetration of mental spaces and integral representations will reveal within the explication of contextual overtones of the meaning. Numerous experts point at the fact that studying terminologization requires a certain specific model, which would allow analyzing the conceptual structure, and this has to be carried out at various activity levels, related both to communication and reflexion [16] or mental fields [17]. If keeping in mind the expectation belonging to the most appropriate interpretation, however, we cannot exclude the fact that there is a special action scheme that corresponds to the contextual perception type and the content distribution. After that, pragmatically oriented models of the meaning deobjectification of terminologized borrowings (in statements that have an immanently present potential for a “quantum leap”), such as metaphoric expressions conceptualized as transposed terms, etc., can be created in a new mental domain, so the recipient should not be included in the repeated activity aimed at meaning generation, yet should follow the given models. The optimal interpretative expectation principle suggests that the deobjectification of context-bound components of the meaning reveal the activities performed by the mental domain, which sparks a contradiction involving the utterance pragmatic-oriented background and the perlocutive consequence. As for the producent and the recipient, they will take every effort to avoid it—a conflict between referential and semantic presuppositions.
Here we arrive at a conclusion suggesting, for instance, the prime prevalence of nuclear meaning components belonging to a marked metaphoric (or idiomatic) expression within noem-dominants reactivation, over a metonymically controlled context-related link, in view of a local amphiboly, which occurs through the metaphor’s thematic expansion. Now, given th a set of basic frames employed to design a secondary corresponding interpretation is to be translated as an amphiboly relying on an “individual definition in the world of meanings – a hierarchy of semantic structures, a relation to primarity of the noems actualized by the producent” [18] or an amphibolic metaphor. This phenomenon’s amphibic nature takes due perception of the fact that one key element can be projected on two input fields at the same time, where the fields belong to complex network integration. It is to be stressed that transgression of mental spaces, i.e., “breaking” the impenetrable boundary between two amphibolic correlates, occurs on the basis of simultaneous presence within the integral construct of both individual-author and linguistic & cultural stereotyped recipient expectations for the meaning desobjectification.

All possible stages of creating a non-conventional component while preserving displaced nuclear components as background peripheral elements, which cannot be completely leveled following the theory of interpretative expectation, i.e. the mechanism of permanent formation of quasi-terms, pre-terms and final terminologization and, respectively, a complete term system that could accentuate all the many nuances of the newly shaped author’s concept, which can be expressed as a hierarchical set: 1) awareness of some problem areas within previous theories that are not up to empirical verification; 2) search for mental images that construct new knowledge, and modeling their verbal explication; 3) defining, through reflexive verification of constructions in mental fields, specific techniques for language actualization (based on a productive or occasional derivational model); 4) introduction of action schemes with a new conceptualized component within the text space; 5) control over the specified action schemes and their verification through the term use frequency and stability of the implemented component within the respective acts of desobjectification; 6) discursive analysis of the potential within a reterminologized concept in terms shaping an associative and derivational nest with a new conceptualized conventional component.

Given this type of analysis, we believe that it would make the best option to study the semantic hierarchy desobjectification in systems that could be described as semiotically inhomogeneous.

4 Conclusions

The correlation of the perceptual (within the empirical verification of the conventionalized terminologized concept correctness limits) in case of transplanting it into an information-knowledge continuum of natural and social sciences, as well as the apperceptive (within the framework of reflexive verification) within the field of humanities research will create the required amphibic space of interaction for cognitively and contextually marked elements of the semantic hierarchy. When such a design is desobjectified, both spheres are involved automatically. Connotating of new meanings, as well as relational overtones offering a more precise understanding of the emerging concept is an organic process that accompanies the increment of the generalized semantics not only of a single term, yet within the entire utterance.

The frame-semantic model has a core embracing the concept of semantic scripts, and this is the major idea within cognitive linguistics. If analyzing the context-bound determined overtones pertaining to terminologized concepts within transdisciplinary borrowing, then there is a close link to be observed. This relates to local oppositions and the parallelism involving two semantic scripts within the implementation of the perlocutive...
effect in a specific situation of semiosis. Intuitive interpretation within a noematic shift (script switch) is ensured through the incoative premise due to the fact that the communication subjects (the producent and the receptor) can be viewed as significant part of the certain communicative act within permanent fluctuate spheres implying linguopragmatic interpretation. The explanatory power lays within agglutination of the frame-semantic algorythm with the theory of verbalization implies a script, which performs as a semantic ground that propels the implementation of the meaning’s dynamic and context-bound description. Yet, there is also one important point to mention – this analysis scheme needs the components of the hermeneutic-noematic method to be included as well, which could help resolve the dichotomous problem of the noematic hierarchy within the respective mental areas intersection.

The obtained model relies not just on investigating the language or text. It also implies need to keep in mind the sociolinguistic context along with the goal, and even semantic & cognitive factors, such as, for instance, scenario oppositions, logical mechanisms, etc. The principle on which due interpretative expectation relies, along with the stimuli analysis, which features novelty and creativity, includes variants of the conventional form, which brings the desobjectification of the transposed terms meaning to a qualitatively new level. The analysis of various phenomena pertaining to the reconstruction of contextual components within a complex model allows illustrating the analytical potential of spatial structuration. If we employ a combination of ideas residing within the field of cognitive grammar, the theory of mental spaces, the integration theory as well as the cognitive & discursive approach, this will help us detect a close interaction between information belonging to the lexical & semantic level of input and the context itself, as well as a creative fashion to construct hybrid cognitive models.

References

4. S. Attardo, Emotion in Discourse, 302, 189-211 (2019), DOI: 10.1075/pbns.302.08att


