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TYPES OF SYNONYMY IN FOOD ENGINEERING TERMINOLOGY

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Abstract: *Being one of the most important procedures of language enrichment, accepted as such in lexicology, synonymy in specialized languages and on different language levels has been considered quite a controversial matter, taking into consideration the accuracy and univocity postulates. Therefore, there are different opinions on this issue, claiming that synonymy is inadvisable because it hinders terminological unification and consequently it may lead to confusions [1]. In this respect, the phenomenon of synonymy goes against the need of brachylogy (accurate and precise locution), leading to erroneous interpretations of the message conveyed. A contrary opinion is expressed by S. Marcus who claims that for each locution there is infinity of phrases with identical signification in the scientific language: the scientific locution is closed, namely it is independent of its receiver [2].*
The aim of this paper is to emphasize that synonymy occurs even in the most unexpected activity fields, wherein the accuracy postulate is widely acknowledged, for example in food engineering discourse. Thus, the main types of synonymy functioning in food engineering terminology are identified and their etymological sources are explained and illlustrated as well.

Key words*: lexical synonymy, contextual analysis, food terminology, accuracy postulate.*

1. Introduction

Language is a system of signs organized on different levels, system that offers functional patterns, possibilities and oppositions to the speaker, out of which he can "choose" whatever he considers as being necessary and adequate to express - on a certain moment and in a given language – his ideas [3].Ch Bally states that the plurality of locution means is the rational basis of synonymy [4]. But the selection of a term is not specific to a single level of language only, since this one may be conceived as a system involving interdependence relationships between its compartments. Synonymy issue as a lexical phenomenon has been studied since Antiquity, but at present it is being dealt with from different perspectives: morphologically, phonetically, phraseologically and syntactically.

In terminology the existence of synonyms is closely connected with the problem of meaning of the term. Therefore, one of the main objectives of normalization is exactly the exclusion of synonymous series. The univocity postulate, between denomination and notion, in the case of term, is theoretically valid whereas in reality, in practice, it is not. For one single and the same notion there may exist different denominations, thus making up synonymy series [5].

Lexical synonymy occurs even in the most unexpected activity fields, wherein the accuracy and univocity postulates are widely acknowledged, for example in food engineering discourse – *i.e.* the Romanian food engineering terminology uses more than two heterogeneous terms to denominate the same chemical substance, compound or food additive *carbohydrates – sugars – glucides (the last term is widely used in Romanian especially), curcumin – natural yellow C1 - 3 - Curcuma yellow - diferoilmethane, annato extract - annatto – rucu – bixin – norbixin – E 160b.*

2. Materials and methods

2.1. Materials

Two highly academic specialized manuals have been used in performing the semic and contextual analysis of synonyms; one is entitled *Meat Biochemistry, Microbiology and Parasitology*, whereas the other one is *Wine Chemistry and Analysis*, both of them being considered as standards of authentic specialized terminology specific to food engineering discourse. The selection criteria used in making up the synonym taxonomy identified herein are the semantic and etymological one [6,7].

2.2. Method

The first step to be taken in analyzing synonyms is by conducting a semic analysis which allows identifying synonymous series. The grouping of lexical units in synonymous series is done by establishing their semic structure and further on, by identifying their common semes. Supplementary semes cancel semantic identity, the elements brought into relation being considered quasi-synonyms. Therefore, synonymous terms/ syntagms should have as many common semes as possible and as few differentiating ones as possible.

A semic analysis has been conducted on short fragments of texts extracted from the previously mentioned manuals in order to identify the semantic features or elements of meaning shared by two or more similar terms and syntagms belonging to the same grammatical and lexical category.

(1) *Polysaccharides* are generically designated as *ozydes* (*heavy sugars*, with high molecule). They are *complex sugars*, resulted from condensation/polymerization of monosaccharides wherein a great number of glycoside rests participate in, being united between them by ethereal bonds (CH_2-O-CH_2). (*WCA:* 637)

(2) *Staphylococci* consist of over 30 species, producing enter-toxins (poisonous chemical) when they are growing. Even though cooking may destroy the bacterial cells, it is unlikely to inactivate the toxin. For example, *Staphylococcus aureus* produces a thermostable enter-toxin that remains in food products even after the *bacteria* have been destroyed. (*MBMP:* 299)

(3) Toxins from *bacterial infections* are delayed because the bacteria need time to multiply. As a result symptoms associated with *intoxication* are usually not seen until 12 – 72 hours or more after eating contaminated food. If the intoxication involves preformed toxins as is the case with Staphylococci *food poisoning*, the

symptoms occur within a few hours. (*MBMP:* 324)

The terms *polysaccharides*, *ozydes*, *heavy sugars*, all contain the seme /complex sugars/. In other words, the field of a term denominations is seen as a single paradigm. The most important of the distinctive semes is "the molecular structure", with two opposite values: "more sugar molecules" (+) ≠ "one single sugar molecule" (–), which can be divided into branched or linear forms. Other differentiating seme is "taste", which may be "sweet" (+) or "other taste" (–);

(1) polysaccharides= [+macromolecular], [– monosaccharide], [–sweet] or *ozydes* =[+macromolecular], [– monosaccharide], [+/– sweet] or *sugars* = [+macromolecular], [+ monosaccharide], [+/– sweet] . In other words, the synonymous terms *polysaccharides*, *ozydes* and *heavy sugars* can have at least three basic factors or semantic properties: they are macromolecular, but are or not monosaccharides and they are or not sweet.

(2) Staphylococci= [+microorganisms], [+ gram-positive], [– gram-negative], *Staphylococcus aureus* [+microorganisms], [+ gram-positive], [– gram-negative], or *bacteria*= [+microorganisms], [+/– gram-positive/negative], [+/– aerobic/anaerobic].

Both terms *staphylococci* and *bacteria* contain the seme /*microorganisms*/. Among their differentiating semes we can mention "classification" with two opposite values "gram- positive" (+) and "gram-negative" (–), "aerobic" (+) and "anaerobic" (–).

(3) Bacterial infections=[+bacterial], [– viral], [+/–short/long]or *intoxication* [+bacterial], [+ viral] [+/–short/long] or *food poisoning* [+bacterial], [+viral], [+/– short/long].

The series of partial synonymous terms *bacterial infection*, *intoxication* and *food poisoning* send to the same referent / *foodborne diseases*/. The most important of the distinctive semes is "the type of contamination or infection produced by the microorganisms in question", with two opposite values: "bacterial"(+) ≠ "viral" (–), another one might be the "incubation period" with the opposites [short +] and [– long].

The description of different relations existing between words and by which lexical units are defined is not possible without distributing them into classes. The grouping of synonyms into classes takes into consideration one single meaning; therefore, the terms selected are analyzed just in this sense. The first requirement to comply with, namely semantic identity, calls for the checking in this respect of the terms forming the class. This operation can be fulfilled by revealing the meaning components (features), the semes of the lexical units to be analyzed and pursuing to what extent they are shared by all the terms in the series. The examples provided above emphasize the common character of the main semes, those describing properly the semantic content of terms and allowing the classification into the same category: in (1) /*complex sugars*/, in (2) /*microorganisms*/ and in (3)/ *food poisoning*/. Obviously the number of semes may vary depending on the complexity of the meaning analyzed, on the relationships established by this one with other lexical units in language and even on the formulation possibilities in metalanguage.

According to the semantic criterion, the following classes of total synonymous terms have been identified:

a) Food additives : *betain= beet-root red(E 163), ethylic ester of beta-apocarotenoic acid =L-orange 9= E 160, cochineal=carminic acid= carmines E120, annatto extract=annatto=rucu=bixin=norbixin=E 160 b, curcumin – natural yellow C1 - 3 - Curcuma yellow - diferoilmethane;*
b) Technological operations and processes: *tightness= sealing, scalding = boiling, drying=desiccation=dehydration;*
c) Chemical elements, substances and compounds: *mercury* (from Latin *mercurius*)/ *hydrargyrum* (from Greek)/*quicksilver* (common denomination), *wistaria= glycin= glycol= α-amino-acetic acid, glucides(term used especially in Romanian) =carbohydrates = sugars; cocarboxylase= tiamino – pirofosfat (TPP), polyalcohols= polyhidric alcohols, benzene polyhalide= phenyl polyhalide;*
d) vitamins: vitamin B_1*=thiamin, vitamin C= ascorbic acid, vitamin P=bioflavone, vitamin E= tocopherols, vitamin D=calcipherols,*
e) technological equipment and devices : *converter=saccharizator, fluidmeter=viscosimeter, acidimeter=aerometer=densimeter =hydrometer*;

The second step in analyzing synonyms is *contextual analysis.* Identical contexts of recurrence suppose identity of meaning, so the contextual analysis validates the semic one. In this stage, synonymy is determined by the substitution procedure: a lexical unit is replaced by another one, but the global meaning of the pattern must not change. Therefore, context is essential when determining synonymy since semantic equivalence is emphasized by context, namely functionally. The context may be a minimal sequence of terms and as a sentence as well. To demonstrate the meaning identity of synonymous adjectives, most linguists make appeal to a nominal context; the substitution of adjectives should not lead to the change of the global meaning of nominal or adjectival syntagms. For example, in the following series of adjectival syntagms: *genuine* food=*bio*-food=*functional* food=*organic* food, there is one core-term *food* that is determined by adjectives different from the phonetics and spelling point of view, all of them (*genuine =bio=functional =organic)* conveying the same meaning and notion: high quality/healthy/ecological food product. But if we analyze the following set of nominal syntagms *deterioration= poisoning = spoilage= alteration= rancidness* when using the contextual analysis, there might be some inadequacy of use for specific types of foods, though all are generically partial synonyms. When specific mention is made about the type of food that may get altered or contaminated, then it is not possible to use any of the previously synonymous enumerated terms: *fat rancidness* or *taste rancidness*, but not *bread* or *meat rancidness.* Therefore, the synonym substitutions limit the combinatory possibilities of a specialized term, being linguistically and comprehensively determined by context.

Simple terms are the most exposed to develop partial synonymy relationships which involve the existence of some supplementary ratios of overlapping (or hyperonimy), intersection and more rarely of incidence in the case of terminologies. Examples of partially synonymous terms are provided as follows: *coenzyme/enzyme cofactor; oscillation boom/oscillation*

sieve; crystallizer/ evaporator; calcipherols /vitamin D; limestone /chalkstone/lime; gradient/factor/coefficient; fat oxidation /rancidness. Specialists' knowledge is required to establish exactly the type of ratio existing between partial terminological synonyms in the respective field.

Terminological syntagms presuppose a cumulus of specificity elements, which seemingly, facilitate the establishing of the ratio type existing between partial synonyms*: resistivity*/*specific resistance*; c*ellulose / macromolecular polyglucid; carbonated wine= effervescent wine*.

One may notice that the synonymy relationships, displayed by the elements of food engineering terminology are generated by more situations that mainly occur in diachronic plane:

a) between a term borrowed from French or English and another one formed in the Romanian language by means of internal creation: *albirea* făinii (formed in Romanian, *albi+re*)/*blanşarea* făinii (in French *blanchement de la farine*)= flour bleaching;
b) between borrowed terms, of different etymology: *convertizor* (from French *convertisseur*)=*Konverter* (German) = *converter* (English*), convertor* (in Romanian);
c) between borrowed terms and their paraphrases, registered by dictionaries under the form of terminological syntagms: *laser* (from French, English *laser*)=*quantic generator;*

3. Results and discussion

Context understood as a minimal sequence of terms, or more widely, as a text or stylistic- functional variant is fundamental in determining synonymy as semantic equivalence is properly emphasized in context, so functionally.

Both types of analyses, the semic and contextual one, aim to emphasize the referent identity.

Synonymy occurs when the same complex of significances is rendered by different linguistic forms. If these ones develop synonymy relationships, then they bear and transmit, in communication between specialists, the same knowledge. It occurs between simple terms, between specialized syntagms or more frequently between terms of common language and the scientific ones, or between terms and syntagms. Depending on the overlapping degree of semantic areas of the elements analyzed, more possible ratios may be distinguished. Thus, total overlapping of significances is specific to the situations of total synonymy which, taking into consideration the univocity of lexical specialized elements, is natural to characterize the relationships of semantic equivalence of scientific and technical terms. Total synonymy is displayed at the level of food engineering discourse especially when denominating chemical substances, elements of Mendeleev table and food additives respectively. The phenomenon can be explained etymologically or justified by the need of borrowing terms from other languages to express technical and scientific objects, realities that do not exist in certain fields.

The analyses conducted on samples of authentic food engineering texts reveal that first there are identities and differences when using synonymous terms, secondly that substituting one term by another one makes possible to test the meaning identity between them and thirdly that they aim at disambiguation by means of context of meanings of polysemous words (compulsory preliminary procedure), offering combinatory possibilities of a given lexical unit, established as against types of contexts.

4. Conclusions

The Romanian food engineering terminology uses more than two heterogeneous terms or syntagms to denominate the same referent, displaying both total and partial lexical synonymy relationships, occurring mainly at the diachronic level. Total overlapping of significances is specific to the situations of total synonymy which, taking into consideration the univocity postulate of lexical specialized elements, is natural to characterize the relationships of semantic equivalence of the scientific and technical terms herein analyzed. Generally, in terminology the existence of synonyms is closely connected with the problem of meaning of the term. Particularly, due to the accuracy of formulation and due to the univocal character of the elements it operates with, this specialized type of language provides identification of the referent through synonyms without difficulties.

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