



Languages for Special Purposes in a Multilingual, Transcultural World

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IT engineering specialized language manifestations

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Abstract. The paper deals with experimental observations regarding the IT engineering language. It is concerned with applied linguistics; the method used to analyze this vocabulary is anthropolinguistic. The IT engineering specific language, the creation of our epoch is characterized by the index of something new, new discoveries, new science, new technologies; it can be called the revolutionary creation of its time as it's ready to realize the most innovative ideas.

The IT engineering language represents a large field to be divided into many spheres. The very experiment research involves Legal, Artificial Intelligence, Hardware systems, and Mobile devices specialized languages.

The IT English specialized language unification is defined by its concrete application sphere development, it's evolution level for a fixed time period, and besides by its application sphere pragmatics. Because of the constant science knowledge increase the systematic IT vocabulary filling up is observed. The specialized language vocabulary enriching is realized by specialized and common units as well.

Keywords. Free word combinations, history semantics, information technology, specialized engineering languages, term blocks.

The English engineering specialized language of information technology enrolls a great amount of specialized small languages. Such as environment, hardware systems, IT management, personal electronics, telecommunication, cloud computing, claims processing, collaboration software, data loss prevention, enterprise software, mobile and wireless, on-demand software, operating systems, personal tech, unified communication, virtualization windows, data deduplication, legal etc.

The process of penetrating into each other at the concrete period of the society evolution is quite inevitable as any specialized lexeme can the same time pass over to get the status of a common vocabulary unit, and a common vocabulary unit is capable to get the specificity load under the action of the corresponding conditions, and comes over into the specialized vocabulary stratum. So a free word combination Black Berry, being a part of the common vocabulary changed its status, and turned to be a very powerful specialized one, as a metonymy transfer is being fixed here to concern the berry name. Now the traditional berry name is transferred into a very powerful supercomputer, a superplatform according to the transitions type a color – super power. So here a very powerful figurative meaning reviving is manifested.

The ancient Germanic lexeme to throw in the fragment it is high time to throw that industry doesn't now coincide with its everyday life history semantics such as to propel through space, to release something in its specialized environments; the lexeme gets its new powerful semantics loading because of the lexeme industry which follows the lexeme to throw. It is just the lexeme industry to have helped the lexeme to throw to have lost its history meaning coming over to a new one, a figurative one to be interpreted like to win over, to destroy, to take away, and up to a metonymical one to kill, to smash.

A metonymical transfer to be observed in the fragment an Achilles heel disembodied program is concerned with the verb disembody to be interpreted like separate, free from body or the concrete form, disband but in the very case the transfer to the lexeme program is being observed,

the notion of which corresponds to the series of events, definite plan of intended proceedings, or coded instructions etc. Such a metonymical transfer is enforced by the obligatory action on behalf of the lexeme program to underline some unusual case dictated by the given situation which demanded a very emotional lexeme to be used; that is why they chose the verbal disembodied over the analogy with an Achilles heel which was already hurt according to the antique myth. So the meaning transfer from the part of a human body is realized into a mental concept through a series of events to correspond to the very lexeme program. That is a bright example of a lexeme metaphor.

A free word combination brute force logic is a very powerful one. The choice of the lexeme brute is really remarkable; it doesn't coincide with the lexeme logic, it's just opposite it; the lexeme brute, stupid, beastlike, cruel or unconscious, merely material – brute force, matter can also be interpreted like Brute person or a beast, disliked person; a legendary history person because of his brutality. And so in this case the metonymy transfer is registered over the lexeme logic to conceal its basic meaning and double the negative charge of the lexeme brute to realize the effect of the negation.

Many component IT specialized word combinations display a private name element included. So eponyms are widely used in such word combinations. Their usage helps define the indicated phenomenon or product to correspond to some manufacturing company, to highlight its belongings, its origin. The availability of the private name element which helps recognize the main accent in the very word combination, and that transfers the center of information to the accessory lexeme immediately: an HD laptop screen, Android devices, Android operating system, Android products, Apple and Google's data centers, Apple's late chief executive electronics giant, Apple's MacBook Pro. The list is not complete without the following word combinations to support the above idea: research project Galaxy phones, Samsung's biggest customer, Samsung's Galaxy tablets, Tesla chief technology officer, the Cupertino-based company, the Princeton Plasma Physics Laboratory, the South Korean giant, Titan's computational might, Titan's computing cares, Titan's peak supercomputing performance, Turing test, United States Customs and Border Protection.

The Android lexeme concretizer used here points out the type of the products, systems in the above word combinations. The first component Android says about high quality products, and modern design.

The South Korean giant is the manufacturer of Galaxy phones research products, Samsung's Galaxy tablets speak for themselves. It means that such products are the top high-tech products.

The eponym Titan now is concerned with the superpower giant computer of the future, and that's why the first component of the following free word combinations doesn't need any extra explanations what is what. The eponym Tesla adds the special coloring to all the word combinations. The top quality of the products manufactured by Tesla is evident too.

The geography element in many component word combinations concretizes the country, the definite company or laboratories to be dealt with: United States customs and border protection, the Princeton Plasma Physics Laboratory, China's Tianhe – 1A machine, Oak Ridge computing facility. Such many component word combinations carry the powerful emotions represented by eponyms, which are usually first components and this fact has got the double striking effect to concern the concrete information spread over the whole word combination.

Many component word combinations represent some elements to denote technology and power. The analyzed word combinations are divided into the following groups depending upon the problems they are dealing with. First comes the group of technology and power component included: a less powerful supercomputer, high performance computer record, video game technology, super-computing power, the computer's 10.000 whirring processors, the permanent hearing damage, the world most powerful supercomputer. Every component in such word combinations occupy an important functional position to be responsible for. The word

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combination a less powerful supercomputer counts three components and not a single one is out of function. Each element adds some new shades of meaning but they are not characteristics of top quality. The word combination the world most powerful supercomputer represents top quality super modern machines notions.

The word combination the computer's 10.000 whirring processors corresponds to its concrete power characteristics, that's why the availability of four nuclear components organizes a very remarkable unit, a term block to pass the exact and deep information. The word combination video game technology registers a very laconic but convincing information; two components video and game define the sphere of this type technology very precisely. Technology and power elements are the main features the above word combinations to be dealt with. The choice of the concretizers is done exactly, no spare component is presented here. These term blocs are very accurate, the lexemes chosen are not neutral.

The next group of many component word combinations includes lexemes to denote the notions of programs, projects, units, processors: a densely interconnected database, brute force logic, concealed artificial intelligence programs, distributed computing project, exclusive behind scenes look, expensive highly customized microprocessors, graphics processing units, high performance computing expert, human-like intelligence etc. Most of them are three-or-four components word combinations. There are several ed-components like interconnected, concealed, distributed, customized, and correspondingly ing-components are also available like computing. These word combinations like real term blocs are very exact and the components chosen are precise, they are of bright coloring to deliver the exact information: concealed artificial intelligence programs, ultra-high resolution display, expensive highly customized microprocessors etc.

The lexeme intelligence is used like a nuclear noun and a concretizer lexeme to the word programs. This lexeme is under opposite surroundings; very bright concretizers used with it are quite opposite to artificial intelligence and human - like intelligence; antonyms are presented here to show the polar features characteristics of the noun intelligence to manifest the fact concerning the dream of human – like intelligence to be realized in the closest future. The IT specialized engineering language is not adequate to interpret all the inner thinking processes to be observed directly. That is why this leads to the idea to study common English and common thinking like the primary specialized English model to provide the communication between the specialists. That is the reason for IT engineering English to use the Germanic irregular verbs so widely to be inserted into the soil of this highly professional language. It is because common knowledge and science knowledge are interconnected here and enriching each other.

The common knowledge is ahead of the science word picture raising. That is the bright proof to use the old Germanic verbs so widely to interpret the necessary information. This engineering specialized English doesn't reject the use of metaphors to be embodied in the IT innovative knowledge because the metaphor nature recurs the general language evolution regularity to use already known linguistic signs in the process of the human knowledge fixation to be represented in word combinations: Jaguar's brain surgery, brute-force logic, silicon brain enterprise data, hybrid architecture, human skin and blood flow data modeling. This permits to represent the IT engineering specialized vocabulary like the nucleus of the specialized engineering languages. And now it is quite evident to observe the ways how the specialized language is being provided by notions the meaning of which is used in the science description to some extent.

Sure, common English should be considered like the basis to interpret the science concepts. History syncretical earliest words meanings permanently undergo the process of concretizing and verifying owing to new lexemes coming up and that results in the meaning redistribution. The common words borrowing into the specialized vocabulary is accompanied by the process of the meaning redistribution. So during the human consciousness evolution the process of permanent meanings verifying to concern the lexemes used is being occurred in such a way that the phenomenon of syncretism is being removed. The known fact is that the common vocabulary is being changed very slowly. This vocabulary keeps even the most ancient words and we realize

we know these words and understand their meanings, but it's another modern meaning.

During the human consciousness evolution two separate processes are observed indeed: the first is concerned with the specialized vocabulary separation from the common one, and the other one deals with the specialized vocabulary to join the common vocabulary. The fact is the specialized vocabulary developing paves the way to create the necessary condition for science, industry and culture progress. The IT specialized vocabulary, specialized lexemes of specialized domains, which can undergo the process of conscious regulating and systematizing is one of the features of our culture society which is the result of the civilization evolution process.

The IT vocabulary is filled with science verbs of Latin and Greek origin like verbs complain, manage, file, contest, limit, ignore, deny, include, damage, pertain, calculate; nouns order, district, paper, evidence, document, cell-phones, declarations, television, chief, calculator, data, section, technicians, questions, ban, device, professionals, number, feature, judgment, amount, exhibit, manufacturer, calendar, product, determination, contractor, photo, version etc.; and adjectives total, technical, international, attractive, loyal, corporate, military, certain, tricky, popular, vulnerable, special, personal. Latin and Roman words are quite necessary here to highlight the idea of the most super devices, the world's most energy-sufficient super computers, and the world largest privately owned super computers to concern the first genome project etc. Yes, it's quite evident that the IT engineering vocabulary widely uses historically learned lexemes.

But the Germanic irregular verbs cover all the problems to regard the attitude of scientists, customers, workers to this innovation sphere of engineering. These Germanic verbs are used everywhere to pass the IT exact information. The IT vocabulary adds some new interpretation to the meaning of these known verbs; their usage in the sphere of IT helps make the IT specialized information more simple to understand it because of some special domestic coloring the Germanic verbs possess. These verbs semantics covers the whole spectrum of the notions demanded by the human life. So, to be and to have are the necessary elements of any vocabulary; the usage of others is not so frequent but they help pass the specialized information not like standard Latin verbs but in another not so bookish but the same time specialized way to understand it.

The IT engineering language observation analysis shows a very important role of the common English vocabulary to verbalize the science knowledge to refer to some concrete domain.

Conclusions

The IT engineering language vocabulary represents a large field to be divided into many small specialized languages. This experiment research involves Legal, Artificial Intelligence, Hardware Systems, Mobile Devices and IT Management vocabularies.

Analyses of the IT English specialized language showed that this experimental language is among the new American languages of the second half of XX century. A set of the languages to represent the IT specialized language is enormous but the analyzed five IT languages manifest a unique specialized language, the language which vocabulary is being systematically filled up with the lexemes to correspond to the science progress in the concrete sphere to organize the analyzed five concrete languages. The availability of many component word combinations studied like term blocs says about the corresponding progress knowledge vocabulary units to suit the modern state and the perspectives of the problems the IT sphere solves.

The laconic, convincing, clear and precise set of lexemes to organize the modern high-tech architecture of these word combinations is being registered. The language can't be called purely scientific as the progress is also created by programmers, technicians, managers but not only by scientists. That is why it is not the repetition of the Latin science vocabulary and its formula. The old Germanic verbs element has seemed to be quite suitable for the moment to color the monotonous Latin units by everyday English ones to use the rich spectrum of these old lexemes to introduce the element of real life which is in need here to show the competition and the real fight in between the modern computers giants, programmers to compete to be the first.

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So the old Germanic irregular verbs element made good to enrich the Latin vocabulary to reflect all the shades of feelings to be observed in the new IT specialized language and to be able to pump in such units like eponyms, geography term blocs as well as programs, projects, technology and power term blocs saturated with the corresponding high-tech vocabulary lexemes to be observed as unique IT specialized English language formations. The availability of a big number of Germanic irregular verbs to express and solve the IT problems compared with other new engineering specialized languages where Latin and Greek lexemes are dominating is a striking moment. The set of irregular verbs is very rich. It is not felt they are ancient, and the IT language chose them as they interpret the IT problems due to the time. Under the process of human consciousness evolution the verbs meaning also changed that's why they are quite suitable to join the paradigm of the advanced specialized IT vocabulary. These units are considered to be specialized units within the borderlines of the IT domain.

So the IT engineering specialized language manifestation is also the availability of many component specialized word combinations characterized by special features and organized into the nominative blocs to press the given information to interpret it immediately to solve the current IT problems.

So the IT English engineering language is our time formation over its organization. The problems corresponding to the notions expressed by specialized lexemes are rather various. They are the problems of high-tech equipment, modern designs, data centers, and high quality products.

The IT English vocabulary involves lexemes specialized and of common English which are quite necessary to accent the specialized ones to get the load of specificity to be closer to each other in one and the same domain space. The task of IT specialized language is to realize the problem to pass the specialized knowledge to concern one of the great problems of our time, the problem of information technology regarding, f. ex., new smart super products.

That is why its vocabulary language should feel and reflect all the innovations to have been discovered in due time and manifested by the usage of the lexemes chosen to correspond to our time openings. The IT vocabulary is keeping such lexemes to pass the coming information knowledge to react to the world engineering progress to increase its volume. The formatting of the IT language is also very specific.

Term blocs are widely represented in this specialized vocabulary as they are very economic to save the space but to give the full and deep information quite enough to understand the problem, because every component of its term bloc is functionally necessary to point out all the details of the passing information. A set of the bloc components is usually unique, the choice of lexemes is done correctly. Such a vocabulary is demanded by our society.

Separate components of such term blocs denote all the necessary technology elements to be necessary to correspond to our time demand: the elements of power, technology designing, super devices, super operating systems and products, the elements to be asked by high technology progress. The word order inside these term blocs is a specific one. The first component usually dictates the direction of the whole term bloc.

If a term bloc is represented like a many component word combination, it means this word combination is considered to be a many component noun; the noun itself usually occupies the final position but the first component to be regarded as the main component among the other attributive lexemes and the accent should be given to it because the very lexeme was chosen to stress different indications such as the name of the manufacturing company, of the computing super giants, or geography place the phenomenon belongs to etc. Such a compact information usually is very convincing and it doesn't demand any additional interpreting.

These characteristics is quite positive under the conditions of the time saving. Such constructions are highly demanded by our time deficit. Every other attributive component discovers and concretizes the phenomena or processes they are chosen to realize this function. Every component inside a term bloc carries its own predicted and functional load. The lexical power of the term

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bloc doesn't depend upon the number of its components, let them be three or four each of them has got its programmed lexical and linguistic function and the load inside the very bloc. Such is the unique architecture of the IT blocs.

References

Alekseeva, Larissa (2010). How science is being made: the jubilee etudes. In *Non Multum, Sed Multa: A little about much*. M.: The Author's Academy, 11-16.

Ahmanova, Olga (1966). *The dictionary of linguistic terms*. M.: Soviet Encyclopedia.

The Bolshoy English-Russian Dictionary (1987). M.: The Russian language.

The Concise Oxford Dictionary of Current English (1980). Oxford: Clarenton press.

Grinev-Grinevitch, Sergey, Sorokina, Elvira, Skopjuk, Tatjana (2005). *The basis of anthropolinguistics*. M.: Sputnik.

Lavrova, Alexandra (2011). To concern new English specialized terms. In *Modern Humanitarian education in the social and cultural space of the capital megapolis*, 5 (1). M.: Moscow Humanitarian Pedagogical Institute, 165-168.

Lavrova, Alexandra (2012). Economic Communication English Vocabulary Internationalization. In a Book of Abstracts. *Communication in Change & Risk*. 12. Interdisciplinary Symposium of the Research Cooperation European Cultures in Business and Corporate Communication, EUKO. Salzburg: Salzburg University of Applied Sciences, 57-58.

Novodranova, Valentina (2007). Science and common knowledge representation in terminology. In *Representation problems in language*. M. – Kaluga: Derjavin TGU, 62-66.