UDK 811.111:629.7

THE LEXICAL COMPONENT OF AVIATION ENGLISH

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The paper deals with characterizing the lexical component of Aviation English. The primary objective is to define the notion of Aviation English and disclose the peculiarities of its vocabulary.

Aviation English describes English used by pilots, air traffic controllers and other personnel associated with the aviation industry. It is believed to include not only standard phraseology but also Plain Aviation English as well. Thus, the authors underline that the notion covers not only pilot-air traffic controller communication which mostly (though not only) involves standard phraseology, but also other kinds of interactions between all the possible participants in the professional aviation community which can be characterized by using natural language or plain English in the aviation environment.

The lexical component is stated to be one of basic aspects of linguistic knowledge and the foundation for any communication process alongside with grammar and pronunciation. Aviation English vocabulary constitutes the core of communication in the professional aviation environment. It reflects the results of scientific and professional knowledge in its contents.

Aviation lexical core is characterized by stylistic and emotional neutrality as well as synonymy limitation and polysemy avoidance. It has a system of terms which includes not only basic aviation concepts, but general scientific notions and semi-technical vocabulary where an item has a different meaning in aviation from that in general usage.

The paper also investigates the lexical domains distinguished within Aviation English subset of the language. Grouping the items according to lexical domains is based on inner links between objects and surrounding phenomena and is related to subject-logical features. Thorough analysis of researches on Aviation English vocabulary has given grounds to state that each domain differentiated contains a core notion that unites all the others around it.

Key words: *Aviation English, vocabulary, lexical component, lexical domain.*

Токар Є., Файнман І. Лексичний компонент авіаційної англійської. *У статті досліджено лексичну складову авіаційної англійської мови, визначено поняття авіаційної англійської та розглянуто характерні риси її вокабуляру. З'ясовано, що лексичний компонент становить основу професійної комунікації авіаційних фахівців та характеризується стилістичною й емоційною нейтральністю, уникненням полісемії й обмеженням синонімії.*

Проаналізовано також виокремлення семантичних полів, підполів та лексико-семантичних груп у межах авіаційної англійської лексики.

Ключові слова: *авіаційна англійська, лексичний компонент, семантичне поле.*

Defining the problem and argumentation of the topicality of its consideration. With the rapid progress in the development of the surrounding world, its globalization and erasing the boundaries of possible interactions it's not strange that aviation has taken an important place in the way of present-day life. Innovations, new technologies and perspective knowledge have made it possible to cross the ocean in several hours without any problems. However, in spite of big advance in technology, unfortunately air incidents haven't stopped occurring. Though, they have changed their nature and reasons, putting human factor on the first place. Great technological leap in the sphere of aviation has resulted into appearance of new more reliable aircraft. Consequently the leading role in the range of emergency reasons has turned to human factor where the issue of communication takes an important position.

As a result of a number of incidents because of communication problems, communication issues in aviation are currently taken very seriously by the aviation authorities and play a heightened role in pilot and air traffic controller training. The International Civil Aviation Organization (2010) explains this as follows: "With mechanical failures featuring less prominently in aircraft accidents, more attention has been focused in recent years on human factors that contribute in acci-

dents. Communication is one human element that is receiving renewed attention" [8, vii].

English is used in aviation both by native and non-native English speakers who communicate for a specific purpose in the professional aviation context where English is adopted to be a working language. As stated by Douglas (2000), "specific purpose language is precise, has distinctive features (lexical, semantic, syntactic or even phonological) which make it peculiar and understandable only in the environment of its users" [5, 7]. Consequently, the lexical component is a part of a complex phenomenon of Aviation English which requires thorough linguistic study due to its specific characteristic in comparison to general English.

Analysis of recent research and publications. The phenomenon and peculiarities of Aviation English as a subset of the language as well as in terms of its components have recently become a frequent object of linguistic researches. The issues of Aviation English interpretation, its basic units, their interconnection, characteristic features, the methods of teaching Aviation English and ways of its improvement are of great interest to linguists.

A. Kyrychenko has investigated the phonetic peculiarities of aviation communication while I. Asmukovych deals with its structure and syntax. As for the lexis research, there is a cognitively oriented study of avia-

tion vocabulary regarding its metaphoric representation (B. Kopecka). However, in fact, Aviation English lexical component is mostly being investigated in terms of vocabulary teaching methods in ESP course. Aviation vocabulary is viewed as a major difficulty which impedes students' progress (A. Wang) and creates some challenges in the process of its learning (S. Secer, M. Sahin). Thus, ways of improving aviation vocabulary teaching methods are being widely discussed in scholarly circles.

Despite a variety of views on the phenomenon of Aviation English, several probes on investigating its vocabulary and ways of teaching it to students but there is still lack of consistent research regarding the lexical component of Aviation English in terms of its full characteristic.

Setting the goals and tasks of the article. The primary objective of this paper is to define the notion of Aviation English and disclose the peculiarities of its lexical component.

The outline of the main research material. The term "Aviation English" is widely used in linguistics though its meaning and interpretation are rather different in a great variety of linguistic publications. Aviation English is often assessed from the perspective of register or discourse research where focus is placed on its situational and linguistic analysis.

Although phraseology and aviation vocabulary knowledge are tremendously important, general English proficiency is often missing. Knowing a restricted "language" would not allow the speaker to communicate effectively in a novel situation or in contexts of non-typical vocational environment [11, 4]. This shows that general language skills are the foundation of all efficient communication, especially in aviation. Although the careful use of ICAO phraseologies is one means to increase communication safety, no set of phraseologies, however extensive, can account for the breadth of human communicative need, even within the relatively constrained environment of air traffic control communications [9, 3–4].

Despite including not only standard phraseology but also use of Plain Aviation English in the communication between a pilot and ATCs (air traffic controllers) as well [4, 71–82], no attention in the analysis is devoted to any other communication except pilot-air traffic controller interaction. However, "this is not the only communication loop in the aviation context" [6, 1]. Important communications take place between crew members and other personnel in the cockpit and beyond it, on the ground and in the air. Moder (2013) states the following: "Aviation English describes English used by pilots, air traffic controllers and other personnel associated with the aviation industry. Although the term may encompass a wide variety of language use situations including the language of airline mechanics, flight attendants or ground service personnel most research and teaching focus on the more specialized communication between pilots and air traffic controllers [12, 227]".

Regarding our use of the term *Aviation English*, we take it as covering not only pilot-air traffic controller communication which mostly (though not only) involves standard phraseology but also other kinds of interactions between all the possible participants in the

professional aviation community which can be characterized by using natural language or plain English in the aviation environment. Yet, it is really important to point out that "while in other domains 'plain language' involves simplification and avoiding technical jargon to make specialized language intelligible to the public at large, this is not the case with plain English in aviation. Plain English in aviation is not aimed at outsiders and does not preclude the use of technical terms" [6, 17].

One of basic aspects of linguistic knowledge and the foundation for any communication process alongside with grammar and pronunciation is certainly vocabulary. "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed" [14, 10]. The lexical component skills are vital in acquiring general linguistic proficiency (fluency and comprehension). The level of proficiency will be apparent in the accuracy, range and speed of access to the vocabulary required in a given situation as well as paraphrasing skills [8, 2–8].

Aviation English vocabulary constitutes the core of communication in the professional aviation environment. It originates primarily in the common vocabulary, closely interacts with it in the process of operation, relies on natural-language substrate. As a means of professional communication and special knowledge, special aviation vocabulary reflects in its contents the results of scientific and professional knowledge.

Aviation lexical core is characterized by stylistic and emotional neutrality [10, 203] because of highly standardized sphere of usage. Preventing confusion and misunderstanding, since maximum clarity, brevity and unambiguity is considered to be the primary requirement tend to characterize Aviation English vocabulary by synonymy limitation and polysemy avoidance. These are referred to by Sarmento as principle One meaning, one word/ One word, one meaning and describe the tendency of designating one concept by one lexical unit [13, 3]. Aviation English avoids the use of different words with the same meaning and, if any occurs, they are clearly differentiated by use and semantics in aviation communication. For example, after the crash on Tenerife a clear distinction in the use of terms take-off, departure, airborne was introduced. The term take-off is used only to indicate the permission or prohibition of take-off, departure is used to report readiness for departure, airborne is implemented in speech to report the time of separation from the ground. When having many meanings in a lexical item a single value has been chosen for this professional context or the replacement of a lexical unit to another to avoid ambiguity has been made in aviation. So, right in the radiotelephony speech means "not left, right", and to communicate the idea "true" that's correct is used, not that's right.

However, in regards to our interpretation of Aviation English and its not being restricted to pilot-controller communication only, we should underline that neutrality and other features dominantly characterize radiotelephony air-to-ground communication rather than other kinds of aviation interaction.

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"Every profession necessarily has its own terminology without which its members cannot think or express themselves. To deprive them of such words would be to condemn them to inactivity. If one wished to kill a profession, to remove its cohesion and its strength, the most effective way would be to forbid the use of its characteristic language" [7, 1].

So, aviation is not an exception and it has a system of terms which in fact includes not only basic aviation concepts (*lift, artificial horizon*) but also general scientific notions (*gravity, distance*) and semi-technical vocabulary where an item has a different meaning in aviation from that in general usage (*apron, separation, push-back, climb, maintain, taxi*).

Beata Kopecka (2017) states, "a distinction needs to be drawn between at least 3 subgroups of aviation vocabulary. The first subgroup of vocabulary items belonging to aviation LSP includes words used only by professionals in aviation and aeronautics. All of the words assigned to this group are not known to and not understood by lay people. These lexical items usually refer to pieces of equipment, activities, actions as well as other strictly technical phenomena, hence being irrelevant to everyday context, e.g. canard, high-lift device. The second subgroup of aviation vocabulary also includes words used by professionals and similarly the words assigned to the second group are not known to lay people. But unlike the vocabulary in the first subgroup, words in the second subgroup appear in less formal situations, frequently in oral communication and may be referred to as aviation slang. The third group includes words used by professionals in professional communication but at the same time these words belong to the lexical repertoire, at least passive, of lay people, e.g. fuselage, black box, aisle" [10, 203–204].

One of the scientific approaches to studying any LSP vocabulary is grouping all its lexical units according to their semantic characteristics. It is based on inner links between objects and surrounding phenomena and is related to subject-logical features. Thorough analysis of researches on Aviation English vocabulary has

given grounds to state that each domain differentiated usually contains a core notion that unites all the others around it. Thus, S. Muravska defines the following aviation vocabulary domains [2, 97–98]: 1. Aircrafts and their structure: *windshield, fuselage, wing, slats, landing gear or undercarriage, rudder, elevator, stabilizer, engine nacelle.*

2. Airports and their parts: *holding bay, holding point, taxiway, runway, terminal building, tower, satellite, jetway.*

3. Airport transport: *FOLLOW ME van, shuttle bus, snow plough, tug, fire truck, fuel tanker, catering truck.*

4. Stages of flight: *start-up, push-back, taxi, line-up, take-off roll, take-off, climb, cruise, descent, approach, final approach, touch-down, land.*

5. The procedure of flying for passengers: *announcement, on board, check-in, check-in desk, conveyor belt, customs, customs officer, departures board, departure gate, departure lounge, duty-free, boarding pass, hand luggage, immigration officer, security guard.*

6. Jobs in aviation: *pilot, co-pilot, air traffic controller, flight attendant, flight engineer, airport director, reservation clerk, shuttle bus driver, marshaller, ground staff, flight crew, baggage handler, flight instructor.*

7. In the air: *contact, approach, control, air-ground communication, flight level, altitude, heading, bearing.*

8. Distress and Urgency Messages: *engine failure, Mayday, total electrical failure, depressurization, fire in the hold, a bomb scare, wheel well fire, a passenger with a heart attack, engine flameout, bird ingestion at initial climb, fuel endurance 10 minutes at initial stage, injuries among passengers and cabin crew after severe turbulence.*

9. Cockpit Instruments: *clock, DME (Distance Measuring Equipment), Airspeed Indicator, Radio Altimeter, Automatic Direction Finder, Horizontal Situation Indicator, Vertical Speed Indicator.*

10. Weather words: *a bank of clouds, black ice, broken clouds, build-up, CAVOK, CB (cumulonimbus), ceiling, clear air turbulence, cirrus, crosswind, down/up draught, drift, drizzle, flash of lightning, fog patches, freezing rain, gust, hail, headwind, overcast, sandstorm.*

11. Words for planes: *aeroplane, aircraft, twin jet, single-engined aircraft, helicopter, balloon, glider, airship, freighter, business jet, tri-jet, a jumbo.*

12. Systems in aviation: *TCAS (Traffic Alert and Collision Avoidance Systems), Microwave Landing Systems, SID (Standard Instrument Departure), EVS (Enhanced Vision System).*

According to I. Asmukovich the whole domain "Aviation" in the English language comprises a number of vocabulary units united by categorical seme "belonging to aviation". The domain is stated to be manifold and multi-level consisting of micro-domains [1]. The researcher defines 4 micro-domains: "The Type of Aicraft", "Aircraft Construction, Equipment and Use", "Aircraft Movement", "Aviation Personnel" dividing each one into a number of lexico-semantic groups. Thus, "The Type of Aicraft" micro-domain includes 4 groups: "Helicopters" (e. g. helicopter, chopper), "Dirigibles, balloons" (e.g. zeppelin, balloon), "Space ships" (e. g. space shuttle, space probe) and "Airplanes" comprising the subgroups "Passenger planes" (e.g. airbus, aeroplane,

airliner, jet), "Planes with special function (e.g. amphibian, cargo airplane, seaplane) and "Military planes" (e. g. bomber, fighter, troop-carrier). The "Aircraft Construction, Equipment and Use" micro-domain unites "Aircraft Construction" (e.g. wheels, engine, fuselage, wing), "Aircraft Equipment, Control and Navigation Systems" (e. g. survival radio equipment, terminal radar), "Aviation Fuel, Lubricants and Materials" (e. g. Avgas, lubricants, Jet-A Fuel, petroleum,bio-jet fuel). In "Aircraft Movement" micro-domain the scientist differentiates 10 groups: 1) "Characteristics of Controlling and Piloting" (e.g. to take over the control, to fail to maintain control); 2) "Controlling of Aircraft Systems" (e. g. to place the flaps in, extended flaps, to lower the nose wheel); 3) "Characteristics of Movement" (e. g. flight speed, overtaking speed, emergency descent speed); 4) "Space Characteristics" (e. g. obstacle clearance height, minimum safe height; 5) "Direction" (e.g. localiser course, prescribed course); 6) "Movement Area Circumstances" (e.g. crossingtraffic, high density air traffic, beam identification); 7) "Emergency" (e. g. incident damage,engine failure, birds ingestion); 8) "Aviation Radio-exchange" (e. g. readability, landing clearance request, taxi clearance request); 9) "Types of Piloting" (e.g. aircraft spiral glide, spot hovering); 10) "Aircraft Position and Zones of Space" (e.g. estimated position of aircraft, radio-range orientation, pitch orientation). Micro-domain "Aviation Personnel" combines 2 groups: "Crew" (e. g. *cabin crew, second pilot, pilot on the controls, systems opeation pilot*) and "Flight Dispatchers, Participants and Organisators of the Flight" (e.g. *passenger, maintenance crew, ramp crew, aviation expert).*

Russian scholar N. Shchetinina whose research is restricted to studying communicative peculiarities of English civil aviation radiotelephony discourse differentiates 7 micro-domains within this domain according to phases of a flight: push-back and start-up, taxiing, line-up and take-off, climb, on-route, descent, approach and landing [3, 167]. Though the scientist does not research Aviation English vocabulary outside radiotelephony, her approach to defining groups comprising the vocabulary under study is similar to the above mentioned where all the lexical units in each domain are grouped around a central notion.

Conclusions and perspectives of further research in this field. Therefore, Aviation English lexical component proves to be of vital importance for providing safety and security of air transportation. Despite the variety of number of domains, sub-domains and lexico-semantic groups differentiated within it by scholars the whole "Aviation" domain is a hierarchical open structure the elements of which tend to migrate not only from one sub-domain to the other but also from and to general language as well.

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