

LINGUISTIC ALTITUDE: THE SIGNIFICANCE OF FORMULAIC LANGUAGE IN AVIATION ENGLISH

Vanya KATSARSKA

Air Force Academy, Dolna Mitropolia, Bulgaria
VKatsarska@af-acad.bg

Abstract: This article explores the concept of formulaic language within the context of aviation communication, emphasizing its significance in achieving effective and fluent communication among aviation professionals. The discussion begins by elucidating the concept of formulaic language, highlighting its distinctive features, and providing a classification. Furthermore, the article addresses the important role of formulaic language in enhancing communication fluency within the aviation domain. By relying on pre-established and readily recognizable formulaic expressions, aviation personnel can navigate complex communication tasks with precision and speed, thus minimizing the risk of miscommunication and ensuring safe flight operations. All in all, this article underscores the importance of recognizing and using the power of formulaic language in aviation communication, advocating for its systematic integration into language training programs.

Keywords: formulaic language, aviation English, fluency

1. Introduction

Rich and specialized vocabulary is essential in the domain of aviation English, where language proficiency and precise communication is vital for ensuring flight safety, operational efficiency, and successful maintenance of aircraft. A comprehensive understanding and usage of technical terms specific to aviation enables these professionals to accurately convey critical information, perform maintenance tasks, and communicate effectively with colleagues and supervisors. Whether interpreting maintenance manuals, troubleshooting complex systems, or documenting repairs, a robust vocabulary assists efficient communication and minimizes the risk of misinterpretation or error. As aircraft systems continue to advance in complexity and sophistication, an up-to-date vocabulary empowers technicians to stay abreast of technological

developments and adapt to evolving maintenance procedures. Moreover, building aviation vocabulary benefits the routine and non-routine exchanges between pilots and air traffic controllers, facilitating good coordination during all phases of flight. All in all, investing in vocabulary development not only enhances communication proficiency but also plays a fundamental role in mitigating risks and maintaining the highest standards of safety in aviation operations.

In aviation context, where clarity, precision and efficiency are paramount, the use of formulaic language stands as a cornerstone of effective communication. Yet, while the importance of formulaicity in aviation communication is widely acknowledged, its precise significance and impact remain under-researched in academic discourse. This article explores the classification, function and role of formulaic language in

aviation environment as well as its significance for the linguistic altitude – a term coined to encapsulate the language level necessary for successful and efficient communication in aviation. Thus, the article enriches our understanding of this linguistic phenomenon in specialized domains and provides insights for language teachers and researchers seeking to enhance communication practices within the aviation industry.

2. The Concept of Formulaicity

Linguists, including David Wood [1], Peter Howarth [2], Alison Wray [3], Erman and Warren [4] highlight the crucial understanding that words operate not in isolation but as components of larger lexical or grammatical units within connected discourse. Assassi [5] establishes the importance of chunking for aviation English learners because aviation radiotelephony phraseology is prefabricated. Despite the creative nature of each language, where individuals can select from a wide range of words for communication, corpus studies reveal consistent linguistic patterns and often constraints on word combinations within any language. With the advent of computerized corpus research methods, there has been a growing emphasis on formulaicity. Researchers can now analyze frequencies and identify concordances of specific words, uncovering prevalent collocational tendencies, particularly within specialized domains. Erman and Warren [4] discovered that 52-58% of texts in their corpus exhibit formulaic traits. In aviation context the sentences are brief and concise; the delivery is unambiguous and emotionless. A lot of them can be classified as formulaic language whose basic role is functional. They are mostly composed of imperative forms (“Report intentions”), passive structures (“Cleared to intercept localizer”) and nominalizations (“Request low pass”).

Wray [3] identified approximately 55 terms

used by researchers to describe formulaic language, indicating a diverse range of conceptualizations: set phrases, formulaic sequences, idioms, idiomaticity, collocations, formulas, ready-made utterances, prefabricated routines and patterns, chunks, lexical phrases, lexical bundles, multi-word units, etc. Wray [3] underscores that these terms do not merely represent variations of a single phenomenon but rather point to a spectrum of related concepts across different types of data. Formulaic language is not a homogeneous entity with uniform characteristics; it encompasses a variety of closely and loosely related phenomena, covering all significant aspects of word combinations. She prefers the name “formulaic sequence” and offers the following definition - “a sequence, continuous or discontinuous, of words or other elements, which is, or appears to be, prefabricated: that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar” [3 pp9].

Erman and Warren [4 pp31] distinguish between prefabricated and non-prefabricated combinations and define prefabricated as follows: “A prefab is a combination of at least two words favored by native speakers in preference to an alternative combination which could have been equivalent had there been no conventionalization.” Nonetheless, they acknowledge the challenge of identifying completely the prefabricated combinations. The dominant characteristics specified by David Wood [1] are 1. multi-word form; 2. have a single meaning or function; 3. be prefabricated or stored and retrieved mentally as if a single word.

In aviation context formulaicity is a linguistic phenomenon which refers to multi-word strings which act as cohesive lexical units. These linguistic constructs possess distinct characteristics. First, they consist of combinations of words intricately woven together. Second, they have a high

degree of predictability and routine usage. Last but not least, they have communicative functions such as orders (Immediately descend to flight level 310), requests (Request start-up), offers to act (Say intentions), giving advice (Do you want to make a go around?), permissions (Cross runway 29L), approvals and undertakings (Make full stop landing. Runway 27. Cleared to land. Surface wind calm.)

While definitions of formulaic language vary among studies, it seems there has been an increasing consensus on the concept in recent decades. It appears that the idea of unity is a common thread among different viewpoints on formulaicity. The notion of completeness is readily apparent in idioms and phrasal verbs, whereas identifying certain other linguistic units as members of the formulaic category can be more challenging. Despite variations in terminology and emphasized characteristics, formulaic language is omnipresent with its various forms in everyday speech, in literature, in technical and professional documents.

In terms of categorizing formulaic language, Wood [1 pp37] presents the following classification: collocations, idioms, lexical phrases, lexical bundles, metaphors, proverbs, phrasal verbs, n-grams, congrams, and compounds. Collocation refers to the tendency of certain words to frequently appear together in discourse, as Wood describes it, “a syntagmatic relationship among words which co-occur” [1 pp38]. The connection between these words can be either fixed or somewhat flexible, and their meaning is typically literal and easily understood by everyone. Collocations can be broadly categorized into two types based solely on their structure: grammatical and lexical. Grammatical collocations involve a key word such as a noun, verb, or adjective paired with a preposition or grammatical structure like an infinitive or clause. They are commonly found in both everyday English and aviation English, with

examples like “The airplane is at two o'clock”, “They have the permission to do it”, “on the alert”, “at your own discretion”, and so forth. Lexical collocations, on the other hand, consist of combinations of nouns, verbs, adjectives, or adverbs. Examples of noun phrases include “level change”, “departure information”, “transition altitude”, and “slot time”. Adjective-noun collocations include “active runway”, “blind transmission”, “reporting point”, “final approach”, and “downwind leg”. Noun-verb collocations include “bleed to death”, “plant a bomb”, and “start up the engine”. Melcuk, as cited by Wood [1], proposes another classification of collocations based on the relations between their components. One type is “collocations with 'light' delexicalized verbs such as 'do a favor'”. These verbs, including do, have, take, go, give, get, and make, derive their meaning from the nouns they are paired with, such as “take a turn”, “make a comment”, and “make a decision”. These collocations lie somewhere on the spectrum between idiomatic expressions and freely combined words.

The congrams, in which the components of a phrase are separated by other words in the sentence, are more difficult to be discovered and software assists the process. Lexical bundles are generally a “combinations of three or more words that are identified in a corpus of natural language by means of corpus analysis software programmes” [1 pp45]. Lexical bundles occur in texts within a specific corpus; that is the reason for their existence exclusively in a single discipline. In another example explained by Wood [1], lexical bundles frequently occur in published academic papers such as journal articles. Biber [6] realised through his research that the use of lexical bundles in academia is different; natural and social sciences use them more than the humanities. They serve special discourse functions but they do not carry specific meaning. Analyzing aviation corpora to identify lexical bundles could aid

aviation English trainers in directing students' attention to them.

Phrasal verbs, consisting of a verb paired with a preposition, particle, or both, are widely used in everyday language, yet non-native speakers often hesitate to use them. However, aviation English trainers should not overlook them as they frequently appear in aviation environment – “push back”, “start up”, “touch down”, “take off”, “run up”, “wear off”, “jack up”, etc. Notably, in aviation contexts, phrasal verbs adhere to a one-meaning rule to prevent ambiguity and misunderstandings.

In the aviation environment there are formulaic sequences which convey the meaning of whole sentences: Ready for immediate departure; Traffic in sight; How do you read?; Cleared via flight planned route. Moreover, a single word can convey the meaning of a whole sentence: “Wilco” equals “I understand your message and I will comply with it”; “Unable” equals “I cannot comply with your request, instruction or clearance”; “Out” equals “This exchange of transmissions is ended and no response is expected.”; “Acknowledge” means “Let me know you have received and understood this message.”

Aviation English language intentionally avoids linguistic complexities like polysemy, idioms, proverbs, and metaphors due to the potential hazards they pose in contexts, where precise communication is paramount to ensuring safety. Metaphors bridge the concrete and abstract or indirectly compare two concepts. Though their meaning may not be immediately transparent, context often provides clues for interpretation. Idioms, fixed expressions with nonliteral meanings, cannot be deciphered from the literal meanings of their components. While many idioms are related to aviation, meteorology, and technology, such as “on cloud nine”, “ahead of the curve”, “a straw in the wind”, and “the redeye flight”, their use is discouraged among aviation personnel to prevent

ambiguity or confusion in exchanges between pilots and air traffic controllers. Aviation English demands clarity and precision. On the other hand, there are expressions often considered idiomatic that are actually professional jargon or standard phrases in aviation. For instance, “party line communication” refers to pilots monitoring all radio exchanges in the area, including those of other aircraft; “zulu time” denotes GMT; the “sterile cockpit” rule prohibits non-essential activities during critical flight phases like takeoff and landing; “pushing the envelope” indicates the aircraft approaching its altitude and speed limits; and a “glass cockpit” features an advanced digital flight instrument panel. Similarly, during ground communication, one might encounter technical idioms like “belt and braces”, or the colloquial “bottle to throttle”, while articles might discuss “bleeding edge technology”.

Defining the parameters of formulaic language in aviation environment, whether spoken or written, presents a challenge. Identifying which expressions are terms versus formulaic sequences or collocations versus lexical bundles requires additional investigation and research.

3. The Role of Formulaic Language in Achieving Fluency of Speech

In recent times, linguists have explored the relationship between formulaic language and fluency, particularly among foreign language learners, and have observed that increased utilization of formulaic language enhances the ability to produce fluent speech. As expressed by Wood, “From the current stage of knowledge about fluency, it is apparent that formulaic sequences are key elements in fluency development, along with automatization of processing” [7 pp222]. Formulaic language contributes to faster rate of speech, more natural expressions, and generally more accurate speech.

In the aviation context, formulaic language plays a crucial role in facilitating efficient

communication between pilots and air traffic controllers, between ground personnel and supervisors, between maintenance technicians. These ready-made linguistic units enable swift and fluent communication, particularly in time-sensitive and high-stakes situations, such as takeoff, landing, and in-flight emergencies. Moreover, formulaic language serves as a tool for streamlining communication processes, reducing cognitive load, and freeing up mental resources for pilots and controllers to focus on critical tasks.

Utilizing appropriate phraseology is paramount for effective aviation communication. For instance, during a flight, while cruising at flight level 230, the pilot requested clearance to climb to flight level 310. In response, the air traffic controller refused and replied “I can give you 290”. The co-pilot understood this as “you are cleared to climb flight level 290” and replied “Roger, cleared 290. Leaving 230”. Unfortunately, the air traffic controller either did not hear or failed to register the incorrect readback. Subsequently, the aircraft initiated the climb without proper clearance. Promptly responding to the situation, the air traffic controller intervened, emphasizing, “You were not cleared to climb. Descend immediately to flight level 230. Traffic detected at 11 o’clock, 15 miles”.

In addition to this, formulaic language is used in aviation regulations and aircraft maintenance documents, serving to ensure clarity, consistency, and precision. These documents often contain standardized phrases, technical terminology, and procedural instructions that are repeated across various contexts. Such formulaic expressions help to establish uniformity in compliance requirements, maintenance procedures, and safety protocols, thereby enhancing operational efficiency and reducing the risk of errors. The use of

formulaic language in these documents facilitates comprehension and adherence to regulatory standards by aviation personnel, regardless of their linguistic proficiency or background.

The systematic integration of formulaic language in aviation English language training is not only advisable but imperative for ensuring effective communication within the aviation industry. By incorporating it into language training curricula, aviation personnel can develop the proficiency and fluency necessary to perform their duties. Formulaicity facilitates rapid and accurate exchanges between pilots and air traffic controllers, and mitigates the risks associated with miscommunication during flight operations.

4. Conclusion

The significance of formulaic language in aviation English cannot be overstated. The adherence to established phraseology and formulaic language is crucial for safe and efficient communication between pilots and air traffic controllers, maintenance staff, ground personnel, and cabin crew. Formulaic language serves as a tool for conveying complex instructions and information with clarity and precision, reducing the risk of misinterpretation and misunderstandings, which can have serious consequences in the aviation environment.

It can be concluded that widespread use of formulaicity in aviation English not only would aid in the initial stages of language learning but could also foster continuous improvement and proficiency among aviation personnel, contributing to enhanced operational efficiency and safety standards within the aviation industry. The formulaic language can help aviation professionals reach high linguistic altitude and navigate the skies with confidence and precision.

References List

- [1] Wood, D. (2015) *Fundamentals of formulaic language*. London: Bloomsbury, Published online by Cambridge University Press.
- [2] Howarth, P. (1998) Phraseology and Second Language Proficiency. *Applied Linguistics, Volume 19, Issue 1*, pp. 24–44, <https://doi.org/10.1093/applin/19.1.24>.
- [3] Wray, A. *Formulaic language and the lexicon*. CUP. 2002.
- [4] Erman, B. and Warren, B. (2000) The idiom principle and the open choice principle. *Text and Talk*. 20(1), 29-62. DOI:10.1515/text.1.2000.20.1.29 Corpus ID: 55336137
- [5] Assassi, T. The importance of formulaic language in aviation English: A case study. In *The changing face of ESP in today's classroom and workplace*, eds. Kenny, N., Escobar, L. Vernon press. 2020.
- [6] Biber, Douglas. (2006) *University Language: A Corpus Study of Spoken and Written Registers*. Amsterdam and Philadelphia:. John Benjamins Publishing Company.
- [7] Wood, D. *Formulaic language and Second Language Speech Fluency*. Continuum International Publishing Goup. 2010