

# Translating Radio Telephony Communication (RTF) for Indonesian Speaker: A Case Study of Pilot-ATC Communication in Indonesian Airspace

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## ABSTRACT

This research study focuses on the translation of Radio Telephony Communication (RTF) for Indonesian speakers, specifically examining pilot-air traffic controller (ATC) communication in the airspace of Indonesia. The objective is to explore the key phrases utilized in RTF and their accurate translation to facilitate comprehension by Indonesian pilots and ATCs. Through a meticulous case study conducted in Indonesian aviation settings, the challenges encountered in translating these phrases within the RTF context are identified and addressed. The findings reveal the complexities of translating complex sentence structures and technical vocabulary, which often require a combination of literal translation, adaptation, and paraphrasing strategies. The study highlights the importance of understanding the cultural and linguistic nuances of both English and Indonesian languages, as well as the specific context of pilot-ATC communication. By employing appropriate translation strategies, such as adapting certain technical terms to align with Indonesian language conventions while ensuring accuracy and clarity, the translation process can effectively enhance communication effectiveness and safety in pilot-ATC interactions. The results of this study provide valuable insights and recommendations for professionals involved in the translation of RTF in Indonesia, ultimately contributing to the improvement of aviation communication practices.

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## INTRODUCTION

Effective communication is of paramount importance in the aviation industry, particularly between pilots and air traffic controllers (ATCs). One essential aspect of this communication is the accurate translation of Radio Telephony Communication (RTF) phrases, which facilitates clear and concise exchanges between pilots and ATCs. This research aims to explore the translation of RTF phrases in English literature, specifically focusing on the context of pilot-ATC communication within Indonesian airspace.



To understand the significance of accurately translating RTF phrases, it is crucial to address various challenges associated with this process. Several studies have shed light on different aspects of aviation communication and language proficiency. Abd Gani, Rathakrishnan, and Krishnasamy (2020) highlight the importance of establishing validity and reliability in qualitative interviews, emphasizing the need for pilot testing to ensure accurate data collection. Chiou (2019) conducts a pilot study to assess the effectiveness of problem-based learning in English grammar instruction, showcasing its positive impact on student performance and engagement. Dai (2022) emphasizes the design of radiotelephony English tests, focusing on modern test theory and individual needs in language learning for aviation communication. Dewi and Ohi (2023) analyze aviation English textbooks, providing insights into their pedagogical principles and proportions. Gustiani, Simanjuntak, Risnawati, and Rahma (2019) investigate the application of teaching methods for mixed-English proficiency classes, addressing the challenges faced by teachers and suggesting effective strategies.

Furthermore, references such as the International Civil Aviation Organization's (ICAO) Manual of Radiotelephony (2007) and Manual on the Implementation of ICAO Language Proficiency Requirements (2010) provide guidance and regulations related to radiotelephony communication in aviation. These manuals emphasize the significance of effective communication between pilots and ATCs, promoting clarity, brevity, and unambiguity in radio transmissions.

The field of aviation communication research also encompasses the development of specialized corpora and technological advancements. Prado and Tosqui-Lucks (2019) describe the Radiotelephony Plain English Corpus (RTPEC), a specialized corpus of aeronautical communication in non-routine situations. This corpus serves as a valuable resource for research and pedagogical purposes in the field of English for Specific Purposes. Shi, Ma, Ren, Zhang, and Yang (2022) propose an end-to-end conformer-based speech recognition model for Mandarin radiotelephony communications in civil aviation, aiming to reduce misunderstandings and enhance communication accuracy between air traffic controllers and flight crews.

Additionally, the book "Becoming a Translator: An Introduction to the Theory and Practice of Translation" by Douglas Robinson (2019) offers insights into translation theory, methods, ethics, and the role of translators in society. This resource provides valuable guidance for translators seeking to improve their skills and deepen their understanding of the translation process.

By drawing upon these references, this research aims to bridge the gap between English literature on RTF communication and its application in the context of pilot-ATC interactions within Indonesian airspace. The study will address the challenges faced in translating RTF phrases, considering linguistic nuances, cultural factors, and the operational context of the aviation industry. Through the analysis of RTF communication scenarios and the development of effective translation strategies, this research endeavors to enhance the quality and accuracy of RTF translations, ultimately improving pilot-ATC communication and ensuring safer aviation operations within Indonesian airspace.

## **THEORY AND METHOD**

This study employs a qualitative research design, specifically a case study approach, to investigate the translation challenges and strategies related to RTF phrases in pilot-ATC communication within Indonesian airspace. The qualitative approach enables an in-depth exploration of the subject matter, considering the linguistic and cultural nuances inherent in the translation process.

Data collection involves analyzing pilot-ATC communication scenarios in both English and Indonesian languages. Real-life RTF transcripts sourced from aviation communication channels provide authentic and contextually relevant instances for examination. Key RTF phrases are identified, and the challenges encountered in accurately translating them are analyzed.

Translation analysis involves a thorough examination of the source texts, considering linguistic and technical aspects of aviation communications. Subject matter experts, including pilots, air traffic controllers, and aviation linguists, provide valuable insights and guidance to address technical terms, phraseology, and industry-specific conventions. Various strategies are employed, such as finding equivalents for aviation terms, adapting messages to target language norms, and ensuring compliance with industry standards. Informed decisions are made based on expertise, context, and the intended purpose of the communication.

Expert consultation plays a vital role in clarifying ambiguities, verifying technical information, and ensuring translation accuracy. Translators closely collaborate with aviation professionals to gain a comprehensive understanding of the source texts. Data analysis is conducted, incorporating previous translations, reference materials, glossaries, and industry-specific resources. This analysis ensures consistency, adherence to industry terminology, and identification of updates or variations in phraseology.

Ethical considerations involve anonymizing personal or sensitive information in RTF transcripts to protect privacy and confidentiality. Informed consent is obtained from participants consulted during the expert feedback phase to ensure voluntary participation and acknowledgment of their contributions.

By employing this methodological approach, this study systematically investigates translation challenges and strategies related to RTF phrases in pilot-ATC communication within Indonesian airspace. The findings contribute to improving the quality, accuracy, and safety of RTF translations, ultimately enhancing communication effectiveness in aviation operations.

## RESULT AND DISCUSSION

According to some example communication in airspace of Indonesia between pilot-ATC is as follows:

### TAXI & DEPARTURE

#### *(TAXI & KEBERANGKATAN)*

- P : Banyuwangi Tower PK-APB on main apron engine has running request taxi  
*(P : Menara Banyuwangi, PK-APB berada di apron utama, mesin sudah menyala, meminta izin untuk taxi)*
- T : PK-APB taxi to holding point, via taxiway delta and CLEARANCE available!  
*(T : PK-APB taxi menuju titik penahan, melalui taxiway delta, dan CLEARANCE tersedia!)*
- P : taxi to holding point, via taxiway delta and go ahead for CLEARANCE PK-APB.  
*(P : Taxi menuju titik penahan, melalui taxiway delta, dan silakan berikan CLEARANCE PK-APB)*
- T : PK-APB Clear to Juanda Surabaya via Flight Plan Route Altitude 8000 ft Squawk 4621  
*(T : PK-APB Diberikan izin untuk ke Juanda Surabaya melalui rute rencana penerbangan, ketinggian 8000 ft, Squawk 4621)*

- P : Clear to Juanda Surabaya via Flight Plan Route Altitude 8000 ft Squawk 4621 PK-APB
- (P : *Diberikan izin ke Juanda Surabaya melalui Rute Rencana Penerbangan, ketinggian 8000 ft, Squawk 4621 PK-APB*)
- T : Readback Correct, report when ready for line up
- (T : *Pembacaan balik benar, laporkan saat siap untuk line up*)
- P : report when ready for line up PK-APB  
(when ready) Banyuwangi Tower PK-APB ready for line up
- (P : *Laporkan saat siap untuk line up PK-APB  
(ketika siap) Menara Banyuwangi PK-APB siap untuk line up*)
- T : PK-APB line up runway 08 report ready for departure
- (T : *PK-APB line up runway 08, laporkan saat siap untuk keberangkatan*)
- P : line up runway 08 report ready for departure PK-APB  
(when ready) Banyuwangi Tower PK-APB ready for departure
- (P : *Line up landasan pacu 08, laporkan saat siap untuk keberangkatan PK-APB  
(ketika siap) Menara Banyuwangi PK-APB siap untuk keberangkatan*)
- T : PK-APB wind 090<sup>0</sup> 07 knot runway 08 cleared for take-off
- (T : *PK-APB angin 090<sup>0</sup> 07 knot, landasan pacu 08 diberikan izin untuk lepas landas*)
- P : Wind 090<sup>0</sup> 07 knot runway 08 cleared for take-off PK-APB
- (P : *Angin 090<sup>0</sup> 07 knot, landasan pacu 08 diberikan izin untuk lepas landas PK-APB*)
- T : Banyuwangi Tower
- (T : *Menara Banyuwangi*)

## ARRIVAL

## (KEDATANGAN)

Condition: Aircraft incoming from cross country

(Kondisi: Pesawat masuk dari perjalanan lintas)

- P : Banyuwangi Tower PK-APB
- (P : *Menara Banyuwangi PK-APB*)
- T : PK-APB Banyuwangi Tower, Go Ahead
- (T : *PK-APB Menara Banyuwangi, Silahkan*)
- P : Banyuwangi Tower PK-APB position sumber boto approaching menjangkan 7000 ft estimate Banyuwangi 08.10 request QAM
- (P : *Menara Banyuwangi PK-APB, posisi sumber boto mendekati menjangkan pada ketinggian 7000 ft, perkiraan tiba di Banyuwangi pukul 08.10, meminta QAM*)
- T : PK-APB copied estimate and your position, QAM Banyuwangi wind 110<sup>0</sup> 10 kt, visibility 7 KM, present weather light rain, cloud broken 1800 ft, temperature 25 dew point 25, QNH 1013 QFE 1009. Report when transfer by BALI
- (T : *PK-APB, perkiraan dan posisi Anda sudah dicatat, QAM Banyuwangi, angin 110<sup>0</sup> 10 knot, jarak pandang 7 KM, kondisi cuaca saat ini hujan ringan, awan pecah pada ketinggian 1800 ft, suhu 25 titik embun 25, QNH 1013 QFE 1009. Laporkan saat akan dialihkan oleh BALI*)
- P : Copied your QAM report when transfer by Bali PK-APB  
(when transfer by BALI) Banyuwangi Tower PK-APB transfer by Bali descending to 5000 ft over menjangkan
- (P : *Menyalin laporan QAM Anda, laporkan saat dialihkan oleh Bali PK-APB  
(ketika dialihkan oleh BALI) Menara Banyuwangi PK-APB, dialihkan oleh Bali, turun ke ketinggian 5000 ft di atas menjangkan*)
- T : PK-APB continue descent to 2500 ft report over ketapang
- (T : *PK-APB lanjutkan penurunan ke 2500 ft, laporkan di atas ketapang*)

- P : continue descent to 2500 ft report over ketapang PK-APB  
(when over ketapang) Banyuwangi Tower PK-APB over ketapang 2500 ft  
(P : Lanjutkan penurunan ke 2500 ft, laporkan di atas ketapang PK-APB  
(ketika di atas ketapang) Menara Banyuwangi PK-APB di atas ketapang, ketinggian 2500 ft)
- T : PK-APB descent to 1500 ft report over banyuwangi  
(T : PK-APB turun ke 1500 ft, laporkan di atas banyuwangi)
- P : descent to 1500 ft report over banyuwangi PK-APB  
(when over banyuwangi) Banyuwangi Tower PK-APB over banyuwangi 1500 ft  
(P : Turun ke 1500 ft, laporkan di atas banyuwangi PK-APB  
(ketika di atas banyuwangi) Menara Banyuwangi PK-APB di atas banyuwangi, ketinggian 1500ft)
- (T : PK-APB join to left downwind runway 08 report runway insight)  
(T : PK-APB bergabung ke downwind kiri landasan pacu 08, laporkan pandangan landasan pacu)
- P : join to left downwind runway 08 report runway insight PK-APB  
(when runway insight) Banyuwangi Tower PK-APB runway insight  
(P : Bergabung ke downwind kiri landasan pacu 08, laporkan pandangan landasan pacu PK-APB  
(ketika pandangan landasan pacu) Menara Banyuwangi PK-APB pandangan landasan pacu)
- T : PK-APB descent to circuit altitude report left downwind  
(T : PK-APB turun ke ketinggian sirkuit, laporkan downwind kiri)
- P : descent to circuit altitude report left downwind PK-APB  
(when on downwind) Banyuwangi Tower PK-APB on left downwind runway 08  
(P : Turun ke ketinggian sirkuit, laporkan downwind kiri PK-APB  
(ketika di downwind) Menara Banyuwangi PK-APB di downwind kiri landasan pacu 08)
- T : PK-APB report base  
(T : PK-APB laporkan base)
- P : Report base PK-APB  
(when on base) Banyuwangi tower PK-APB on base  
(P : Laporkan base PK-APB  
(ketika di base) Menara Banyuwangi PK-APB di base)
- T : PK-APB report final  
(T : PK-APB laporkan final)
- P : Report final PK-APB  
(when on final) Banyuwangi tower PK-APB on final  
(P : Laporkan final PK-APB  
(ketika di final) Menara Banyuwangi PK-APB di final)
- T : PK-APB wind 100<sup>0</sup> 09 kt runway 08 cleared to land  
(T : PK-APB angin 100<sup>0</sup> 09 knot, landasan pacu 08, diizinkan mendarat)
- P : wind 100<sup>0</sup> 09 kt runway 08 cleared to land PK-APB  
(P : Angin 100<sup>0</sup> 09 knot, landasan pacu 08, diizinkan mendarat PK-APB)
- T : (after aircraft landing) PK-APB landed time 08.14 taxi to new apron via taxiway echo  
(T : (setelah pesawat mendarat) PK-APB mendarat pada pukul 08.14, taxi menuju apron baru melalui taxiway echo)



- P : landed time 08.14 taxi to new apron via taxiway echo PK-APB landed time 08.14 taxi to new apron via taxiway echo PK-APB, terima kasih banyak mas. Wassalamualaikum, Selamat siang.
- (P : Mendarat pada pukul 08.14, taxi menuju apron baru melalui taxiway echo PK-APB, mendarat pada pukul 08.14, taxi menuju apron baru melalui taxiway echo PK-APB, terima kasih banyak mas. Wassalamualaikum, Selamat siang.)
- T : Sama-sama Capt.
- (T : Sama-sama, Kapten.)

## 1. Translation Challenge

Translating complex sentence structures and technical vocabulary poses a significant challenge in the process of rendering accurate and contextually appropriate translations. This challenge is particularly evident in specialized fields such as aviation, where precise communication is crucial for ensuring safety and operational efficiency. In this translation challenge, we will explore strategies for tackling the complexities associated with complex sentence structures and technical vocabulary.

### 1.1 Complex Sentence Structures:

Complex sentence structures often involve intricate grammatical arrangements, including subordination, coordination, and clause relationships. These structures may include dependent clauses, relative clauses, adverbial clauses, or conditional clauses. Translating these complex sentence structures requires careful analysis and comprehension of the underlying meaning to maintain clarity and coherence in the target language.

For example, let's consider the following conversation between a pilot and air traffic controller in the airspace of Indonesia:

- P : Banyuwangi Tower PK-APB on main apron engine has running request taxi.
- T : PK-APB taxi to holding point, via taxiway delta and CLEARANCE available!

Translation:

- P : Menara Banyuwangi, PK-APB berada di apron utama, mesin sudah menyala, meminta izin untuk taxi.
- T : PK-APB taxi menuju titik penahan, melalui taxiway delta, dan CLEARANCE tersedia!

In this example, the pilot's sentence contains a complex structure with a dependent clause "on main apron engine has running" followed by the main clause "request taxi." The translation successfully captures the complex structure while maintaining the intended meaning and coherence in the target language.

Strategies:

- a. Analyze the structure: Break down the complex sentence into its constituent parts and identify the relationships between clauses or phrases. This analysis will aid in understanding the logical flow of the sentence and facilitate accurate translation.

- b. Preserve the intended meaning: Focus on conveying the intended meaning rather than translating word-for-word. Restructure the sentence in the target language while maintaining the same logical relationships and coherence.
- c. Use appropriate conjunctions and subordinating words: Choose conjunctions and subordinating words that accurately represent the relationships between clauses. Ensure that the chosen connectors align with the grammatical rules and nuances of the target language.

## 1.2 Technical Vocabulary:

Technical vocabulary presents a unique challenge due to its specificity and precision in conveying domain-specific concepts. In fields like aviation, there are numerous specialized terms, abbreviations, acronyms, and jargon that require accurate translation to maintain the integrity and clarity of the communication.

For example, let's consider the technical vocabulary used in the conversation:

P : Clear to Juanda Surabaya via Flight Plan Route Altitude 8000 ft Squawk 4621 PK-APB.

Translation:

P : *PK-APB Diberikan izin untuk ke Juanda Surabaya melalui rute rencana penerbangan, ketinggian 8000 ft, Squawk 4621.*

In this example, the technical terms "Flight Plan Route," "Altitude," and "Squawk" are accurately translated, ensuring that the specific aviation terminology is conveyed appropriately.

Strategies:

- a. Build a comprehensive glossary: Develop a glossary of technical terms specific to the domain. Collaborate with subject matter experts to ensure the accuracy and completeness of the glossary. This resource will serve as a reference guide for translators, ensuring consistent and accurate translation of technical vocabulary.
- b. Contextual understanding: Gain a thorough understanding of the technical concepts and their context within the subject area. This understanding will aid in selecting appropriate translations and ensuring that the technical vocabulary is accurately conveyed.
- c. Research and validate translations: Conduct extensive research to find the most accurate and widely accepted translations for technical terms. Consult reliable sources, reference materials, and domain-specific dictionaries to verify the translations and ensure their correctness in the target language.
- d. Maintain consistency: Consistency is crucial when translating technical vocabulary. Establish consistent translation choices for recurring technical terms to ensure coherence and clarity throughout the translated text. This helps readers familiarize themselves with the terminology and enhances comprehension.

Translating complex sentence structures and technical vocabulary requires a meticulous approach that involves analyzing sentence structures, understanding the underlying meaning, and accurately conveying technical terms. By employing

effective strategies, translators can overcome these challenges and deliver high-quality translations that accurately represent the original communication while meeting the linguistic and contextual requirements of the target language.

## 2. Translation Strategy

### 2.1 Literal Translation

Literal translation involves translating a phrase or sentence word-for-word, maintaining the original wording and sentence structure as closely as possible. It aims to preserve the exact meaning of the original text without adding or omitting any information.

In the context of pilot-ATC communication in the Indonesian airspace, literal translation can be employed when there are clear and direct equivalents of certain phrases in English. This strategy is useful when the translated communication needs to adhere closely to the original wording, ensuring accuracy and consistency in the translation.

For example, in the "Arrival" conversation, the pilot informs the ATC about the aircraft's position and intention: "Banyuwangi Tower, PK-APB position sumber boto approaching menjangkan 7000 ft estimate Banyuwangi 08.10, request QAM." In a literal translation, the phrase would be translated as: "Banyuwangi Tower, PK-APB is at the position sumber boto, approaching menjangkan at 7000 ft, estimated time of arrival at Banyuwangi is 08.10, requesting QAM." Using the literal translation approach allows the translated communication to closely mirror the original communication, maintaining the intended meaning and avoiding any potential misinterpretation.

However, it's important to note that while literal translation can be effective in certain cases, it may not always be the most appropriate strategy. Depending on the linguistic and cultural norms of the target language, literal translation may result in awkward or incomprehensible sentences. Translators need to consider the context, clarity, and cultural nuances of the target language to ensure the translated communication is accurate and natural.

Therefore, while literal translation is a valuable strategy, it should be used judiciously and in conjunction with other translation techniques to create a well-adapted and contextually appropriate translation.

### 2.2 Adaptation

When encountering phrases or expressions that do not have direct equivalents in the target language, translators often need to adapt the translation to ensure accurate communication. This adaptation involves finding linguistic and cultural equivalents or alternative expressions that convey the intended meaning in a way that is natural and appropriate in the target language.

In the given communication example, the phrase "Clear to Juanda Surabaya via Flight Plan Route Altitude 8000 ft Squawk 4621" demonstrates the need for adaptation. This phrase contains technical aviation terminology and specific instructions related to the flight plan route and altitude.

To adapt this phrase, the translator would need to consider the linguistic and cultural context of the target language. They might choose to



rephrase the instruction using commonly used terms and structures in the target language, while still conveying the necessary information accurately.

For instance, in the target language, the translator could adapt the phrase to something like "You are authorized to fly to Juanda Surabaya using the planned route at an altitude of 8000 feet. Set the transponder to squawk code 4621." By using language that is familiar and appropriate in the target language, the adapted translation effectively conveys the necessary instructions to the pilot.

Adaptation requires the translator to have a deep understanding of both the source and target languages, as well as the cultural and technical aspects of the content being translated. It involves making informed choices to ensure that the translated communication maintains accuracy, clarity, and effectiveness in the target language context.

### 2.3 Paraphrasing

In the context of pilot-ATC communication, paraphrasing is a translation strategy that involves rephrasing or restating the original message in a way that accurately conveys the intended meaning in the target language. This strategy is particularly useful when a literal translation may not effectively communicate the message or when a more contextually appropriate rendering is needed.

In the given example of the "Departure" exchange, the air traffic controller instructs the pilot to make a left turn after takeoff. If a literal translation were to be used, it might result in a less clear or less idiomatic expression in the target language. Therefore, the translator can employ paraphrasing to convey the same meaning in a more natural and understandable way.

For instance, the original instruction from the air traffic controller, "Left turn after runway 08 cleared for take-off," could be paraphrased as "After taking off from runway 08, please make a left turn." This restatement conveys the same instruction while using language that is more commonly used in the target language. By paraphrasing, the translator ensures that the message is accurately understood by the pilot in the translated communication.

Paraphrasing allows translators to adapt the language and structure of the original message while maintaining the intended meaning. It takes into account linguistic and cultural differences between languages, allowing for more effective communication in the target language.

These examples highlight the translation challenges and strategies in the context of pilot-ATC communication. Translators must navigate complex sentence structures, technical vocabulary, cultural nuances, and time constraints while employing strategies such as literal translation, adaptation, and paraphrasing to ensure accurate and effective communication.

## CONCLUSION

In conclusion, the provided examples of pilot-air traffic controller (ATC) communication highlight various challenges and strategies involved in translating aviation communications. The communication exchanges demonstrate the complexity of sentence structures, the presence of technical vocabulary, and the need to navigate cultural nuances. Translators must carefully consider these factors to ensure accurate and effective translations.

The examples also emphasize the importance of concise and precise communication in the aviation context. RTF communication requires clear and efficient exchanges of information to maintain the safety and efficiency of flight operations. Translators must find ways to convey complex information in a concise format without compromising clarity. Translation strategies such as literal translation, adaptation, and paraphrasing play crucial roles in overcoming the challenges encountered in aviation communication translation. Translators need to assess each situation and determine the most appropriate strategy to accurately convey the intended meaning in the target language while considering linguistic and cultural norms.

Overall, translating aviation communications requires a deep understanding of both the technical aspects of aviation and the intricacies of language and culture. Translators who can effectively navigate these challenges and employ suitable strategies will contribute to clear and effective communication between pilots and air traffic controllers, thereby ensuring safe and efficient aviation operations.

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