Plain Language

Plain language, in contrast to **standard phraseology**, is not clearly defined in ICAO publications. Document 9835 describes it as "the spontaneous, creative and non-coded use of a given natural language" (ICAO, 2010, p. 6-6). A simple way of describing plain language is to define it as any language used by pilots or controllers that is *not* standard phraseology. An important aspect of plain language is that is used for resolving situations not covered by phraseology. Plain language necessarily includes all of the lexicogrammar that individuals may draw on to handle a range of non-routine situations which cannot be exactly specified. Consequently it is not feasible to compile a directory of plain language, as is possible with the restricted code of standard phraseology.

In practical terms, some pilots consider plain language to be synonymous with general language or natural language. Estival et al. (2016) acknowledged that plain English is sometimes referred to as "Standard English" or "conversational English", but stressed that it is not the same as natural conversation. In terms of regulations, ICAO documents specify constraints on the use of plain language that serve to differentiate it from natural language. These constraints are outlined in the next section. Since they are only defined in broad terms, the exact nature of plain language and its relation to natural language are "still a source of debate and discussions" (Estival et al., 2016, p. 23).[1]

Constraints on Plain Language

The first constraint specified by ICAO relates to *when* plain language may be used. As stated in Annex 10, the use of plain language in radiotelephony is permitted "only when standardized phraseology cannot serve an intended transmission" (ICAO, 2007, p. 5-1). Document 9835 outlines several example situations in which plain language may be used, including emergencies when pilots need to inform ATC about equipment failure or medical problems. More mundane situations are also mentioned, such as when a pilot makes a request to continue flying at high speed.

The second constraint concerns *how* plain language should be used. Document 9835 states that individuals are "required to be fluent, clear, concise and unambiguous" when using plain language (ICAO, 2010, p. 3-6). This requirement may be appropriate and realistic for the restricted code of phraseology, but plain language is not as simple. Pilots and controllers habitually use natural language in non-aviation contexts where they do not face stringent requirements for conciseness or unambiguity. Habitual use of natural language in daily life may interfere with their use of plain language in operational contexts, making it difficult for them to comply with the ICAO requirement. Kim (2013, pp. 107) illustrated the problem in a study of communications between Korean air traffic controllers and foreign pilots:

> All three NES [native English speaker] pilots were observed to use general
> English habitually and in an unnecessarily wordy manner. Their lack of
> sensitivity in using general colloquial English when plain English was

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[1] There is no connection between aviation plain language and the Plain English movement that campaigns for more comprehensible official documents in English-speaking countries.

required was emphasised along with their unduly fast rate of speech and choice of words whose meanings were unlikely to be shared.

In addition to the ICAO requirements, there are other constraints affecting plain language that relate to the pilot-ATC radiotelephony system. Non-verbal communication is not possible between pilots and controllers, and prosody is of limited utility due to radio bandwidth limitations. Both of these features are available for pilot-pilot communication inside the cockpit, although only to a limited degree due to constraints imposed by seating arrangements and noise levels on the flight deck.

Features of Plain Language

The essential benefit of plain language is that it allows pilots and controllers to deal with unexpected situations not covered by standard phraseology. These may be situations that the individuals have not faced before or, in extreme cases, situations that no person has ever encountered. Innovative use of language is required in order to negotiate unexpected or even unprecedented situations. The linguist Noam Chomsky (1975) noted that, despite being exposed to only a limited set of utterances, a typical language user can produce an indefinite number of novel utterances that are acceptable to members of the same speech community. In the context of aviation, the creative aspect of language, which allows novel utterances to be generated, is a vital tool for dealing with situations not covered by phraseology.

The importance of innovative language use was illustrated in the crash landing of United Airlines Flight 232 in Iowa in 1989. The aircraft was flying at 37,000 feet when it suffered a catastrophic failure of one engine that disabled the hydraulic system. This "billion to 1" situation was an unprecedented emergency and yet the crew, despite losing all control surfaces, managed to control the aircraft with differential thrust from the remaining two engines and fly to Sioux Gateway Airport (Haynes, 1991). All the pilots and controllers involved were American so communication was entirely in English. In the extract shown in Table 1 below, the captain uses plain language to describe the status of the flight controls to a controller. Some characteristic features of spoken English are illustrated in this brief extract, especially in the captain's first turn. Drawing on the lexico-grammar work of Willis (2003), the features are as follows:

- Additive discourse – the captain starts by establishing a topic (ie: "we have almost no controllability") and then adds a series of short statements giving extra information about the topic (eg: "very little elevator", "almost no ailerons", and so on);

- Ellipsis – elements that can be easily retrieved from context are omitted (eg: "**we have** very little elevator and **we have** almost no ailerons" is shortened to "Ø very little elevator, and Ø almost no ailerons");

- Fillers – working out what to say at the same time as producing language can be difficult, especially in a stressful situation; both the captain and controller use "ah" to provide time to compose the next section of discourse; some of these fillers occur at possible turn completion points, signalling the speaker wants to continue talking;

- Untidiness – spoken words do not always express what a speaker means but the interlocutor may be able to retrieve the intended meaning; in this extract, the captain

makes contradictory statements about left and right turns but the controller correctly understands that they "can only make right turns".

Table 1: Extract from ATC transcript of United Airlines 232.[2]

SPEAKER	SPEECH
Captain (UAL232)	So you know we have almost no controllability. Ah very little elevator, and almost no ailerons. Ah, we're controlling the turns by power. I don't think we can turn right. I think we can only make left turns. We're starting a little bit of a left turn right now. Maybe we can only turn right. We can't turn left.
Controller (Sioux City)	United two thirty-two heavy, ah, understand, sir, you can only make right turns.
Captain (UAL232)	That's affirmative.

The extract in Table 1 highlights several points that distinguish plain language from standard phraseology. Phraseology features the deletion of subject pronouns, auxiliary verbs and determiners, as well as frequent use of the passive voice. By contrast, the captain's first turn includes: 9 occurrences of the first-person pronouns "I" and "we"; two occurrences of the auxiliary verb "are"; the determiners "a" and "the"; and only the active voice.

In addition, the captain's first turn has several instances of vague language, which is characteristic of spoken English (Cutting, 2012). Using quantifiers such as "almost no", "very little" and "a little bit of" allows the captain to give essential details about a difficult situation despite having limited information available and being under high levels of workload pressure and stress. This use of vague language is appropriate in the context of the accident, but at odds with the standard phraseology mantra that communications should have "maximum clarity, brevity, and unambiguity".

Problems with Plain Language

Using plain language for non-routine situations, including emergencies, provides the flexibility of natural language, which standard phraseology lacks, and allows the innovative use of language to deal with unexpected problems. There is an inherent risk, though, of increased complexity and ambiguity in the language used. Garzone et al. (2010, p. 219) noted that this can lead to miscommunication:

> But what really lies at the heart of miscommunication is, as Cushing pointed out in an early article (1989: 4), the complexity and flexibility of language [...], because of the confusion and misunderstandings that can result as a

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[2] This extract is a composite based on one transcript that omits fillers and some words (Haynes, 1991) and another that includes fillers but not the start of the first utterance (ASN, 2003). The accident report does not contain any audio transcripts (NTSB, 1990).

result of ambiguity, unclear reference, intonation peculiarities, implicit inference and presupposition.

Some of the problems of plain language are illustrated in another real-life example. Mell (1993) analysed an emergency transmission from an English-speaking pilot whose plane ran low on fuel in French airspace. The pilot did not use the standard procedure for distress signals, but instead used plain language. Several features of his transmission made it more difficult to understand: the use of colloquial expressions, the placing of message elements in non-standard order, a high density of information in a single message, and the use of complex grammatical structures. As a result, the main element of the message was masked, and it was difficult for French air traffic controllers to understand that the pilot needed assistance.

ICAO requires plain language to be "clear, concise and unambiguous", but this can be very challenging for both native and non-native speakers in the stressful and time-constrained context of an emergency. As Document 9835 points out, the features of plain language "can be far from plain and [they] present a challenge to listening skills" (ICAO, 2010, p. 3-5).

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