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SERIES E: OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

Operation, numbering, routing and mobile services – International operation – Tones in national signalling systems

Guiding principles for telephone announcements

ITU-T Recommendation E.183

(Previously CCITT Recommendation)

ITU-T E-SERIES RECOMMENDATIONS

OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION E.183

GUIDING PRINCIPLES FOR TELEPHONE ANNOUNCEMENTS

Summary

This Recommendation presents some guidance on the content and timing of announcements used in telephone services.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

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As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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GUIDING PRINCIPLES FOR TELEPHONE ANNOUNCEMENTS

(revised in 1998)

1 Introduction

Recorded announcements are of great value in the setting up of a call or supplementary service.

Administrations will need to use an announcement system which makes the announcements in real time and which permits the inclusion of specific information relating to a particular call or situation. This can be done by storing words or parts of words which can be appropriately assembled to make up the required announcements. These are called "concatenated-word" announcements.

Another approach is to use truly synthetic speech (synthesis-by-rule), generated in real time, to produce announcements as required. This avoids the need to store representations of utterances by a natural speaker, and has the advantage of total flexibility in the announcement that can be produced.

2 Content of announcements

2.1 Announcements should not commence with a significant word.

2.2 Ideally only one piece of information should be conveyed in an instructional announcement, but for practical purposes a maximum of three is recommended.

2.3 Repetition of important items of information is advisable. Announcements such as acknowledgement messages and error messages should be produced twice. However, guidance announcements which ask for input from the user should normally be produced only once.

2.4 Announcements should be phrased in a polite manner.

2.5 Announcements should be concise. This requirement is especially important for guidance announcements.

2.6 In many languages, simple affirmative sentences are most easily understood and should be used where possible, rather than negative and passive sentences. The use of negatives can sometimes be helpful, however, when emphasizing a point (e.g. as in "Do not . . .").

2.7 If applicable, the order in which procedural guidance is presented should correspond to the order in which actions are required to be executed (e.g. "Please press the # button and then replace the receiver", rather than "Before replacing the receiver, please press the # button").

2.8 If an action and its consequence are described, the consequence should be stated first, then the action (e.g. "To receive this message, please press the # button", rather than "Please press the # button to receive the message").

2.9 Where necessary, announcements should be given in more than one language.

2.10 Jargon should be avoided.

2.11 When several words or phrases could be used to convey the same idea (e.g. handset/receiver, hang-up/clear-down, etc.), one should be selected and used throughout.

3 Timing of announcements

3.1 Announcements should start at the beginning for each customer receiving them.

3.2 The speech rate should not exceed normal conversation speed. For example, normal speech rate for the English language is 150 to 200 words or 300 to 500 syllables per minute.

3.3　　　Attention should be given to the distribution of pauses within announcements, in order to allow listeners to digest items of information.

3.4　　　If an announcement is repeated once, the pause between the original announcement and its repetition should be about 2 seconds. Where announcements are required to be repeated more than once, the pause between announcements may be extended (for instance 5 to 10 seconds).

3.5　　　The use of pauses within telephone numbers or items of information that have to be remembered or written down is recommended (for instance 500 to 1000 msec within a digit sequence).

Telephone numbers should be grouped with groups of two to four digits according to the custom.

4　　　Speech quality

4.1　　　Announcements should not sound as if they have finished when they have not, nor should they sound as if they continue when they have finished.

4.2　　　The speech quality of announcements should be assessed by listeners' subjective judgements from the user's end. The quality should refer to the whole system, including effects of transmission. A measuring method that can be used is the listening opinion test described in Volume V, Supplement 2.

5　　　Tones after announcements

5.1　　　After guidance announcements which ask for input from the user, an indication to proceed should be given (in some cases dial tone will be appropriate).

5.2　　　When the user is required to replace the receiver following an announcement, congestion tone may be used.

6　　　Concatenated-word announcements

Problems which are peculiar to concatenated-word speech are described in the following subclauses:

6.1　　　Fluency problems

The fluency of an announcement is influenced by the duration of the stored speech segment (for instance 1/16 second), and by the location of words within a segment or segments. Fluency may also be influenced by the insertion of additional silent segments between segments of speech. An iterative procedure of vocabulary editing and listening to the results until it is judged acceptable is recommended. Human factor tests need to be included in the iterative procedure. Experiments should be held with the typical users.

6.2　　　Intonation problems

Problems arise because speech is required to sound natural. Ideally only one version of each word would be assembled from segments held in store, as this would be the easiest and cheapest method of providing a range of announcements. However, the intonation pattern of a word may need to vary depending on the position of the word within a sentence.

For example:

a)　　"All calls to XXXX are being *diverted*".

　　　The stress on the word "diverted" falls towards the end of the word.

b)　　"Your call to Dr. Smith is being "diverted" to Dr. Jones".

　　　The pitch of the word "diverted" is neutral.

6.3 Presentation of numerical information

Numerical information, and in particular telephone numbers, can be more easily remembered if spoken in a familiar manner. This may necessitate different rules for different countries, and may be influenced by such things as numbering plan and custom. (For example, a 3- or 4-digit area code separated by a pause from a 5- or 6-digit local number. The number 7230 could be spoken as "seven, two, three, oh" or "seventy-two, thirty" or "seven, two, three, zero").

In many languages, three intonation patterns are required for telephone numbers: a neutral pattern for the body of the number, a continuant pattern for the end of an intermediate block (rising pitch), and a terminator for the end of the number (falling pitch). Number strings are more easily remembered if spoken with a rhythm based on the perceptual centres of utterances (e.g. digits), rather than with one based on the start of the utterance period.

The final determinant of what is required in a particular case depends upon the iterative procedure of listening, editing and judging previously mentioned.

6.4 Update problems

Problems may arise when an announcement has to be changed such that a word or words have to be either rerecorded or recorded for the first time. There may be difficulty in obtaining the original speaker, and even if the original speaker is available, the voice may differ from the original recording, either temporarily (e.g. by a head cold) or permanently (e.g. through ageing). This can mean that the entire vocabulary has to be recorded again, or alternatively, an announcement of degraded quality may be accepted as an expedient solution. Wherever possible, problems of this sort should be anticipated, and recordings made of a larger vocabulary than is to be used immediately.

7 Tones and announcements for use in telephone services

The problems associated with "concatenated-word" systems outlined above are avoided by the use of truly synthetic speech generated by rule. These rules translate a specification of what utterance is to be generated into acoustic output. If appropriate rules are found, this method can potentially generate high quality speech, and such features as speed of delivery, duration of pauses, and stress and pitch changes can be readily specified. One approach to the development of such systems starts with the use of natural speech analysis as the source for generating rule parameters, and leads on to the derivation of general rules to convert any message into speech output.

Rule-generated synthetic speech is currently on the threshold of full functional equivalence with that produced by waveform storage methods, such as word concatenation. However, even highly intelligible synthetic speech sounds unnatural and it may not be as acceptable to users as "concatenated-words" announcements, at least in the immediate future.

8 Preferred listening levels for announcements

The preferred listening level is –10 dBPa ± 5 dB measured at the customer's ear.

The recommended sending level to achieve this listening level can be found in Recommendation G.115.

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