

# Syntactic Structure and Communicative Function of Echo Questions in Chinese Dialogues

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## Abstract

Echo question is a linguistic phenomenon that exists in verbal interaction. A typical echo question is usually a repetition of others' speech information as a response to him/her. The "repetition" feature makes it a drilling task in language teaching. Although quite common in linguistic field, there is limited specialized research on it. Existing studies mainly focus on its semantic relations, structural features, pragmatic features, etc., with few exploring the interactive relationships among them. Based on speech corpus Discourse-CASS which contains more than 6 hours records [1], this paper proposes an annotation scheme for echo question and makes a simple statistical analysis and discusses the interaction relations between the syntactic structure and the pragmatic functions. We conclude that echo questions can be expressed by various of interrogative sentences, usually expressing the intention of *requesting confirmation* and *explication*. *Confirmation request* can be divided into requests for *affirmation*, *repetition*, and *supplement*. There are also two kinds of echo questions shown as *backchannel* or *understanding check*. *Explication request* can be requests for *details* and *explanation request*. In conversation, echo questions most often express the intention of *requesting affirmation*, which are always in the form of yes-no question and tag question.

**Index Terms:** echo question, communicative functions, syntactic structures, dialogue, interaction

## 1. Introduction

<sup>1</sup>Echo question is a common language phenomenon. What S. Lyu [2] calls "复问" is a kind of echo question.

A. Banfield [3] defines that echo questions are distinguished from other questions by their (restricted) context. An echo question occurs in dialogue as a reaction to a prior utterance and is interpretable only with respect to it. R. Quirk et al [4] point out that echo utterance are utterances which repeat as a whole or in part what has been said by another speaker. They may take the form of any utterance or partial utterance in the language, but in their discourse function they are either questions or exclamations. Echo questions are either recapitulatory or explicatory.

D. Liu [5] explicates that echo question is usually a question raised by a speaker who does not hear the other person's words clearly. It resembles the other speaker's sentence in structure and is a repetition of the sentence to some extent. He considers the form of the echo question and the form of the echoed sentence: echo questions for

declarative sentence and for interrogative sentence; echo questions for the non-questioning sentence and for the specific interrogative sentence.

J. Shao [6] points out that principally words which form an echo question should have appeared in preceding sentences and they can be insert into the structure "你是问/说...吗"; also, the structure of echo questions should be consistent with the echoed part. In actual communication, echo questions often repeat only part or parts of the previous discourse, and the echoed part does not necessarily remain as it was, but is reduced, replaced, or reformed. Taken into consideration of form and meaning, he classifies echo questions into three pairs of categories: narrowly-defined echo questions and generally-defined echo questions, full-named echo questions and partial-named echo questions, homomorphic echo questions and heteromorphic echo questions.

V. Escandell-Vidal [7] mentions that the same as in English, echo questions in Spanish often adopt the order of declarative sentences. For Spanish it is commonly assumed that intonation is the only property that makes it possible to distinguish between declaratives and yes-no interrogatives.

G. Luo and M. Liao [8] examined the trial session and considered that the function of echo questions includes: questioning and negation, requesting amendment of the discourse; requesting affirmation; proposing a topic, requesting supplements and comments on the topic; preparing the next round of talks; expressing reception and feedback.

Y. Tian et al [9] believe that echo utterances have these functions: asking the other to repeat or verify the echoed utterance; asking the other to interpret the echoed utterance; filling the silence gap in the conversation to make time for reflection; indicating that he/she has get the content of previous speech; and expressing his/her attitudes and emotions.

The previous works show some common functional features and similar definitions of echo questions. But it also shows that some classifications blur the boundary between communicative function and emotion and assessment expressing function [10, 11]. Some also indicate that echo questions have different prosodic realizations to express their communicative function difference but there is rare convincing evidence, and some are classical-text-based analysis only and some are emotion-assessment-based classifications. All those indicate that an interaction-based functional classification may be better and reflect features of echo questions.

In this paper, Conversation Analysis is adopted. It's said that the interactional behaviors cue the communicative functions. All works are processed under research framework of Interaction Linguistics [12].

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This paper mainly introduces from the following aspects: the classification of the function and syntax of echo questions, the annotation scheme, the annotation of echo questions in oral dialogue corpus, and the statistical analysis of the syntax and function of echo questions.

## 2. The Classification & Annotation Scheme

### 2.1. Structure Classification

#### 2.1.1 Yes-no question (qy)

A: 你要点什么呢? B: 一个地三鲜。A: 地三鲜?

Yes-no question is the simplest echo question. In discourse, echo questions are always simplified even to a single word. This kind of echo questions which contain one word only, usually should be treated as yes-no questions. Even if you don't restore it as a complete sentence, it still can be embedded into the structure “你是问/说...吗” without significant changes in meaning and communication function.

#### 2.1.2 Positive and negative question (qpn)

B: 青椒肉丝。A: 是不是尖椒肉丝?

Positive and negative question is the simple question which contains “X 不 X” structure. Echo questions which contain “是不是” structure should be classified as positive and negative questions which is not different from yes-no question in functional aspect.

#### 2.1.3 Tag question (qt)

B: 白。A: 白的, 是吧?

B: 青椒肉丝。A: 尖椒肉丝, 是不是?

There are two types of tag questions, which are yes-no tag questions and positive and negative tag questions. No matter what kind of tag question it is, it is a statement clause plus a question clause. Tag question is not different from yes-no question in functional aspect.

#### 2.1.4 Wh- question (qw)

B: 茄子煲。A: 一个什么?

Echo questions which contain question words are usually wh- questions.

#### 2.1.5 Choice question (qr)

B: 一个酸菜粉丝。A: 要白酸菜还是绿酸菜呢?

This kind of echo questions contain “or” or other word can hint that is a choice

#### 2.1.6 Yes-no question plus choice clause (qrr)

B: 一个酸菜粉丝。A: 要白酸菜吗? 还是绿酸菜呢?

This kind of echo questions is like a choice question.

### 2.2. Communicative Function Classification

This paper takes the “intention of expression” as the criteria for the classification of echo question functions. First, there are two types of intention of echo questions: request for confirmation and interpretation, i.e., asking for the confirmation and interpretation of the echoed information. Accordingly, they correspond to recapitulatory echo questions and explicatory echo questions proposed by Quirk et al [4]. Besides, according to the background information and the response to echo questions, each type of echo questions diverges into several sub-classes. The following classes are

represented by corresponding intentional expression behaviors.

#### 2.2.1 Request for Affirmation (raf)

B: 恩, 没事儿, 我家里有盆儿。

A: 家里有盆儿, 是吗? B: 啊。

Requesting affirmation is the most common function of echo questions. In fact, the sentence “你是问/说...吗” is a discourse structure requesting affirmation [6]. The fact that echo questions can be inserted into this structure indicates that the function of echo questions is compatible with this structure. R. Quirk [4], J. Shao [6], G. Luo [8], L. Tian [9], all acknowledge that echo questions can function as a request for affirmation. Accordingly, the affirmative response are often: “是”, or “嗯”, ah with a falling tone; while negative responses are: no, or um, ah with a rising tone, furthermore, the repeated or the wrong parts are often corrected.

#### 2.2.2 Request for Repetition (br)

A: 豆腐有豆腐平安豆, 有青菜烧豆腐。

B: 什么烧豆腐? A: 嗯, 青菜烧豆腐。

Some echo questions cannot be answered with “是” or “不是” but should be answered with the words appearing before. Such an echo question functions as a request for repetition.

#### 2.2.3 Request for Supplement (rsup)

A: 留个电话吧。B: 八二零五八幺八零。

A: 八二零五。 B: 八幺八零。A: 八幺八零。

Long important information such as address, telephone number often occurs in conversations. No matter it is sent out as a whole or segmentally, only the non-final parts can be echoed. In response to such an echo question, a reply of subsequent information often indicates the confirmation of the previous information, while a repetition of the echoed part implies rectification.

#### 2.2.4 Request for Details (rdt)

B: 要一个酸菜炒小笋。

A: 要白酸菜还是绿酸菜呢? B: 白。

Some echo questions can neither be answered with yes or no, nor can they be replied by repeating the previous information. Instead, more detailed information is expected to come. In this case, there are ambiguous information, e.g. pronouns, in the utterance. In the example “酸菜炒小笋”, there are two options for “酸菜”, thus the word is uncertain and more specific information is expected.

#### 2.2.5 Request for Explanation (rex)

A: 要送过去话也要最起码也要四十五分钟左右啊。

B: 怎么会要四十五分钟? 这么一点\_儿远啊!

A: 对呀。啊, 现在人那么多抽不出人手。

In some cases, due to a lack of background information or subjective reasons, the person who gives an echo question is puzzled at the echoed information and an affirmative answer from the hearer fail to answer it sufficiently. Such echo questions function as a request for interpretation.

#### 2.2.6 Backchannel (b)

B: 要一个木须肉。A: 木须肉?

B: 酸菜炒小笋。A: 酸菜炒小笋? B: 两碗米饭。

Some echo questions seem not to express a request, or a query and affirmation are unnecessary. Both sides take silence as a positive answer and repeated information as correction.

2.2.7 Understanding Check (bu)

A : 你咋还在南宁呢呀? 你你你啥时候回来呀?

B : 嗯, 啥时候回呀? 那还说不准啊。

Some echo questions are questioning but the other would not reply it with a positive answer. Such echo questions are asking the questioner himself and are followed with an answer or related words.

2.3. Annotation Scheme

EQ tier is made for echo question annotation. Echoed sentences are coded with “structure symbol -”. For example, the echoed declarative sentence is marked with “s-”, and the echoed wh- question is marked with “qw-”. And symbols of echo question are behind the symbols of echoed sentence. Structure symbols are connected with “~”, structure symbols and function symbols are connected with “^”. Mark particles if there is one. If there is a response word before echo question, mark it with “+ pinyin” at the end of structure. Particles need to be marked. Table 1 shows the structures and symbols. Table 2 shows the particles and the response words and symbols. Table 3 shows the functions and symbols.

Table 1: Structures and symbols

Structure	Symbol
Yes-no question	qy
Tag question	qt~tqy
	Positive&negative tag qt~tqpn
Positive&negative question	qpn
Wh- question	qw
Choice question	qr
Yes-no plus choice question	qrr
Declarative question	s

Table 2: Particles and response words and symbols

Particle	Symbol	Response word	Symbol
呢	ne	嗯	en
吗	ma	哦	o
吧	ba	呃	e
...	...	...	...

Table 3: Functions and symbols

Function/ Behavior	Symbol
Request Affirmation	raf
Request Repetition	br
Request Supplement	rsup
Request Details	rdt
Request Explanation	rex
Backchannel	b
Understanding Check	bu

2.4. Corpus and Annotation

The data used in this study was selected from the Discourse-CASS speech corpus supported by the laboratory of phonetics and speech science in Chinese Academy of Social Science. The voice files in this corpus cover many domains and the materials used in this study was primarily phone recordings of restaurant reservation services. 150 selected voice files lasting about 3 hours were recorded at the sample rate of 16khz, and

the bit rate of 256kbs. Limited by the restaurant environment, the recording quality of the receptionist is relatively good, while that of the caller varies greatly.

Voice files were annotated on praat 5.4. The annotation includes the syntactic structure and communicative function of echo questions, the structure of echoed parts, information about the speakers, the discourse texts and segments. Communicative function was determined by the manner of asking and answering of the echo questions.

3. Statistical Analysis

3.1. Results

In this paper, 150 recording files containing 5870 sentences were selected. A total of 857 echo questions were annotated, accounting for 14.60%, with 531 yes-no questions, 265 tag questions, 48 wh-questions and 13 choice questions; From the perspective of functions, there are 610 requests for affirmation, 34 for repetition, 88 for supplementary, 23 for details, and 1 for explanation. A total of 63 sentences function as backchannel, and 38 function as understanding check. Among 256 tag questions, there are only yes-no tag questions. At the same time, there was no tag questions with positive and negative tag and no yes-no question plus choice clause.

Shown as Figure 1, among the 531 yes-no questions, there are 345 sentences requesting affirmation (64.97%), 86 sentences requesting supplementary (16.20%), and 63 sentences functioning as backchannel (11.86%). There are 37 sentences functioning as understanding check (6.97%).

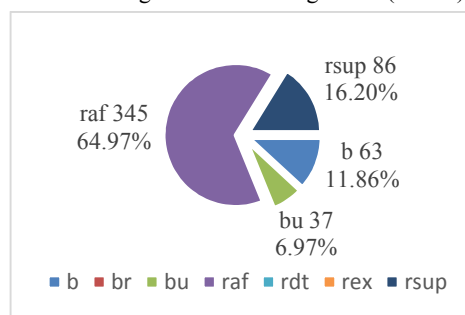


Figure 1: Yes-no echo questions

Shown as Figure 2, out of the 48 wh-questions, there are 33 sentences with the function of requesting repetition (68.75%), 11 sentences requesting details (22.92%), and 2 sentences requesting supplement and repetition (4.17%). The function of 1 sentence is for requesting explanation (2.08%) and 1 sentence functions as understanding check (2.08%).

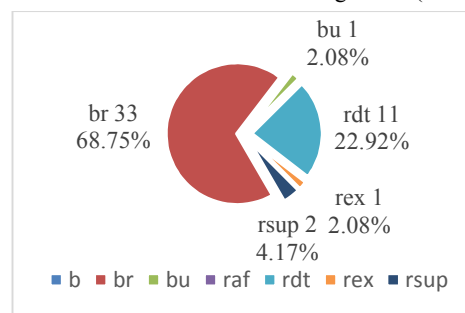


Figure 2: Wh-echo questions

Shown as Figure 3, of the 13 choice questions, 12 have the function of requesting details (92.31%), and 1 sentence

requesting repetition (7.69%). The functions of 265 tag questions are all requests for affirmation.

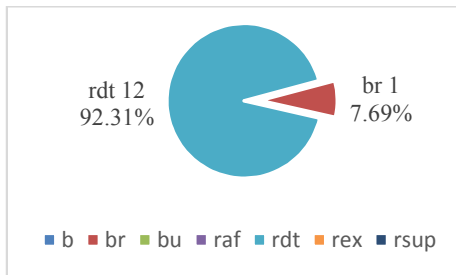


Figure 3: Choice echo questions

There are 840 declarative sentences, 5 imperative sentences, 8 yes-no questions, 3 wh-questions and 1 tag question annotated to be echoed.

### 3.2. Analysis and Discussion

The statistical results show that among the 857 echo questions, yes-no questions are the most (531, 61.96%), and tag questions are the second (265, 30.92%). The two kinds of echo questions accounted for more than 80% of the annotated echo questions, which means that the communicative functions of the echo questions of these two structures are more important, at least in terms of catering services. Considering from the perspective of function, there are 345 yes-no questions (64.97%) and 265 tag questions (100%) functioning as request for affirmation. In other words, request for affirmation is the main function of yes-no echo questions and is the only function of tag questions. Overall, there are 610 echo questions whose function is request for affirmation, accounting for 71.18%. This also shows that request for confirmation is the most important function of echo questions in the food service industry.

Combining the syntactic structure and communicative function of echo questions, there exists certain relationship between them. All the functions of tag questions are request affirmation, which is closely related to the structure of tag questions. R. Quirk et al [4] and J. Shao [6] have pointed out that echo questions can be inserted into the structure “你是说...吗”. Of course, tag questions can also enter this structure, but in fact they don't need the help of this structure. The tag clause “是吗” requires the other to answer with “yes” or “no.” “是吗” is equivalent to “你说的是...吗”. The difference is simply whether information needing verifying is before or after “是吗”.

There are 4 kinds of functions of yes-no echo questions. There are some subtle differences among them, but in general there is something common, that is, the function of request for confirmation or verification. Regardless of what functions of an echo question is, request for affirmation or repetition, backchannel or understanding check, if the echoed information is incorrect, the other will give a negative response and repeat the preceding utterance to correct. The differences among those four is reflected in the degrees of “request” and the degrees of demand for “affirmative” responses. These differences may be affected by factors such as the dialogue environment and voice performance.

There are 5 kinds of functions of wh- echo questions. Request for repetition (33, 68.75%) and request for details (11, 22.92%) are two common features. The wh- echo questions containing “什么”, “哪里”, “几”, “多少”, often function as

requests for repetition, and the question words are usually the information that has appeared before and needs to be repeated. Those containing “什么”, “哪个”, can express requests for details. The question words refer to the information that has not appear in the dialogue and needs to be provided, or what is not clear and is associated with other echoed parts. Similar to the function of yes-no echo questions, the wh- echo questions also request supplement. Only subsequent information is needed, and the echoed parts are regarded as true. The difference lies in that the wh- echo questions, supplemental follow-up information is more specialized. The echo question as backchannel is similar to yes-non-echo questions. Usually, the listener doesn't respond, and the echo questioner answers it. The wh- echo question with request for explanation obviously show that the questioner doesn't understand or is dissatisfied with the previous utterance. The respondent further interprets it; if the question is not properly explained, the questioner may repeat the echo question or tell out the reason why he/ she think it's not reasonable.

There are 2 functions of choice echo questions, of which the request for detailed information is primary. In general, the respondent is expected to make a choice from the given options. As an echo question, when there is relevant new information in the option, the function of the choice question is to request the details, in fact, to confirm the possible detailed information; when there is no new information, whether the option is correct or not, the right response of the other is equal to repetition of previous information.

## 4. Conclusions and Further Work

So far, referring to previous studies, this article has summarized the syntactic forms and communicative functions of echo questions; established classifications for structure and communication function with certain application value, and designed a suitable annotation scheme. The establishment of the system is on the one hand the inheritance and refinement of the previous studies, on the other hand it lays a solid foundation for the classification and discussion of the phonetic features of echo questions.

The functional classification established in this paper is mainly based on speech acts, i.e., the expression and understanding of intentions. These speech acts are divided into seven categories: Request for Affirmation, Request Repetition, Request for Supplement, Request for Details, Request for Explanation, Backchannel, and Understanding Check. In the study, it was found that echo questions with different functions vary in echoed information volume, and also in phonetic representation, which deserve further study.

The echo questions' functions mentioned in this article are communicative acts. In fact, as a form of response they also deal with the echoed words. J. Shao [6] proposes that the echo questions have pragmatic features that embody the focus of understanding and form new topics. Therefore, the research on the functional aspects of echo questions is still worthy of further consideration and supplementation.

## 5. Acknowledgments

The work is supported by major program of National Social Science Foundation of China (No.15ZDB103); National Key R&D Program of China (No. 2017YFE0111900), the Research Foundation of Beijing Municipal Science & Technology Commission (Grant No. Z181100008918002).

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[This paper was published at ISCSLP 2018]