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A PILOT TEST FOR CONTEXT-FREE CHINESE IMPLICITURES

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ABSTRACT: *The frontier issues of pragmatics in recent years have always been controversial. A kind of meaning, which is "conveyed but not literally and explicitly expressed by the utterance without a context" (not with a context) and its cognitive mechanism have drawn much attention from researchers. Scholars from different perspectives propose varied terms for the phenomena and cognitive processing models to explore the human processing mechanism. In 1994, Kent Bach coined the term "impliciture" (from "implicit"; cf. implicature) and proposed his tenet on the term. At present, three models are implied for the processing mechanism: post-Gricean "Context-driven," Levinson's "Default" and Bach's "Standardization." The current research investigated this issue by testing the processing of three types (time, location, possession) of context-free Chinese sentences with implicitures in an experiment to see which model is more acceptable for Chinese implicitures. The result showed that the implicitures were automatically computed and that impliciture types did not influence the processing of impliciture. In this case, both Default and Standardization were supported. The results suggested that further studies on implicitures, especially impliciture processing mechanisms by manipulating contexts, should be conducted from the perspective of different languages.*

KEYWORDS: Conversational Implicitures, Processing Mechanism, Chinese Impliciture, Experimental Pragmatics, Default, Standardization

INTRODUCTION

Language meaning is always one of the most contentious focal issues in pragmatic research. The cooperative principles and conversational implicature tenets proposed by linguistic philosopher Grice (1975) clearly divided utterance meaning into two parts, namely "what is said" and "what is implicated." The conversational implicature was classified into "generalized conversational implicature (GCI)" and "particularized conversational implicature (PCI)." Grice's dichotomy of meaning broke new ground for the study of utterance meaning, and at the same time it evoked dispute among the pragmatic schools. During the last twenty years, a special kind of utterance meaning attracted much attention from pragmatic scholars. It was neither "what is said" nor "PCI," and it is not completely equal to "GCI." For instance, when uttering the sentences, "It is raining (here)" or "I have had breakfast (today)," although the speaker did not explicitly say the information in brackets out loud, the hearer was still able to successfully understand or infer the exact meanings conveyed by the speaker, even if it was in a case without a specific context.

Due to different understandings and opinions about this type of meaning, scholars from each pragmatic school give various labels to this linguistic phenomenon and construct their own cognitive processing models for it. In addition to Grice's (1975) proposal of GCIs, which can be computed without context, Perry (1986) first noticed "unarticulated constituents." Levinson (1995, 2000), a representative of neo-Gricean school, agreed with Grice's proposal about GCI and puts forward his own predicted processing model, "Default," for inferring the unarticulated

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constituents. Bach (Bach, 1994a) coined the term "impliciture" and proposes the trichotomy of utterance meaning, (what is said, impliciture and implicature). Bach believed that the interpretation of impliciture follows "Standardization," the processing mechanism that he advocates. Represented by Sperber, Wilson and Carston, the post-Gricean school asserted to replace Grice's "what is said" and GCI with "explicature." They claimed that this "enriched" meaning is the "development of the logical meaning." Its derivation could not be detached from contexts and conformed to the inference mechanism based on "Relevance Theory" instead of the four maxims of Grice's cooperative principles (Sperber & Wilson, 1986; Carston, 1988). Recanati (2002) supported the term "unarticulated constituents" and argues that the computation of meaning undergoes two pragmatic processes: the primary pragmatic process (saturation and free enrichment) to construct the complete proposition or to settle the "unarticulated constituents"; and the secondary pragmatic process to deal with conversational implicature through contexts.

In this study we adopt Bach's term "impliciture" to broadly cover this linguistic phenomenon, which is not explicitly contained in the sentence but is somehow actually expressed in the utterance and is understandable. At the same time we discuss and investigate this linguistic phenomenon in terms of its rationality and processing mechanism through an online experiment on Chinese context-free implicitures.

Theoretical Background

Bach's impliciture theory fundamentally revises Grice's meaning of dichotomy, since the distinction between "what is said" and "what is implicated" is not exhaustive. Bach argued that utterances could be used nonliterally. Nonliteral usage of language often calls to mind metaphoric expressions such as metaphor, metonymy and so on. Grice's concept of conversational implicature is also a kind of nonliteral usage, the understanding of which nearly separates itself from its literal meaning. However, a type of language phenomenon that is often neglected is the requirement of hearers to infer the more specific utterance meaning. People commonly speak loosely by unconsciously omitting some sentence constituents that could have made the meaning more explicit. Bach believed that the outcome of efficient communication is sacrificing utterance clarity. For example, when a speaker says "I have not had breakfast," the hearer will understand this utterance as "the speaker has not had breakfast *today*" instead of "the speaker has not had breakfast *ever*" just because the word "today" is not articulated (Bach, 1994b). Thus, Bach proposed the concept "sentence nonliterality" to refer to the linguistic phenomenon that "the whole sentence is used nonliterally without any of its constituents being so used" (Bach, 2001, p.249). In other words, the hearer can make out the nonliteral meaning from the utterances not being used figuratively. Moreover, before inferring the conversational implicature, when the hearer is dealing with "what is said," there must be a process of disambiguation and reference assignment guided by the context, and there even exists the necessity of taking the speaker's individual expression style into consideration. Namely, the context is involved in both the processing of "what is said" and "what is implicated." In this way, Grice's meaning dichotomy is not exhaustive. In his meaning trichotomy, Bach proposed that an intermediate meaning exists between "what is said" and "what is implicated"—"conversational impliciture." Implicitures express more meanings than literal meanings but, meanwhile, are more similar to literal meanings than implicatures (Bach, 2001).

Furthermore, Bach (1994a, 1994b) claimed that on the basis of processing the literal meaning of the utterance, a hearer understands implicitures in two ways: when the utterance is

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semantically underdetermined or does not express a complete proposition, the hearer has to make it complete through "completion," (e.g. Steel isn't strong enough (for building a 500-story building)); when the utterance conveys a complete proposition but is in the case of sentence nonliterality, the hearer will make the meaning more specific through "expansion" (I haven't eaten breakfast (today)).

In terms of how impliciture is recovered during sentence processing, different mechanisms have been proposed by scholars from different pragmatic schools. There are three main processing models in dispute that have been frequently investigated in previous research of impliciture: the post-Gricean school's Context-driven Model rooted in Relevance Theory, Levinson's Default Model and Bach's Standardization Model. First, Relevance Theory emphasizes the function of context. According to the Context-driven Model, the utterance only functions as an ostensive stimulus during the processing of the utterance. Speakers directly understand the utterance meaning by relying on the context, including the cognitive and immediate contexts. Hence, this model argues that only when a context favoring the impliciture exists will the impliciture be derived. On the contrary, Levinson's Default Model emphasizes that the understanding of utterance or the inference of meaning is based on the default conventional meaning contained in the literal meaning and that people understand the utterance according to the general conventional background information or the specific context. Consequently, this model suggests that implicitures can be computed without any context or only in a favorable context. However, in a context implying an alternative interpretation, the impliciture processing will be impeded. Eventually, Bach claimed that the processing of impliciture should accord with his standardized nonliterality hypothesis or Standardization Model. Bach and Harnish (Bach, 1998; Bach & Harnish, 1979) proposed their Standardization theory to initially elucidate the standardization process of indirect speech acts. According to this theory, hearers usually accomplish successful communication by recognizing speakers' illocutionary intention on the basis of speakers' utterances and the consensus related to contexts. Through innumerably repeated practices of this process, these illocutionary expressions and meanings of some indirect speech acts have been standardized and stored in the human beings' minds. Then, the expression and understanding of these illocutionary intentions only involve the extraction of the standardized form from the speakers' minds. Thus, it is the linguistic form that triggers the standardized consensus, which makes speedy, fluent and accurate communication possible. Bach affirms that this Standardization process is also applicable to impliciture. Besides, as opposed to the post-Gricean points of view, the standardization theory approves of the status of the literal meaning and the necessity of processing it. Meanwhile, standardization theory also acknowledges the role of contexts in assisting and adjusting meaning understanding. Therefore, Standardization maintains that the cognition of meaning is the interactive process among language, reality and psychological contexts. The nonliteral usage of some linguistic forms has been standardized due to constant usage in the precedents or experience, thus this kind of usage will be processed without the prolonged interpretation of the literal and conventional meaning of the utterance. At the same time, it is worth mentioning that this kind of nonliteral usage is not a case of producing those enriched meanings through some collocations or special word, such as an indefinite article. Hence, impliciture is bound to linguistic form and will be encountered whether there is a context or the context is in favor of impliciture. In the case of the context, this occurs by implying another meaning instead of implicitures that will first appear and then be canceled owing to the context.

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Previous Studies on Impliciture

Studies on the linguistic phenomenon labeled by impliciture, Bach's impliciture theory and the impliciture processing mechanism can be classified into two types: theoretical research and experimental research. The focus of this research lies in the rationality of impliciture theory and the cognitive processing model of inferring implicitures. Among those domestic studies in China, most of them were limited to theoretical illustrations, comments and speculations. A few empirical investigations adopted the offline method of the questionnaire survey. Comparatively speaking, foreign scholars devoted more theoretical and experimental studies to this issue. More persuasive and scientific, most of their experimental studies were online and had stronger theoretical foundations.

Theoretical Studies

Theoretical research on implicitures mainly aims to verify the rationality of impliciture theory and theoretically deduce the cognitive processing model of implicitures.

As the creator of the term "impliciture," Bach (2010) made a comparison between his impliciture theory and the explicature theory based on Relevance Theory. He summarized eight differences between them in detail, which could be generalized as three parts. First, the nomenclatures were different. Bach regarded the meaning represented by impliciture as partly implicit, hence neologizing "impliciture" from the root "implicit." By contrast, post-Griceans considered explicitness as a kind of degree, so whether the meaning was completely explicit or just suggested, it was directly conveyed. Thus they adopted the "explicature" deriving from "explicate." Second, Bach held that not all the sentences were semantically complete, so he distinguished different types of implicitures, respectively constructed through "completeness" and "expansion." However, followers of Relevance Theory believed that all the utterances were semantically incomplete, and conjoined "what is said" and "GCI" into the term "explicature." Interpretation of all levels of meanings was absolutely dependent on contexts. Third, Bach took implicitures, similar to implicature, as manifestations of speakers' communicative intentions, and the processing of "what is said" preceded the determination of utterance meanings. Nevertheless, post-Griceans explicatures were regarded as the nature of utterances without the function of conveying communicative purposes. Moreover, "what is said" was just an ostensive stimulus, and "decoding" played no significant role in utterance understanding. As a whole, the essential distinctions between impliciture theory and explicature theory have been clearly expounded.

Liu (Liu, 2008, 2010; Liu, Harnish & Garrett, 2011) questioned the post-Gricean negative attitude toward linguistic form or literal meaning and believes that processing literal meaning is the prerequisite of understanding any utterance. Furthermore, Liu believed that the time it takes to process the literal meaning depends on the length and the degree of difficulty of the utterance. Additionally, people's understanding of implicitures does not always depend on the immediate context. The "psychological context" formed by people's "experience" and "bygone contexts" that have been accumulated and stored in the cognitive system also helps people to derive implicitures. Liu regarded implicitures as a kind of pragmatic ellipsis that has become communicative, "standardized" expression patterns that have gained particular meanings through repeated usage. She agreed that "psychological context" and standardization could reasonably explain why people's processing rate of the literal meanings of daily utterances is too short to be measurable. Moreover, Liu suggested that studies on conversational meanings be carried out according to their categories, specifically highlighting the significance of

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empirical research on cognitive language mechanisms.

Zhu (2009) expounded the methods of interpretation and appearance of impliciture respectively from the perspectives of cognition and Relevance Theory. On one hand, she thought that Gestalt Theory and Bridging Inference could provide cognitive foundations and methods for impliciture understanding. Gestalt Theory emphatically pointed out the holistic nature or tendency of the human mind to perceive everything. When receiving incomplete or incoherent information, people automatically filled the absent constituents to form a holistic understanding by means of Bridging Inference, as well as with contexts and logical knowledge. On the other hand, she believed that the production and perception of implicitures were explicable under the framework of Relevance Theory in that the appearance derived from the principle of the least amount of effort for efficient communication and understanding lay in the mutual manifestation of a cognitive environment in communication. Furthermore, hearers would choose the implicitures with optimal relevance according to contexts. Hou (2013) discussed the classification of meaning centering on the identification of semantics-pragmatics and Grice Circle. He believed that the subordinate relationship of "what is said" was the key to the demarcation between semantics and pragmatics and that the existence of impliciture was the manifestation of pragmatic invasion. Abuduwaili and Xu (2013) reviewed the related experimental research on implicitures in recent years from the perspective of the processing speed and model. They concluded that the perception of implicitures demanded a certain period of time for completion and enrichment. In terms of the processing sequence, the processing of literal meanings was prior to that of implicitures, and implicature understanding comes last. They claimed that the understanding speed was determined by contexts. Korta (2015) applied Grice's "cancelability" and "non-detachability" test to the classification of utterance meanings. Through it he successfully verified the existence of impliciture due to the characteristics of impliciture—cancelability and detachability, which was different from non-cancelable, non-detachable "what is said" and cancelable, non-detachable "conversational implicature." This method is of great importance in helping scholars deal with the distinction and mutual relationship between semantics and pragmatics and literal meanings and nonliteral meanings. By contrast, Vicente (2002) negated Bach's meaning trichotomy, proposing that it would result in a series of semantic and pragmatic problems. He denied the positive functions of "what is said" and regarded it unnecessary to re-categorize the semantic contents that had been conveyed explicitly. Within his illustration, the psycholinguistic method of research was also recommended to be applied to impliciture investigations.

All the opinions about impliciture above were just theoretical comments and assumptions based on principles and theories of each pragmatic school without any proof of empirical evidence. Having been suggested more than once by many the scholars mentioned above, the final resolution of relevant problems or controversies expectedly relies on the experimental approach of cognitive science or psychology.

Experimental Research

Previous experimental studies on impliciture concentrate on these three main issues. The first of these three issues is whether native speakers are able to classify utterance contents as "what is said," "implicatures" or "implicitures" (Gibbs & Moise, 1997; Nicolle & Clark, 1999: Experiment 1 & 2; Bezuidenhout & Cutting, 2002: Experiment 1, Xu & Abuduwaili, 2017). The second is to investigate the cognitive processing model for the recovery of implicitures (Nicolle & Clark, 1999: Experiment 3; Bezuidenhout & Cutting, 2002: Experiment 3 & 4; Garrett & Harnish, 2007; Dorjee, Garret & Harnish, 2013; Abuduwaili & Xu, 2016). The final

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one is the crossover research of pragmatics and neurolinguistics to probe into the impact of special crowds' physiological factors on understanding implicitures (Orjada, 2007: on the influence of right hemisphere damage; Rybarova, 2007: on the influence of the function of frontal lobes). The current study's focus is on the mechanisms underlying the processing of implicitures. The studies of Gibbs and Moise (1997), Nicolle and Clark (1999) and Bezuidenhout and Cutting (2002) are similar offline experimental studies exploring the understanding process of different types of test sentences (utterances with cardinals, possession relationship "a + noun" structure, scalar implicatures, distance or time sequence) with and without contexts. They concentrated on the issue of whether people could intuitively differentiate the minimal proposition, the enriched meaning and the implicature of an utterance. Grice's "implicature hypothesis" and Bach's "standardized nonliterality hypothesis" believe that people are unable to make the classification, while Carston's "independence hypothesis" and Recanati's "availability hypothesis" hold the opposite viewpoint. The results of the studies by Gibbs and Moise (1997) supported Carston's and Recanati's hypotheses. However, the outcomes of Nicolle and Clark's (1999) and Bezuidenhout and Cutting's (2002) studies contradicted their results. The results of the former two studies showed the significant function of contexts so that they actually supported the post-Gricean relevance view, while the outcome of Bezuidenhout and Cutting (2002) conformed to their self-coined "ranked parallel model," which reflected neo-Gricean central ideas. The offline empirical study of Xu and Abuduwaili (2017) found that participants tended to understand "what is said" as "implicitures" and were able to consciously differentiate "impliciture," "literal meaning" and "implicature." Furthermore, the cognition sequence was presented as "impliciture →implicature," so the perception of implicitures played a significant role in processing implicatures. Moreover, the influence of specific contexts and background knowledge was unneglectable and indispensable in the understanding procedure as a whole.

The above three experimental studies all used "enriched meaning/interpretation" to refer to meaning contents of implicitures. Garrett and Harnish (2007), Dorjee, Garret and Harnish (2013) and Abuduwaili and Xu (2016) directly applied the term "impliciture" in their research. Garrett and Harnish (2007) investigated three types of implicitures (time, location and possession), which are examples of Levinson's "I-phenomenon." On one hand, they analyzed the possible content of the impliciture and the theoretical inference processes of two assumed mechanisms, namely Levinson's Default Heuristic Model and Bach's Standardization. On the other hand, they conducted two online experiments to seek out experimental evidence for implicitures and their cognitive mechanism by observing and statistically analyzing participants' reading time for implicitures and response time to probe questions. In the context-free experiment, it was found there was a notable preference for impliciture-driven choices when participants heard and understood the sentences. Although the results of possession sentences manifested some non-impliciture features, this was still weaker than the context-free bias in favor of implicitures. This provided persuasive evidence for the existence of implicitures and suggested that implicitures could be inferred without specific contexts. In addition, when the sentences were presented respectively with contexts favoring or opposing their implicitures, contexts did not hinder implicitures, and the significant difference of participants' response time to answer questions was obtained between them. Through this, they verified the processing mechanism of implicitures: Standardization argues that implicitures are bound to linguistic forms, so implicitures are also computed, even in canceling contexts against the inferring of implicitures. The response time is longer because the computed impliciture is then canceled for the contradictory context, and participants will next infer the correct meaning corresponding to the context. By contrast, the Default Model proposes that implicitures should

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be part of the background contexts, so implicitures are only recovered in enabling contexts that favor the inferring of implicitures. However, in canceling contexts, participants will directly compute the relevant meaning according to the contexts. Therefore, according to this model, the response times for the enabling and canceling contexts will show no significant difference. Just as in Bezuidenhout and Cutting (2002) found, the longer response time and high accuracy to probe questions were observed in Garrett and Harnish's context-involved test, but the significant difference of reading time for impliciture sentences and contexts was not reached. As a whole, Garrett and Harnish's research supported the Standardization Model and verified the rationality of implicitures in English.

Dorjee, Garret and Harnish (2013) replicated Garrett and Harnish's study with more extensive experimental items and a larger sample after covering its shortages of experimental design. Compared with the auditory and visual presentation measure respectively in either experiment of Garrett and Harnish's study, Dorjee, et al. uniformed the presentation mode with the visual reading mode to eliminate the possible influence of modality differences on findings. Besides, they also underlined the distinctions between the three models: Default Model, Standardization Model and the model deriving from relevance view. Meanwhile, according to whether the computation of implicitures is suspended by canceling contexts, this study clearly described and distinguished the two versions of the Default Model: the default with suspension account (Levinson, 2000) and the default without suspension account whose opinions about processing procedures of meaning resembled those of Standardization theory (Bezuidenhout and Cutting, 2002). This assisted in solving other researchers' bewilderment on the distinct explanation about the Default Model. It investigated the mechanisms by observing the context reading time, impliciture reading time and decision response time. The results replicated that of Garrett and Harnish's study: implicitures were derived automatically in context-free conditions. They also found the remarkable effects of impliciture types on impliciture inference and further statistical proofs for Standardization: in canceling contexts, participants' impliciture reading time and decision response time were longer than those in enabling contexts, but context reading time was similar in both contexts. Hence, no matter whether there was a context or the context was favorable to inferring impliciture, the impliciture was expected and the model was in line with Standardization. There were many questions that Dorjee et al. called for in future studies, such as the fundamental differences between Standardization and the Default without suspension view. Whether the interpretation strength variations of three types of implicitures manifest a systematic characteristic is also worth concern. Moreover, it should be mentioned that neither Garrett and Harnish (2007) nor Dorjee, Garret and Harnish (2013) provided direct evidence that the Context-driven Model is not reasonable.

Abuduwaili and Xu (2016) investigated Chinese native speakers' understanding condition of Chinese implicitures through one offline experiment with contexts on the basis of the explorations of Gibbs and Moise (1997), Bezuidenhout and Cutting (2002) and Breheny, Katsos and Williams' (2006) study on scalar implicatures. Five types of implicitures with possession, location, present perfect tense, quantifier, argument and cardinal number were respectively tested. This study was intended to compare and verify two models: Default Model and Underspecified Model. It should be noted that the Default Model is actually the default without suspension account of Levinson's default heuristic model, whose inference about impliciture understanding is similar to the Standardization Model. In addition, the Underspecified Model was proposed according to the post-Gricean Relevance Theory highlighting the function of contexts, in which people directly computed the meaning with optimal relevance with the context, so this model resembles the Context-driven Model. This

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study adopted a multiple-choice task and a tendency degree evaluation task to inspect which model was more plausible and compatible with the reality. The results of the two tasks demonstrated that, in contexts, there was an evident bias in favor of the processing mode of the Default Model, especially in canceling contexts. It indicated that hearers automatically computed the default implicitures of sentences, but when the contexts did not support default implicitures, there was a contention between the original implicitures and the possible alternative meaning. Then, hearers had to ascertain the contextually reasonable understanding with extra processing efforts. Hence, the influence of specific contexts and background knowledge was unneglectable and indispensable in the understanding procedure as a whole. As a whole, the results supported the Default Model, but there were still some exceptions favoring the Underspecified Model. Therefore, Abuduwaili believed that both models had some blemishes and should be reconsidered. The Default Model should allow the intervention of contexts because the interpretation of implicitures had to rely on the specific contexts in some cases. As for the Underspecified Model, it was also necessary to reexamine the major standpoint of total context dependence and the negation of linguistic forms underlying Relevance Theory.

The restriction of this study is that although the research method is worthy of reference, the offline questionnaire survey method was more likely to encounter interference through the participants' psychological factors than the online methods. This study directly presented to participants the respective processing procedures in line with the two models and required them to make a choice and evaluate the tendency degree with numerical values. Primarily, the absence of a time limit for each testing item failed to guarantee that participants had made intuitive responses. In all probability, uncontrolled rethinking had an influence on the results. On the contrary, online experiments with strict time limits that are accurate to the millisecond will avert this defect. Furthermore, it was conceivable that participants might be unable to precisely recognize or even grade their understanding process. Consequently, participants' psychological conditions and the surrounding disturbance might have brought about the discrepancies in findings. In brief, compared with the online research of Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013), the experimental method of Abuduwaili and Xu (2016) is less persuasive and remains to be validated. However, as the first research on Chinese implicitures, it inspired other scholars to explore the nature of impliciture and its cognitive mechanism from the perspective of other languages.

It is undeniable that the pragmatic field has paid increasingly closer attention to implicitures, and, obviously, almost all the controversies about it are essentially the result of the contention between the neo-Gricean school and post-Gricean school, especially in terms of the cognitive mechanisms of processing implicitures, Default Model, Standardization Model and Context-driven Model. The current study aimed to replicate the online Experiment 1 of previous investigations by Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013) with corresponding Chinese testing materials and the similar online experimental method. This offset the methodological defects of Abuduwaili and Xu's (2016) study and at the same time explored impliciture from another point. The current study intended to confirm the existence of impliciture by examining the context-free interpretation of implicitures and to find out if the impliciture type will influence the understanding of implicitures. Meanwhile, it was also expected that light would be shed on the cognitive mechanism of implicitures by appraising the three mainstream models: Context-driven Model, Default Model (Levinson's default with suspension view) and Standardization Model. Relevance Theory claims that the literal meaning or language form is just an ostensive stimulus with the essence of utterly semantic under-

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determination. Then, the interpretation procedure is absolutely dependent on pragmatic factors, including cognitive and immediate contexts. On account of the fact that the current study focused on context-free implicitures, it suggested that no specific contexts were offered at all. Hence, if there was still a strong and significant bias favoring impliciture-driven interpretation with regard to all three kinds of implicitures, beyond all question, the radical context determinism of the Context-driven Model of the post-Gricean school will be queried. Moreover, the Default Model and Standardization Model hold the viewpoint that the literal meaning has to be processed first when interpreting an utterance. Since the results might support the Default Model and Standardization Model, it will have a great impact regarding Relevance Theory's negative attitude toward the function of linguistic form or literal meaning.

Experiment

This experiment was mainly intended to demonstrate the existence of Chinese implicitures and at the same time assessed the predictions of the Context-driven Model, Default Model and Standardization Model by testing context-free interpretation with an online question-answering task or a forced multiple-choice task. Since there was no specific context guide, according to the Context-driven Model, people have to interpret utterances that coincide with the cognitive contexts in their brain. Due to everyone's different cognitive context assumptions, they will comprehend the same material with different premises, thus producing distinct inferences without any significant trend. Nevertheless, the Default Model and Standardization Model both hold that implicitures are default and are computed automatically without any context. Hence, a clear bias in favor of default implicitures should be expected in the result.

MATERIALS AND METHODS

Participants

Twenty native language users of Chinese without any language or learning disabilities (10 males and 10 females; average age 24, age range 22-26) who are students of Lanzhou University participated in this experiment. From School of Foreign Languages and Literature, School of Atmospheric Sciences, School of Nuclear Science and Technology, School of Information Science and Engineering, School of Public Health, School of Stomatology and First and Second Clinical School, they had never participated in any similar linguistic experiments or received any related training before this experiment. They received some small gifts for their participation after the experiment.

Materials

The materials (40 items) used in the experiment fell into three groups: a test group (impliciture items), a control group (non-impliciture items) and a filler group. In the test group, there were 15 impliciture sentences of three impliciture types (5 locative, 5 temporal and 5 possession) whose corresponding answers were expected to be or should all be the impliciture probes. Similarly, in the control group, there were 15 control or non-impliciture sentences of three types (5 locative, 5 temporal and 5 possession). The difference between the items of the two groups was that the former were with strongly implied meanings or choosing preferences while the latter were not. For example, when facing the impliciture sentence, "somebody said: I have had breakfast," and when the participant is asked "when?" there is a strong preference for instinctively choosing "today/ this morning" instead of "once." Nevertheless, when encountering the control sentence, "somebody said: I have had went to the Great Wall," the

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participant may choose either "today" or "once," and there is no expected preference for choosing "today" as the answer. Finally, the filler group with 10 filler items was involved to avoid strategic response bias and to test if the participant was concentrating on the experiment. Among all the items in the test and control group, 10 were directly translated from the English items previously used in the experiments of Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013), and the others were created imitatively. The filler group was totally self-coined.

Procedure

DMDX software was used to present materials in this experiment. Participants were asked to sit in front of the screen and the keyboard in a soundproof chamber without any carry-on objects in order to prevent any external disturbance. Participants saw the selected materials or stimuli presented on the computer screen. The sequence of presentation of each item was as follows:

A. Somebody said: 'It's cloudy today.'

B. Where

C. [left] Here; [right] There

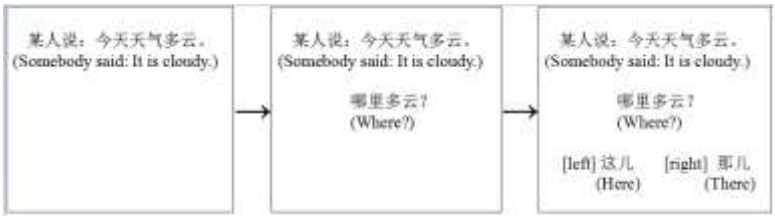

Figure 1. Example of the presentation sequence of a location impliciture item in the experiment.

In order to avoid formation of inertial behavior, all 40 items were set to be presented randomly so that the same reactions to the same impliciture type and the same button pressed would not keep repeating. The test sentence and the question for each item were displayed automatically for 200ms. Participants were required to imagine the test sentences being uttered in a natural and daily conversation and had to answer the questions by pressing one of the two keys corresponding to the options in 3000ms. Their response time was recorded since the appearance of the options. It took each participant 5-8 minutes to finish an entire experiment.

Predictions

It was predicted that the results of this context-free Chinese impliciture experiment should replicate those of Experiment 1 from the studies of Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013): without any contextual involvement, implicitures can also be expected to appear, and there should be a strong preference for choosing impliciture probes in experimental items, while there should not be a strong preference in the control items. In addition, when impliciture items are tested, participants' impliciture response time should be significantly shorter than that of non-impliciture choices, but this tendency would not appear in non-impliciture items. Moreover, according to the study by Dorjee, Garret and Harnish (2013), the effect of impliciture type was significant, and the study by Garrett and Harnish (2007) showed a special non-impliciture characteristic in location and possession implicitures, which might also be observed in this current experiment.

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RESULTS AND ANALYSES

As a whole, the results from Table 1 and Table 2 illustrate that among the responses of impliciture items, 90.9% of the choices are impliciture ones, which shows an obvious bias for impliciture response. Comparatively, there is no such preference among non-impliciture items: only 40.1% are impliciture responses. At the same time, there is a significant difference between the response times for implicitures and non-implicitures ($F(1/29) = 11.194$, $p = .002349 < .05$). The average response time of impliciture items is faster than that of non-impliciture items (135ms). Even though there exists some instances in which the non-impliciture responses are made, the time for them is much longer than that of impliciture responses (mean difference: 147ms).

Table 1 Results of Impliciture Items in the Forced Choice Task

Forced choice task		Impliciture Items		
		Impliciture response	**Non-Imp response**	**No response**
Location	Mean (ms)	672	773	
	N	87	12	1
Time	Mean (ms)	694	958	
	N	91	8	1
Possession	Mean (ms)	632	707	
	N	91	7	2
Total	Mean (ms)	665.86	812.93	
	N	269	27	4

Table 2. Results of Non-Impliciture Items in the Forced Choice Task

Forced choice task		Non-Impliciture Items		
		Impliciture response	**Non-Imp response**	**No response**
Location	Mean (ms)	937	970	
	N	73	26	1
Time	Mean (ms)	792	735	
	N	15	85	0
Possessio n	Mean (ms)	825	721	
	N	32	68	0
Total	Mean (ms)	851.40	808.71	
	N	120	179	1

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Table 3 One-way ANOVA on the Relationship betn. Impliciture and Non-impliciture Responses

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	137104.590	1	137104.590	11.194	.002349
Within Groups	342954.568	28	12248.377		
Total	480059.157	29			

Table 4 One-way ANOVA on the Relationship between Impliciture Type and Impliciture Responses

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15888.290	2	7944.145	1.252	.320640
Within Groups	76117.766	12	6343.147		
Total	92006.056	14			

The results above resemble those of Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013), which provide a full expression of the special status of impliciture items. However, the results about the effect of impliciture types on response are different from those of Dorjee, Garret and Harnish (2013). The significant difference is not found between the impliciture type and impliciture response of impliciture items ($F(2/12) = 1.252$, $p = .320640 > .05$). Furthermore, Garrett and Harnish (2007) found the same direction of preference for the implicitures in terms of both the choice number and the response time in two non-impliciture types (location and possession), but in the current study, this phenomenon is only found in the location type. In other words, just as in impliciture location items, in non-impliciture location items, the number of impliciture response is more than that of the non-impliciture one, and the response time for impliciture response is shorter than that for the non-impliciture one. Nonetheless, just as Garrett and Harnish (2007) found, the preference is similar, but the time taken is obviously much longer: the response time of impliciture response following non-impliciture sentences is 265ms longer than that following impliciture sentences. It indicates that making a decision when facing a non-standardized utterance without any context is much more difficult and time consuming. This verifies the hypothesis of the Default Model and Standardization Model that there exists impliciture in our daily life conversations and that context-free implicitures are processed automatically or mandatorily when contexts fail to restrict the interpretation.

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DISCUSSION

The results of this online experiment on context-free Chinese implicitures provide persuasive empirical evidences for the existence of the linguistic phenomenon labeled as implicitures and partially for the rationality of the Default Model and Standardization Model. This result should be a strike toward the post-Gricean explicature theory and Context-driven Model because radical context determinism of the theory and model is dubious according to the current study's results. Theoretically speaking, without any immediate contexts, the cognitive context in the human brain in the conception of Relevance Theory should be the only source or basis for people to compute utterances. They will treat the interpretation bearing optimal relevance with their cognitive contexts as the most suitable meaning of the utterances. On account of different forepassed experiences, backgrounds in all senses and any other social, cultural and personally habitual factors of unique individuals, it is without a doubt impossible for people to have the same cognitive contexts. Thus, naturally, it is also fallacious to infer the same implicitures facing the same materials or to count on a unified tendency endorsing impliciture-driven interpretations (at least according to the Context-driven Model). Despite the seemingly logical deduction about impliciture processing, the results demonstrating a significant interpretation inclination with a preference for implicitures have been obtained in this study and previous studies by Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013). How could this be possible? Relevance Theory and its model have not provided a justified explanation, but Bach's Standardization Model might succeed in becoming an adoptable and reasonable solution, even though Bach's related theory is also not perfect.

As far as this current study is concerned, Bach's Standardization theory (Bach, 1998; Bach & Harnish, 1979) and Liu's "mental situation" and "conceptual integration" (Liu, 2010; Liu, Harnish & Garrett, 2011) are reasonable to explain impliciture expression and interpretation. First of all, it has been proven that implicitures are computed without the necessity of specific contexts in the experiments of this and previous studies. Then, what on earth do people rely on to express and understand implicitures? It seems to be persuasive that people's minds compute implicitures by virtue of standardized expressive and interpreting patterns constituted by integrated factors such as language forms, background knowledge about both sides of the communication, people's bygone experiences, cultural influences and so on. All of them become part of people's common psychological contexts through long-time accumulation and repeated usage, and once the language form being stored in the human mind is produced, it will trigger the mutual knowledge in psychological contexts to help people understand each other and communicate successfully without the necessity to straightforwardly, explicitly and literally express their intentions. This procedure is dynamic and complicated, and its rationality also remains to be confirmed by scientific experimental evidence.

The different results manifested in the current study and previous two studies of Garrett and Harnish (2007) and Dorjee, Garret and Harnish (2013) may lie in the defects in the experimental design. On one hand, the sample size of this experiment was relatively much smaller, causing the results to not be so accurate or persuasive. With a larger sample size, a more accurate result and the effect of the impliciture type may be expected. On the other hand, material differences and the different thinking modes between English and Chinese native speakers might be the reason for the discrepancy, which should be explored and resolved carefully in future studies on implicitures. Moreover, it was possible that the psychological factor had affected the experimental results, especially when participants encountered some seemingly illogical non-impliciture location items such as asking "Where?" when the utterance

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was "Somebody said: It is my birthday." Participants may directly choose the impliciture probe without thinking too much because they found that these kinds of items were meaningless and that choosing the one at first sight was much more effortless. Perhaps that was why the similar preference for impliciture response appeared in the location type. All of the above limitations should receive more attention and should be offset in future studies on the investigation of the impliciture cognitive mechanism.

CONCLUSION

Despite some imperfections in Bach's impliciture theory, it is overall reasonable and explainable regarding the existence of impliciture and its processing mechanism, in that it is indeed difficult to draw a completely clear line between "what is said" and "what is implicated," and the intermediate area represented by "impliciture" can to some degree solve this problem. With regard to the different results or conclusions achieved by previous theoretical and empirical research, this study believes that factors such as the difference in the research focus and the tendentiousness of experimental materials will all lead to the deviation of results, which are the difficulties that must be settled in investigating the impliciture processing model. Furthermore, with respect to the impliciture cognitive processing mechanism, the current empirical study merely verifies the rationality of the partial inference of the Default Model and Standardization Model concerning context-free implicitures. According to previous studies, even though the Default Model is in a weak position and the Standardization Model and Context-driven Model each have an equal share of the advantage, no empirical research has specially made a direct comparison between the Standardization Model and Context-driven Model. Even the current study is merely a tentative empirical study to oppose the Context-driven Model. How to judge whether it is Bach's Standardization Model, the post-Gricean Context-driven Model or cognitive context that plays a role in the process of inferring impliciture might be the key to testing the real mechanism and the important developing tendency in the future research.

Above all, in order to continue the current research, future studies should enlarge the sample size, solve the design problems of materials and further affirm the impliciture processing mechanism by manipulating the contexts. More experimental evidence is needed for the related research from various perspectives, such as from the perspective of Chinese language. More advanced scientific methods are suggested to be utilized for different pragmatic research.

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