

A Review of Conversational Implicature

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ABSTRACT: *Within the field of pragmatics, there has been an ongoing discussion about the language meaning. The thought of scholars from the Gricean, neo-Gricean, and post-Gricean schools disagreed on how to define a common language phenomenon, a kind of pragmatically enriched meaning imparted but not literally and clearly articulated by the utterance. Meanwhile, three cognitive processing models for implicature have been proposed: the Default Model, the Standardization Model, and the Context-driven Model. The present study provides a detailed review of the researches on the implicature and pays attention to a possible aspect of further study on implicature.*

KEYWORDS: conversational implicature; experimental pragmatics; default; standardization; processing model

INTRODUCTION

One of the most famous linguistic philosophers Grice (1975), who proposed the cooperative principles and conversational implicature, divided language meaning into two different parts, namely, “what is said” and “what is implicated”. Grice’s conception of conversational implicature has been a source of inspiration for the study in pragmatics at the borders of theoretical linguistics and philosophy. Grice’s dichotomy made a breakthrough in the utterance meaning’s study. However, there is a heated debate about a special kind of utterance meaning among the pragmatics scholars. In addition to Grice’s (1975) notion of GCIs, Perry (1986) mentioned “unarticulated constituents”. Levinson (1995, 2000) proposed his own predicted processing model.

Bach self-coined a middle ground implicature between “what is said” and “what is implicated”, which developed into the Conversational Implicature Theory. Although the speaker did not explicitly speak out what was in the brackets, the hearer can infer the exact information of the speaker even if without a concrete context. For example, *I have had breakfast* [today] (the enriched meaning), or *it is raining* (here).

The implicature occupies the middle ground between the explicit content of the

utterance meaning and its implicatures. Thus, from the Bach's perspective, we have three levels of communicated content beyond the sentence's linguistically encoded meaning: "what is said", the implicature, and the implicature. Implicature has more meanings than literal meaning, but compared with the implicature, it is more similar to the literal meaning. Bach (1994a) claimed that one hearer interprets the implicatures in two perspectives: one is that the utterance is semantically underdetermined or is not a complete proposition. What the hearer needs to do is to make it complete through "completion" (e. g. *Everyone in the office is going to the party.*). The other is that the utterance conveys a complete proposition, but the hearer needs to make the meaning more specific through "expansion" (e. g. *Mary has nothing appropriate to wear (to the party).*). That is to say, implicature can be understood as one says something and means some expansion or completion of what was literally said.

Bach (2010) made a comparison between the implicature and explicature theory on the basis of the Relevance Theory. According to the relevance theorists, the "explicature" of an utterance is an explicit content or assumption communicated by an utterance which is the development of a logical form encoded by the utterance (Carston, 2002:116).

Vicente (2002) held a negative attitude towards Bach's distinctions, giving rise to semantic and pragmatic problems. In some cases, this is because the literal meanings he posits are overdetermined; in others, it is because they are underspecified. He argued that there does not seem to be a role for Bach's level of 'what is said' in a psychologically plausible theory of utterance interpretation.

THEORETICAL BACKGROUND

Implicature

Grice (1975) firstly put forward with the Cooperative principle and conversational maxims, which aimed to make the conversational contribution such as is required. And it consists of four maxims: ① quantity maxim; ② quality maxim; ③ relation maxim; ④ manner maxim. These maxims can be violated for various reasons, but only when they are flouted, the conversational implicature will occur. For example,

- (1) A: Where does X live?
B: Somewhere in the south of France.

In the above example, B does not provide with enough information, which flouts the quantity maxim. However, if B observes the quantity maxim, s/he will flout the quality

maxim. Thus, the conversational implicature is that the speaker does not know the specific location where the A lives.

(2) He is meeting a woman tonight.

The implicature of this statement is that the woman he is going to meet is not his mother, wife or sister. As inferred from the qualitative and quantitative principles of cooperation, the speaker should provide truthful and sufficient information. Therefore, he uses the indefinite article “a”.

Besides, Grice divides speaker meaning into two parts: “what is said” (semantic, encoded, and truth-conditional meaning) and “what is implicated” (pragmatic and non-truth-conditional meaning). “What is said” is closely related to the conventional meaning of the sentence uttered. It is limited to what is meant conventionally by the sentence, and does not include whatever else the speaker may have been trying to convey. “What is implicated” is pragmatically determined, aiming to explain how people can say one thing and manage to convey something else (Grice, 1989; Levinson, 2000). He also classifies the meaning of conventional implicature and non-conventional implicature. Decoded implicatures are what he calls “conventional implicature”; inferred implicatures are “non-conventional”, which are involved in the conversational implicature. Figure 1 shows the organization of Grice’s utterance meaning:

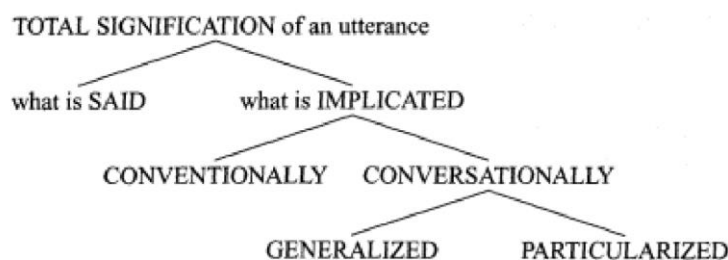


Figure 1 Organization of Grice’s utterance meaning

There is also a distinction between “particularized conversational implicature” (PCI) and “generalized conversational implicature” (GCI). GCI is the extended or enriched meaning of a word or phrase, which is mostly derived according to the conventional meaning and does not depend on the specific context; it is different from PCI, which is determined by the context. In the *Further Notes on Logic and Conversation*, Grice points out that the original principle of cooperation is intended to make up for the inadequacy of natural language meaning analysis by logical semantics, and then explain that the speaker says the meaning of X, which indicates P in verbal communication, but

in fact it implies the unnatural meaning of language such as Q, and then puts forward his theory of conversational implicature.

Levinson (1987) distinguishes three types of GCI: Q-implicature; I-implicature; M-implicature, which derives from the Grice's four maxims respectively, but the emphasis is quite different. Levinson strengthens on the GCI, while Grice emphasizes on the PCI. Levinson (1995, 2000) developed a theory of presumptive meaning. He believes that GCIs should be viewed as conversational presumptions. Such a default meaning would be projected as the preferred one under the unrevised presumption, but it would be rejected under the revised presumption in favor of other more relevant meanings. In his view, there should be added a third level – utterance-type meaning – to the two generally accepted levels of sentence type meaning and utterance-token meaning. Gricean theorists argue that generalized conversational implicature depends on invariant linguistic structures and not on variable contexts (Horn, 2004: 4).

Explicature

The term explicature was coined by linguists Sperber and Wilson to characterize “an explicitly communicated assumption.” It is an explicit content or assumption communicated by an utterance which is the development of a logical form encoded by the utterance (Sperber & Wilson, 1986: 182). The term is based on the model of Grice's implicature “to characterize the speaker's explicit meaning in a way that allows for richer elaboration than Grice's notion of ‘what is said’”. Relevance theory rejects Grice's cooperative principle and replaces the conversational maxims with the relevance principle, Sperber and Wilson (1995: 260) asserted that every act of ostensive communication communicates a presumption of its own optimal relevance.

Besides, relevance itself is defined as a balance of positive cognitive effects and processing effort. Sbisa (2006) thought highly of the relevance principle, emphasizing that the hearer's inferential activity, triggered by the speaker's utterance, aided by previously stored background assumptions and possibly guided by linguistically encoded procedural constraints, works towards a reconstruction of the speaker's communicative intentions, which aims at maximizing their relevance.

Carston (2002:205) contends that there are three different sorts of pragmatic task involved in the derivation of the proposition expressed by an utterance: disambiguation, saturation (reference assignment) and free enrichment. However, the Relevance Theory has been criticized from various perspectives, such as Bach, pointing out that it is difficult to draw a line between what is explicature and what is implicature, and that the so-called explicit and implicit often intersect (Haugh 2002:131).

Implicature

Bach (1994a) proposes a third level of representation-the implicature-to the two accepted levels of “what is said” and “what is implicated” by an utterance. The implicature supposedly occupies the middle ground between the explicit content of the utterance and its implicatures. Hence, following Bach, we seem to have three levels of communicated content beyond the sentence’s linguistically encoded meaning: ‘what is said’ (the explicit content), the implicature, and the implicature. “What is said” is determined by the linguistic features of discourse, including the explicit meaning of pragmatic elements, such as disambiguation of lexical meaning, determination of deixis, and processing of syntactic ellipsis. Implicature is the pragmatically enriched meaning.

What’s more, Grice elaborates the notion of “sentence non-literality”, which refers to the linguistic phenomenon that the whole sentence is used nonliterally without any of its constituent expressions being so used (Bach, 2001b: 249). Even when the semantic representation of the sentence does yield a full proposition, it may fail to capture what the speaker wanted to communicate. E. g. *You are not going to die*. The author would use some examples to explain the implicature.

(3) Semantically underdetermined sentences

3. Steel isn’t strong enough.

3a. Steel isn’t strong enough [to resist bending by Superman].

Bach self-coined the term ‘implicature’, which is implicit in what is said, just like the sentence 3a. Sentence 3 only provides a propositional fragment, which is called a propositional radical, waiting for a pragmatic process completion or expansion to fill in what is said and assign a truth value to it. Nevertheless, the expanded nonliteral interpretations become standardized, with the result that their interpretation becomes a “context-independent fact” independently of their linguistic meaning (Bach, 1998:712). This is because in cases of standardization the inference from one sentence meaning to the other speaker meaning is short-circuited (Bach, 1994b: 279). 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.

Previous Studies on Implicature

A large variety of theoretical comments and experimental investigations have attempted to discuss and attest to the reasonableness of these varied theoretical viewpoints on pragmatically enriched meaning. These investigations serve to keep our understanding of this kind of pragmatically enriched meaning fresh, even if there is still a long way to go in terms of reaching a consensus on contentious matters.

Theoretical Studies

There are three main processing models that have been frequently investigated from previous studies of implicature. The Default Model is based on the minimalist theory proposed by the neo-Gricean school of Levinson, who argues that implicit meaning is the result of a default pragmatically inference process, and that implicit meaning is cancelled when the context denies its existence, otherwise the inference continues. This model implies that implicatures can be computed without any specific context or only in a favorable context.

Bach and Harnish (Bach, 1998; Bach & Harnish, 1979) firstly proposed the Standardization thesis as a relation that certain sentence forms have to indirect illocutionary acts. There is the mutual belief that constitute illocutionary conventions enable hearer to infer the speaker's indirect intent immediately, without going through the usual working-out process. The hearer could infer the speaker's illocutionary intent from what is said and the relevant mutual contextual beliefs, as with any indirect illocutionary act. Only by accumulating precedent for indirect use do such sentences come to be standardized.

Bach believes that this Standardization process is also available to implicature. It admits the function of contexts in assisting hearer's understanding. The nonliteral usage of some language forms has been standardized in that consistent usage in precedents or experience, so this type of usage will be processed without a lengthy analysis of the utterance's literal and conventional meaning. As a result, implicature is bound by linguistic form and will be met regardless of whether there is a context or if the context favors implicature. According to Liu (2010), a specific type of utterance meaning is already retained in the brain by binding directly to the linguistic form. It is frequently employed in society, and as a result, it has become the standardized form of that utterance, providing a pragmatic support for implicature interpretation.

Korta (1997) proved that Grice's 'tests' of non-detachability and cancelability did serve to clarify the distinction among different elements of utterance meaning which were pragmatically determined. Through some examples, the author verified the existence of conversational implicature, which had the characteristics—cancelability and detachability, because of "what is said" with non-cancelability and non-detachability and implicature with cancelability and non-detachability.

Zhu (2009) studied about implicature from the perspective of cognitive and relevance theory. She held that Gestalt Theory could provide some cognitive basis for the construal of implicature. In order to avoid ambiguity and misunderstanding, the hearer

was able to use bridging Inference to complete the incomplete utterances and obtain implicature. Bridging assumptions in bridging inference were of significance to infer implicature. Because bridging assumptions enabled the hearer to construct the relationship between utterances, to infer the default information and then to obtain implicature. Moreover, context influenced the comprehension of implicature to some extent. Different context would result in obvious variations of implicature. The hearer should choose the optimal implicature from context according to the principle of relevance.

Hou (2013) attempted to hackle and clarify the classical focal semantics-pragmatics interface matter. It commenced with miscellaneous meaning issues and Grice's Circle problems, followed by a discussion of the tripartite classification: explicature, implicature and implicature with their differences. By a case study of the word *and*, the author investigated the disputes over "what is said" and "what is implicated", over the above-mentioned tripartite classification, and over whether or how much truth-conditional content is affected by pragmatic intrusion.

Experimental Studies

Previous experimental studies of implicature concentrate on the following main issues. The first one is that whether native speakers are able to classify utterance contents, such as what is said, implicatures and implicatures (Gibbs & Moise, 1997; Nicolle & Clark, 1999; Bezuidenhout & Cutting, 2002; Xu & Abuduwaili, 2017). The second is to investigate the cognitive processing mechanisms of the recovery of implicature. (Nicolle & Clark, 1999; Bezuidenhout & Cutting, 2002; Garret & Harnish, 2007; Dorjee, Garret & Harnish, 2013; Abuduwaili & Xu, 2016; Liu & Li, 2018; Abuduwaili, 2019; Li, 2019).

Chinese implicature

For the interpretation of conversational implicature, the neo-Gricean school and the Relevance theorists have proposed two opposing models: Default Model and Unspecified Model. Many scholars have attempted to validate these two models through a psycho-cognitive approach, but with very different results.

Using an image comprehension task and scale rating approach, Abuduwaili and Xu (2016) explored the processing ways of multiple implicature types in different biasing contexts. The findings revealed that the DM derives some utterance categories (possession, locative, and present perfect tense), and that in both upper-bound and lower-bound contexts, the pragmatic interpretation is usually more accessible than the logical interpretation. However, UM can explain some utterance types (for example,

quantifiers). The pragmatic and logical interpretations are both context-sensitive.

Liu and Li (2018) investigated the existence of the Chinese implicature and its processing mechanism by testing the processing of three types (time, location, possession) of context-free Chinese sentences with implicatures in an experiment to see which model is more acceptable for Chinese implicatures. The result showed that the implicatures were automatically computed and that implicature types did not influence the processing of implicature. In this case, both Default and Standardization were supported. The authors suggested that further studies on implicatures, especially implicature processing mechanisms by manipulating contexts, should be conducted from the perspective of different languages.

Li (2019) carried out two experiments. The author discovered implicatures in Chinese utterances that were available defaulted and automatically without the need for specific contexts, based on Garrett and Harnish's (Garrett & Harnish, 2007) and Dorjee, Garrett, and Harnish's (Dorjee, Garrett & Harnish, 2013) online context-free experiments with Chinese materials. Furthermore, the study favored the Default and Standardization Models while rejecting the Context-driven Model. Furthermore, the Standardization Model is more rational to explain the processing mechanism of implicatures. In contexts, the implicature type affected Chinese implicature processing. In terms of interpretation strength, Chinese implicatures decreased with the order of Possession, Location and Time. However, the interpretation strength of English decreased with Time, Possession and Location progressively.

Abuduwaili (2019) conducted two experiments to determine whether participants access implicatures rapidly and easily in Neutral contexts and Enabling and Cancelling Contexts in Experiment 1 and 2, respectively. He designed six types of utterances, including possession, cardinal, quantifier, time distance, perfective and locative utterances and each of them with two grammatical conditions. One was called pragmatic condition, and the other was logical condition. The participants were asked to decide whether the paraphrase was or was not compatible with that utterance. Participants' judgments, reaction times and hand movement trajectories were measured. And he used a mouse-tracking method to measure the behavioral activity of participants in the online process of understanding. He proposed four cognitive processing models of implicature (LFSM; DM; UM; CBM). And the results revealed that participants generally favored implicature than what is said, which was consistent with the prediction of DM. And implicatures are computed more accurately and rapidly than minimal propositions.

Here was an example of possession utterance type from Experiment 1,

(4) Li Si broke a finger. (Possession)

4a. Woman: Zhang San said, Li Si broke her own finger.

4b. Woman: Zhang San said, Li Si broke her own or some else's finger.

Note: 4a. paraphrase of implicature (upper-bound condition); 4b. paraphrase of what is said (lower-bound condition). Upper-bound condition means a conversational situation which yields implicature in a default way; while lower-bound condition refers to a situation which cancels or negates that implicature.

With regard to processing time, the paired-sample T test revealed that there was no reliable difference in the initial time between logical and pragmatic responses, implying that both what is said and implicature inference of the same utterance were activated simultaneously in the early stage. There was, however, a substantial difference in reaction time between the upper- and lower-bound conditions, implying that pragmatic interpretations took less time than logical interpretations. Figure 2 showed the mean processing time for judgment on the intended meaning of the six utterance types.

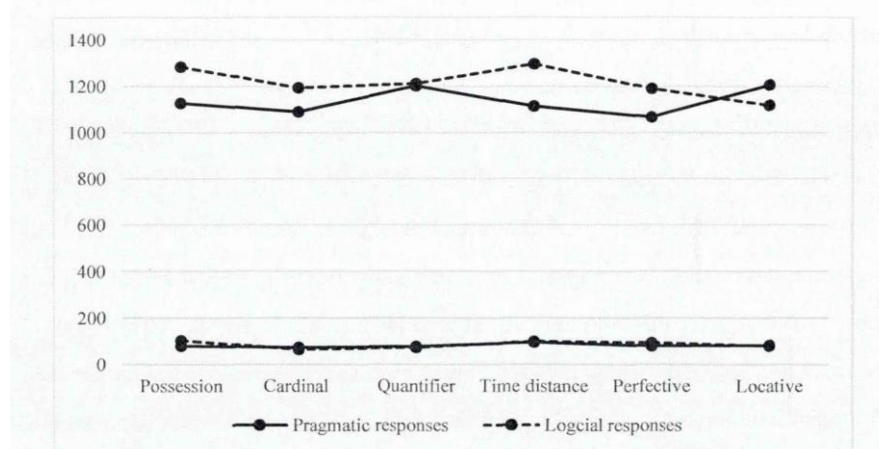


Figure 2 Mean processing times for each utterance types in milliseconds

Experiment 2 revealed that in contrast to non-implicature interpretations, interpretations of implicature were frequently accepted as the intended meaning of utterances both in the enabling and cancelling contexts. What's more, cancellations of salient meanings of non-implicature items make processing more difficult than retaining them. Significantly, implicatures were more likely to occur in enabling contexts than in cancelling contexts. In terms of processing time, people's intuitions about implicatures did not necessarily involve special or different processing mechanisms from those involved in the processing of what is said. And the hand movements of participants revealed that internal processes for different types of implicatures were not the same.

And Experiment 3 indicated that relative to implicatures, what is said and implicatures are equally taken as the basic meaning in the inferential processes. Experiment 4 revealed that in the cancelling context, implicature required more processing times than what is said. Furthermore, utterance interpretation comes in degree across different categories. Multiple comparisons showed that cardinal type particularly revealed the lower accuracy than all other types except quantifier type. And mouse trajectories suggested that what is said, implicature and implicature are unfolded in parallel but not executed in a sequence. The author found that the processing of implicature were both automatic and context-dependent, which supported for the constraint-based model, referring that implicatures are computed online locally and constrained by multiple factors.

In a nutshell, all levels of meaning have the potential to be viewed as fundamental meaning, but implicature has a dual role in utterance comprehension: it can be perceived instantly in one context and with a processing cost in another. The automatic processing of what is said is always present, whereas the effortful processing of implicature is always present. Furthermore, depending on their salience, context sensitivity, and the interlocutors' individual psychology, different types of utterances are taken to be realized by different types of interpretive processes.

English implicature

The studies of Gibbs and Moise (1997), Nicolle and Clark (1999) and Bezuidenhout and Cutting (2002) attempted to explore whether people could intuitively distinguish the minimal proposition, the pragmatically enriched meaning and the implicature of an utterance.

Gibbs and Moise (1997) conducted four experiments, in which subjects were presented with two possible interpretations without any context. And there were two types of interpretations: a minimal one and an enriched one. The former matched what Griceans claimed was said strictly and literally, whereas enriched interpretations conformed to what relevance theorists claimed was explicated. According to the findings, the subjects preferred enriched propositions over minimal propositions as the best representation of "what was said". As a result, they found experimental support for Récanati's (1991) claim that "what is said" corresponds to a pragmatically enriched rather than a minimal proposition, as well as Récanati's Availability Principle and Carston's "independence hypothesis". The results also gave the support for the levels of the speaker's meaning from post-Gricean school.

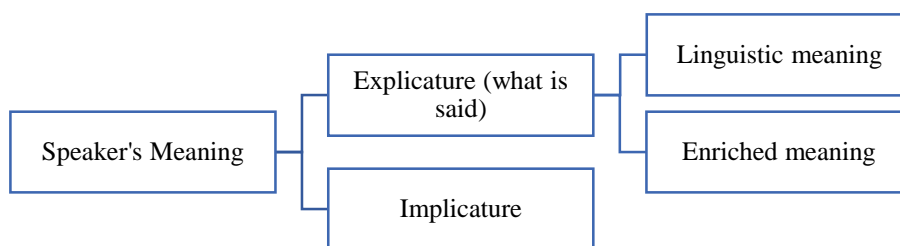


Figure 3 Organization of meaning according to the post-Gricean theory

Nicolle and Clark (1999) had a different result, compared with Gibbs and Moise's claim that people have robust intuitions about the distinction between "what is said" and "what is implicated". However, in terms of Récanati's Availability Principle, they have the same results in line with that of the Gibbs and Moise.

In Bezuidenhout and Cutting's (2002) experiment, they found that the generalized implicature is more accessible than what is strictly and literally said. This picture of the processing of such sentences seems especially compatible with the account of generalized conversational implicatures being developed by neo-Griceans, such as Levinson (1987a, b, 1995). With the respect to the pragmatic processing issue, the Ranked Parallel Model claimed that minimal and enriched interpretations are simultaneously processed but that the enriched interpretation is usually more accessible. There are six sentence categories in Experiment 3. Two story contexts are produced for each target sentence, one biased toward an enriched interpretation and the other slanted toward a minimal interpretation. The authors intended to see if minimal interpretations of target sentences were preferred in minimal contexts, or if they were preferred in enriched contexts. Following each story, participants were given the option of a minimal paraphrase or an explicature paraphrase of the target sentence. Those who saw the target sentences in minimal contexts were more likely to choose minimal paraphrases than those who saw them in enriched contexts, according to the findings. In the Experiment 4, which included timed judgment and online reading tasks, was designed to record and contrast the times it took to read target sentences in minimal and enriched contexts. Different predictions were made by three pragmatic processing models. In enriched contexts, the LFS Model predicts longer reading durations on target sentences. The RP Model, on the other hand, predicted that people would take longer to read the target sentences in minimal contexts. According to the LPP Model, interpretations are always influenced by contextual bias. The results showed that the mean target sentence reading time in minimal contexts was longer than in enriched situations, confirming the RP model that minimal and enriched interpretations are processed simultaneously in all contexts. However, the enriched interpretation is

usually more accessible.

The differences between Bach's standardization view and Levinson's Default Heuristic theory were explained by Garrett and Harnish (2007). In addition, the processing mechanism of implicature and the contextual effect on implicatures' computation processing were investigated. Their experiments showed the same effect with the processing time of implicature as in the Bezuidenhout and Cutting's (2002) research, which assumed that implicature was generated by default both in enabling and cancelling contexts.

Orjada et al. (2007) investigated whether individuals with right hemisphere damage (RHD) differ from healthy controls in implicature processing and how context affected the processing of different types of implicatures. The Experiment 1 showed that the participants with RHD were less accurate in implicature comprehension without context than the control group. In addition, in the lower bound context, the reaction times of the control group in understanding implicature were slower than in the upper bound situation, which had the same results in Garrett and Harnish's (2007) investigation. However, there was no evidence for overarching implicature impairment in participants with RHD. Dorjee, Garrett and Harnish (2013) conducted two great significant studies that verified the existence of conversational implicature. What's more, they also discovered that the processing features of implicatures varied across different implicature types.

CONCLUSION

For a general linguistic phenomenon in which a particular discourse meaning of a speaker's speech is not explicitly stated or indirectly implied, but is implicit in the utterance. The theoretical framework of Bach's implicature is more reasonable, although there are some imperfections. With the emergence and growth of experimental pragmatics, a number of researchers have used a variety of experimental methods to investigate some forms of implicatures, particularly scalar implicatures. However, the experimental evidence is a little bit controversial, leading to a variety of interpretations. Some of experiments supported for Standardization Model, whereas some supported for the DM or the UM. Sentence categories and languages have effects on the interpretation of implicature. Nevertheless, it still deserves to be studied by future scholars.

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