

## Interface Studies on Inferential Model of Conversational Implicature

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### Abstract

In Grice's Theory (1975), "conversational implicature" denotes what people tend to imply in conversation. However, the vague classification of conversational implicature has prompted post-Gricean studies from various perspectives. To present the development of an inferential model of conversational implicature, this paper summarizes three perspectives on interface study. Among them are semantics-pragmatics interface, cognition-pragmatics interface, and grammar-pragmatics interface. It finds that, these inferential models of three interfaces all focus on pragmatic factors. From general principles to specific frameworks, the development trend of inferential models is increasingly simplified, specific, clear and persuasive.

**Key words:** Interface study; Inferential model; Conversational implicature

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### 1. INTRODUCTION

Classical Conversational Implicature Theory (1975) distinguished between "what is said" and "what is implicated", separating semantics from pragmatics. "What is said" pertains to a literal meaning, explained by semantics, while "what is implicated" pertains to pragmatic factors, whose interpretation depends on

pragmatics. "What is implicated", the implicature, denotes what people do not usually say directly but imply. It is further divided into "generalized conversational implicature" and "particularized conversational implicature". However, the absolute distinction between "what is said" and "what is implicated" leads to the blurry definition of generalized conversational implicature. In many language facts, it is found that there are conventional or non-conventional generalized implicatures, and some of which are not necessary being deducted from Cooperative Principle or maxims. Consequently, the two-sided nature of generalized conversational implicature became the main bone of contention, which triggered a widespread discussion of an adequate inferential model of conversational implicature.

In recent researches on post-Grice pragmatics, interface study has been one of the most active areas. Interface study is one of the most important parts in interdisciplinary interactive research. The purpose of this paper is to review conversational implicature inferential models from the perspective of the interface study. These interfaces are semantic-pragmatics, cognition-pragmatics, and grammar-pragmatics.

### 2. LITERATURE REVIEW

#### 2.1 Semantics-Pragmatics Interface

According to Grice's typology of "Meaning", conversational implicature should be processed according to the Cooperative Principle and its maxims, which are based on semantic interpretation of sentences. It is obvious, however, that some general conversational implications are not dependent on pragmatic principles or maxims, while others are. Now that the notion of generalized conversational implicature is controversial, Levinson (1987) suggested "utterance-type meaning", an interface between "what is said" (sentence meaning) and "what is implicated" (speaker's meaning), to solve

Grice's problem. The "Utterance-type meaning", also called the "default meaning", refers to all stereotypical relationships that people display when speaking. Also, from the perspective of speaker and recipient, Levinson renovated Grice's maxims as Q-Principle, I-Principle and M-Principle.

**Q-Principle:** "What isn't said, isn't"

- **Speaker's maxim:** Do not provide a statement that is informationally weaker than your knowledge of the world allows;

- **Recipient's corollary:** Take it that the speaker made the strongest statement consistent with what he knows;

**I-Principle:** "What you do not say is not the case"

- **Speaker's maxim:** "Say as little as necessary", that is, produce the minimal linguistic information sufficient to achieve your communicational ends.

- **Recipient's corollary:** Amplify the informational content of the speaker's utterance, by finding the most specific interpretation, up to what you judge to be the speaker's m-intended point.

**M-Principle:** "What is expressed simply is stereotypically exemplified"

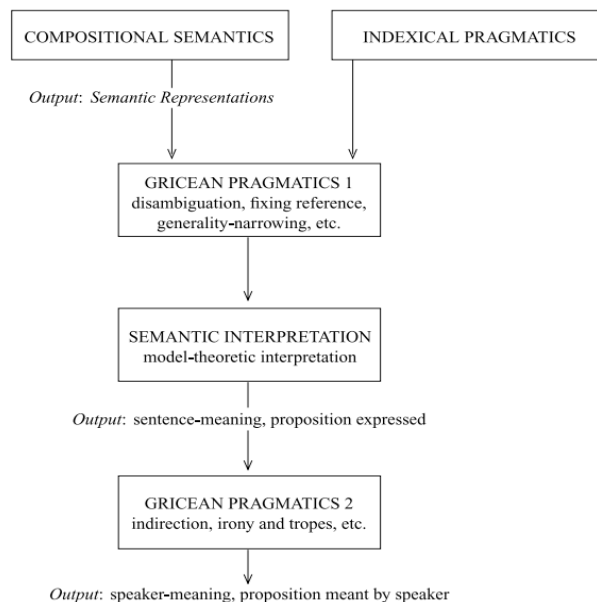
- **Speaker's maxim:** indicate an abnormal, nonstereotypical situation by using marked expressions that contrast with those you would use to describe the corresponding normal, stereotypical situation.

- **Recipient's corollary:** what is said in an abnormal way indicates an abnormal situation, or marked messages indicate marked situations.

Three Principles that describe the interaction between the speaker and the recipient, as well as complementarities among each. They are useful for elucidating the relation between language production and comprehension, and providing a sufficient description of the comprehensive language phenomenon. Though Levinson provided novel suggestions for Grice's implicature being applied to more comprehensive study, the notion of "utterance-type meaning" did not solve the problem of Grice's theory. Likewise, his assumption blurred the boundary between semantics and pragmatics. For example, as to Three Principles, the default meaning of "I cut *head* open yesterday" is "I cut *my head* open yesterday". Obviously, the latter is the pragmatic enrichment to the semantic interpretation of this sentence. The default meaning is derived from semantic meaning and pragmatic inference.

As a result of these discussions, Levinson (2000:35-40) reexamined the issue of semantic-pragmatics interface and proposed a new architecture for the theory of "Meaning". He assumed that, if sentences have some language phenomena such as disambiguation, indexical resolution and reference identification, pragmatic intrusion should precede semantic interpretation, and it should also reappear after that, in the inferring process of implicature.

Levinson summarized it as a model of presemantic and postsemantic pragmatics



**Figure 1**  
Presemantic and postsemantic pragmatics

Here are two examples about fixing reference:

(1) "The tall man is my brother; the *tall, tall* man is my uncle."

(2) "There are two routes to the summit: the *possible* one and the *not impossible* one."

On Levinson's assumption, a definite referring expression will only succeed in denoting if an implicature strengthens the descriptive content. In the first example, the repetitive description used here adds no truth-conditional content, but implicates a distinction from the unreplicative descriptions—namely, one in which the action or property is intensified. In the second example, the opposition between the simple positive "*possible*" and the double negative "*not impossible*" suggests that one route surpasses the other significantly. It can be inferred that the term "*not impossible*" means that although the route is much more difficult than the other, there is still a possibility. Here, M-implicature allows two referring expressions with identical semantic meaning, such as "*tall man*" and "*tall, tall man*", "*possible*" and "*not impossible*", to refer uniquely to different referents. Therefore, pragmatic input should be crucial before semantic interpretation. In other words, a proposition should be processed first according to Three Principles and the implicature should then be input into semantic analysis. In fact, many language examples indicate that pragmatic factors come into play before the proposition is completed. The sentence structure can be semantically interpreted and further enriched by additional pragmatic input. In a word, semantic interpretation and pragmatic inference work alternately while the implicature is processed.

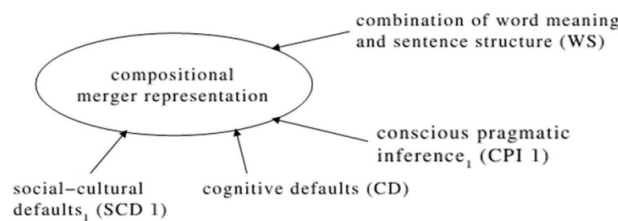
Levinson's Three principles and the model of pre-semantic and post-semantic pragmatics offer a new approach to semantics-pragmatics and clarify some problems left behind by Grice's Circle. Also, it shows that his theory has a stronger explanatory power and a wider application range of conversational implicature.

However, Levinson's theory is not enough to form a complete and systemic mechanism. Jaszczolt provided a valuable supplement. Based on Recanati's (2010) "Truth-conditional Pragmatics", Kamp&Reyle's (1993) Discourse Representation Theory and Levinson's (1987) "default meaning", Jaszczolt (2005) put forward a model of utterance interpretation in default semantics. Because the vague delimitation of generalized implicature resulted in debates on its interpretation's belonging to semantics or pragmatics, Jaszczolt simplified the classification of meaning into "primary meaning" and "secondary meaning". Primary meaning is the expansion of "what is said", which is salient and dominant; different from primary meaning, secondary meaning needs to be pragmatically processed.

Because Levinson's "default meaning" does not tackle

the underlying problem, in the theory of default semantics, Jaszczolt proposed a notion of "default interpretation" of primary meaning. Semantic representation dynamically combines speaker's intention with pragmatic information, so default interpretation occurs without pragmatic interference. As Figure 2. shows, the analysis of "Meaning" has two stages. In Stage I, in the compositional merger representation, primary meaning is processed from various types of information about utterance meaning such as word meaning and sentence structure (WS), social, cultural and world-knowledge defaults (SCD), cognitive defaults (CD), conscious pragmatic inference (CPI); then, in Stage II, if the inference of Stage One is failed, the implicatures would be processed again on the basis of other social-cultural defaults and conscious pragmatic defaults. In Jaszczolt's framework, pragmatic input in utterance interpretation will be regarded as on a par with the syntactic source of information about meaning. In other words, Word meaning and sentence structure, Conscious pragmatic inference, Cognitive defaults and Social-cultural defaults all contribute to a representation of meaning that merges their outputs.

Stage I Processing of the truth-conditional content



Stage II Processing of implicatures

- social-cultural defaults<sub>2</sub> ( SCD 2)
- conscious pragmatic inference<sub>2</sub> ( CPI 2)

**Figure 2**  
**Utterance interpretation in Default Semantics (Jaszczolt, 2005, p.73)**

Jaszczolt applied the theory of default semantics to many language aspects, in order to demonstrate the advantages of this framework. For example, default interpretations of definite description and presupposition expression.

(3) "The best architect designed the church."

Definite description is composed of "definite article noun phrase". Generally, definite description generates two kinds of interpretation. One is referential meaning, which means that there is a specific reference object; the other is attributive meaning, which means that it describes somebody or something. In Sentence (3), if the interlocutors both know the architect, for example, John or George, the sentence conveys referential meaning. That is, the speaker is trying to convey to the hearer that John or George is the best architect for the church. Thus, the referential meaning is the default meaning and the primary one for the hearer; whereas, if the hearer has no idea who

the architect is, the second interpretation is used, which differs from the default meaning. "The best architect" is a general reference, a person. Definite descriptions are normally used by the speaker with a strong intention, to refer to particular individuals who are identifiable by both interlocutors. In other words, by default, they are used referentially.

This default interpretation is a cognitive default, based on the speaker's strongest referential intention. That is to say, the speaker makes the strongest statement that is compatible with his/her knowledge and relevant at the current point in the conversation.

(4) "Every man loves his wife."

Another type of default interpretation takes place when the interlocutors share a cultural, scientific or social background, and can rely on this shared information as a shortcut. Such defaults are called social-cultural defaults. In Sentence (4), through utterance processing,

the presupposition “Every man who has a wife loves her” arises without any need for effortful inference. However, if “Tony Blair” was mentioned before this sentence, this presupposition (default meaning) would be cancelled. So the default meaning should be “Every man loves Tony Blair’s wife”. They are not as clearly definable as cognitive defaults.

From the explanations above, it is worth noting that the notion of “default meaning” in Jaszczolt’s model is triggered by and partially deducted from words or the sentence itself, which is distinct from Levinson’s assumption. In a word, default semantics simultaneously takes semantic and pragmatic factors into sentence representation. This provides a shortcut of interpreting utterance meaning and meets the efficient and economical principle of daily communication. As can be seen from the examples, some default meanings rely on context, while others do not, which is a recurrence of Grice’s problem.

## 2.2 Cognition-Pragmatics Interface

In terms of inferential mechanisms of conversational implicature, Sperber & Wilson (1986) put a heavy focus on the cognitive capacities of the interlocutors. According to Grice, the speaker’s intention represents the speaker’s meaning; when the hearer identifies his/her intention, conversational implicature is successfully transferred. In Relevance Theory, Sperber and Wilson maintained that communication is an ostensive-inferential process. The speaker is making manifest his/her intention to the audience, and the audience infers the speaker’s meaning.

In terms of “Relevance”, first, it requires the speaker and the hearer both to be relevant when communicating; second, its extent depends on “contextual effects” and “cognitive effort”. Here are two extent conditions:

**Extent condition 1:** A phenomenon is relevant to an individual to the extent that the contextual effects achieved in processing it are large.

**Extent condition 2:** A phenomenon is relevant to an individual to the extent that the effort required to process it is small. (Sperber&Wilson,1986:30)

Every act of ostensive communication communicates the presumption of itself own optimal relevance. If an assumption of relevance to an individual to the extent that the contextual effects achieved are large, and the cognitive effort required to process is small, then the assumption is achieving optimal relevance.

For example, (5) “Bill is a fine friend.”

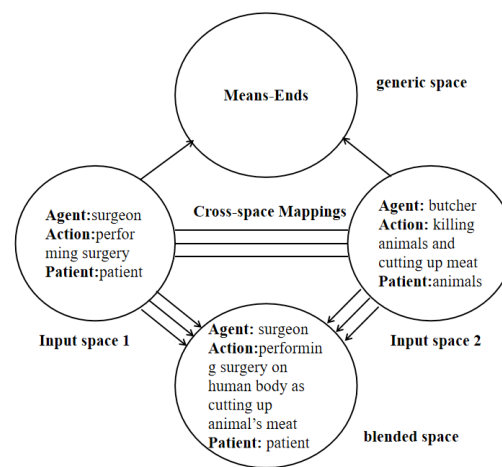
- a. Bill is a fine friend, indeed.
- b. Bill is not a fine friend at all.

Here are two presumptions of the speaker’s meaning (the implicature) of Sentence (5). According to Relevance Theory, Sentence (5) is an ostensive act that achieves optimal relevance in a particular situation. So when people decide which presumption is the well-matched one, if it is found that presumption *b* has the optimal relevance in optional context (Bill has just turned down the speaker’s

request for help in his financial difficulty), *b* would be salient by the largest contextual effects. Presumption *b* is the chosen one. In Relevance Theory, the inference of speaker understanding is based on the assumption of relevance, which can be proved in the most appropriate context.

In cognition-pragmatics interface, Relevance Theory presents some arguments about cognitive process of inferring conversational implicature. However, it can be seen that these descriptions are too general to be a mechanism. On that point, especially focusing on metaphoric language, Fauconnier & Turner (1998) suggested a complete and clear cognitive model-Conceptual blending framework.

In Conceptual Blending Theory, the online-construction process of conversational implicature is revealed. With explicit illustrations, Falconine & Turner tried to depict people’s cognitive operations when they are processing the utterances that they produce or receive. Conceptual blending is a general cognitive operation. People’s internal cognitive mechanism can be shown as a conceptual blending network. Basically, a conceptual blending network consists of four mental spaces. They are two input spaces, a generic space and a blended space. Mental spaces are small conceptual packets constructed as people think and talk, for purposes of local understanding and action. When a metaphorical discourse unfolds in communication, based on similarity, similar mental spaces are structured by social framing, pragmatic conditions such as relevance, real-world events perceived by the participants, etc. These mental spaces are interrelated by mappings. Finally, the metaphorical meaning of an utterance is integrated in emergent structure in blended space. For instance, the implicit meaning of the metaphorical sentence “*the surgeon is a butcher.*” can be illustrated as:



**Figure 3**  
**Conceptual Blending Framework**

In this metaphor, the speaker’s meaning is implicit, which cannot be determined only through semantic reasoning. A reasonable metaphor is formed based on similarity of two concepts. First, with projections,

counterparts such as “Agent”, “Action”, and “Patient” are constructed in this conceptual blending framework. Meanwhile, the shared structure of “Means-Ends”, somebody uses an edge tool to perform some acts to a creature, is projected into generic space. In addition, the analogy association of distinct elements from input spaces is established in blended space. As the operation of composition and completion, the concepts of incongruous elements such as the butcher’s “cruel” way, the surgery’s purpose and result are blended, then the implicature is generated: the surgeon is not qualified, for he is performing surgery like a butcher cutting up meat.

Conceptual Blending Theory has made a far-reaching impact. However, there are many questions remain. As an example, there is no difference between “blending” in input space and blended space, and there is no systemic discussion of the effects of individual cognition levels. This theory needs to be improved and matured.

### 2.3 Grammar-Pragmatics Interface

In the interactive perspective of language use, grammar is considered a resource for meaning making, and pragmatics is realizations of grammar in language use. Namely, pragmatics provides grammatical choices in contexts of situation. Consequently, “pragmatic convention” that people abide by in one language community are the result of grammatical adaptations in combination with pragmatic choices. Based on Zhang’s (2020) analysis, “pragmatic convention” is the key to utterance construal. Pragmatic convention is also called “general communicative norms”, which deals with people’s common and mutual knowledge, roughly including language knowledge (grammar, words, discourse, etc.), pragmatic knowledge (Cooperative Principle, Politeness Principle, communicative strategies, etc.), sociocultural knowledge (social norms, cultural models, etc.), and encyclopedic knowledge.

The cognitive mechanism for utterance construal is as shown (Figure 4.). Under the interaction between conventionality and intentionality, the processing of utterance production and comprehension both rely on pragmatic convention. On the one hand, pragmatic convention decides which grammatical form would be chosen by the speaker to convey meanings; on the other hand, the hearer’s comprehension of the speaker’s meaning in particular context is also influenced greatly by pragmatics convention (Zhang, 2017).

For example,  
 (On a show)

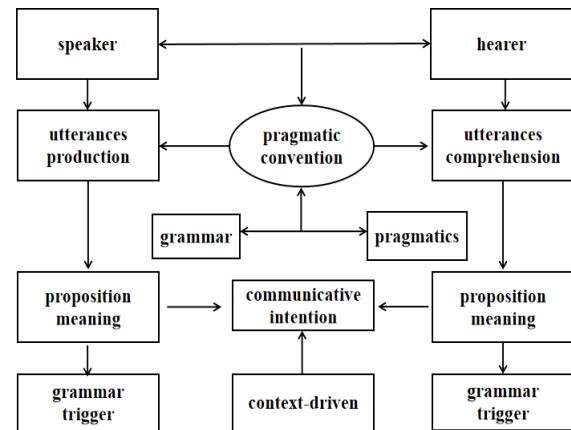
**Host:** “It is a great honor to talk to you on this show! You gained recognition very early. Could you share with us the reason?”

**Guest:** “Well, acting in movies. (Audiences laugh)”

**Host:** “Which movie is the most famous one?”

**Guest:** “(surprised) Haven’t you even seen that movie before? I played a prostitute.”

**Host:** “(audiences laugh) No wonder that you’ve got big awards!”



**Figure 4**  
 The cognitive mechanism for utterance construal

This conversation happened in public. From the perspective of the speaker, under the guidance of pragmatic convention, both the host and the guest choose appropriate grammatical structures and pragmatic strategies. Firstly, in the context of Chinese politeness culture, the host chooses very polite speeches to start this conversation, such as a frequently-used expression “it is a great honor to ...”; Then, it seems that the guest obeys the Cooperative Principle to give an answer, but the information she offers is not enough. Her responses intentionally violate maxim of quantity, as well as using rhetorical question and metonymy (play a prostitute). These words not only attract audiences, but also achieve stronger humorous effects.

From the perspective of the hearer, the pragmatic convention functions as a key to the cognitive mechanism of utterance comprehension from the viewpoint of the hearer. At the beginning, the host uses an imperative sentence to lead to the topic, which is a kind of conventional verbal behavior. In terms of the norms of verbal behaviors, the guest recognizes it as a “request”, and responds in a witty way; when receiving a rhetorical question, the host understands that immediately as highlighting the message the guest provides, and responds to her in an exclamatory sentence to enhance the humorous effect again. This funny meaning is that, the guest is famous for playing a prostitute in the movie. This conversation presents the significant functions of pragmatic convention (language knowledge, sociocultural knowledge, pragmatic knowledge) in the process of utterance production and comprehension, so as to achieve the aim of pleasing audiences.

Sure, perspectives of semantics-pragmatics interface and of grammar-pragmatics interface are obviously distinct. The former explores the inferential process from language meaning to pragmatic meaning. The latter

focuses on semantic features of grammatical structure and pragmatic characteristics. More specific, in grammar-pragmatics interface, studies of inferential process of implicature mainly concentrate on different pragmatic meanings and effects that arise from different grammatical structures and particular contexts.

### 3. IMPLICATIONS AND LIMITATIONS

Many useful results have been generated from post-Gricean studies that aim to clarify the boundary between semantics and pragmatics in Grice's theory, as well as to seek a reasonable inference model of conversational implicature. From the perspective of interface study, this article summarizes five inferential models of three interfaces.

In semantics-pragmatics interface, Levinson (1987, 2000) proposed "default meaning" between utterance meaning and speaker's meaning, in addition with its inferential pragmatic principles and model. In Levinson's assumptions, default meaning represents the conventionality in people's verbal behaviors, which needs to be inferred from Three principles in a particular context. Specially, if the sentence features disambiguation, indexical resolution and reference identification, etc., semantic interpretation and pragmatic intrusion are working alternately when inferring default meaning. In addition, according to Jaszczolt's default semantics theory (2005), default meaning generates from a merged representation with semantic meaning and pragmatic inference. Secondly, in cognition-pragmatics interface, in terms of Sperber & Wilson's Relevance Theory (1986), based on the sentence meaning, the inference of speaker's implicit meaning depends on the most relevant cognition assumption and its optimal contextual effects; Similarly, in Fauconnier & Turner's four-space framework (1998), the metaphorical meaning comes from cognitive operations on semantic meaning such as mapping, compressing and blending among mental spaces, plus pragmatic conditions such as relevance, real-world events, etc. Based on semantics, Zhang (2010) searched for the answer in grammar-pragmatics interface. As the collection of semantic characteristics, grammar provides pragmatic meaning. Between semantic features and pragmatic meaning, he found out that pragmatic convention is the meeting point of two sides, depending on which the hearer infers implicature of utterances.

Obviously, these models share some viewpoints on the significant role of pragmatic factors. That is, no matter which interface study, the role of pragmatic factor (contextual factor) is always indispensable in inferring conversational implicature. In semantics-pragmatics interface, Levinson (2000) illustrated that, while inferring generalized conversational implicature,

pragmatic processing should be prior to semantic processing, with practical examples. The proposition needs to be analyzed first according to three pragmatic principles in real-time circumstances; In cognition-pragmatics interface, pragmatic factors is a series of assumptions about current communication situation in human's brain converged into cognitive context. The hearer will deduce the speaker's implicit meaning from contextual effects. Likewise, in Fauconnier & Turner's blending framework (1998), these assumptions about context and outside world are represented as cognitive frames in each mental space. They are constantly crucially important in the cognitive operations. In grammar-pragmatics interface, pragmatic conventions in Zhang's (2020) cognitive model include grammatical knowledge, pragmatic knowledge, sociocultural knowledge, and encyclopedia knowledge, etc. This knowledge display the interaction of conventions and the intentions when people are communicating.

However, these models have limitations. In semantics-pragmatics interface, Levinson's Three Principles (1987) are rigid without taking contextual factors into consideration. Though Levinson later reconsidered pragmatic intrusion in the assumption of presemantic and postsemantic pragmatics, the cases being discussed were limit to some language phenomenon such as indexical resolution, reference identification, etc. Also, according to Jaszczolt's default semantics (2005), semantic meaning and pragmatics factors are integrated in one level of merger representation. This means, default meaning is probably not the sentence meaning or its extension. That is a rejection of language ontology. In cognition-pragmatics interface, Relevance Theory (1986) is still being criticized due to the inherent limitation of precondition which the inferential model based on. Because of the language uncertainty, the speaker's meaning would be determined by the combination of cognitive assumptions and pragmatic factors in a particular context. Obviously, it denied the significance of semantic meaning. In Fauconnier & Turner's four-space framework (1998), it was unclear that how input space is constructed and how to clarify the relations among operational principles.

It is clear that these models are all constructed dichotomously. While discussing how inferential processes work, researchers tend to separate semantic interpretation and pragmatic inference clearly, however, which again puts us in the corner of Grice's Circle. Even though Jaszczolt's model (2005) does not address pragmatic factors separately, it is obvious that mixing semantics with pragmatics will not entirely resolve Grice's problems. Instead of discussing the problem of semantics and pragmatics, in grammar-pragmatics interface, Zhang (2020) connected semantic features with pragmatic meaning by means of pragmatic

convention, which not only is a way out of the dilemma, but also shows the interaction of semantics and pragmatics. Grammar-pragmatics interface study, as the latest development in post-Grice pragmatics researches, is very promising and significant for enriching classical Grice's theory.

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## CONCLUSION

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From the perspective of interface study, this paper provides a general overview of studies on the inferential model of conversational implicature during these years. They are semantics-pragmatics interface, cognition-pragmatics interface and grammar-pragmatics interface. There is something in common in these inferential mechanisms of three interfaces. That is, they all put emphasis on pragmatic factors. Though these inferential models have their own weaknesses, it is undeniable that the study on inferential models of conversational implicature continuously keep promoting and deepening. Generally speaking, from principles to frameworks, the development tendency of inferential model is increasingly simplified, specific and clear, with strong explanatory power.

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