CHAPTER 4

INTRODUCTION TO PRAGMATICS

Pragmatics is the study of language use and its object is meaning in use. The main hypothesis of contemporary pragmatics is that semantic interpretation is underspecified and must be enriched at the pragmatic stage. In this section, I will first give a brief survey of what pragmatics is and is not, and the types of pragmatic theories available on the scientific market (Section 4.1). Then (Section 4.2), I will discuss more precisely the semantics-pragmatics interface, with a special focus on the possible border between semantic and pragmatic meanings. Inference will be the third topic (Section 4.3) and I will conclude this introduction by a crash course on Relevance Theory (Section 4.4), one of most complete pragmatic theories today.

4.1 PRAGMATICS TODAY

4.1.1 What is Pragmatics?

To answer this question, let us first say what pragmatics is not. Pragmatics is not the wastebasket of linguistics, a component of linguistics, nor a theory of discourse.

- Pragmatics is not a wastebasket, because pragmatic phenomena are not residual or without any link to linguistics. Disambiguation (the choice of the relevant interpretation within a context), pragmatic enrichment (the attribution of referents to referential expressions, of illocutionary forces to utterances, of propositional attitudes to the speaker), and inference are the main topics of pragmatics and are not residual phenomena.

- Pragmatics is not a part (a component) of linguistics: disambiguation, enrichment and inferences are not strictly linguistic phenomena, they imply interfaces between linguistic knowledge and encyclopedic knowledge, as well as the attribution of mental states to others (a theory of mind, [1]). Pragmatic phenomena have thus not only a linguistic, but rather a cognitive side (speaker’s intention and beliefs) and a communicative side (speaker’s expectations and wishes).

- Pragmatics is not discourse linguistics: discourse linguistics makes the hypothesis that there are discourse structures and discourse rules. However, if it is true that a sentence is the compositional by-product of syntactic rules, it is doubtful that a discourse is the compositional by-product of utterances [1]. Indeed there is more to discourse interpretation than to utterance interpretation.

What then is pragmatics? Pragmatics is the study of language use vs. the study of language, the study of the cognitive processes underlying utterances interpretation and the study of inferential aspects of verbal communication.
Pragmatics is the study of language use, which implies a clear border between linguistics and pragmatics. In contemporary pragmatics, linguistics is restricted to phonology, syntax and semantics. The hypothesis is that linguistic interpretation of utterances is under-specified.

Pragmatics is the study of the cognitive processes involved in utterance interpretation. Pragmatic aspects of meaning imply relations between language and human cognition, that is, the structure and property of natural languages and the language of thought (mentalese) [2].

Pragmatics is the study of inferential aspects of verbal communication. The crucial relation here is between language and communication, and more precisely the model of communication involved in language use. Pragmatics defines communication as a mixed process, based on two models of communication, the code mode and the inferential model. Thus verbal communication implies both linguistic encoding and decoding processes and pragmatic inferential ones.

Let’s take some examples to illustrates these aspects of pragmatic meaning:

- **Linguistic under-specification.** In (4.1), the interpretation of *they as the government* is not due to any linguistic rule, but is inferred on the basis on world knowledge. It implies a pragmatic enrichment and the access to assumptions about the world as “the government alone can increase taxes”:

  They are going to augment taxes. \( \text{(4.1)} \)

- **Implicit communication.** In (4.2), how does Jacques understand that his son Nathanaël refuses to go and brush his teeth and to go to bed Fig. 4.1?

  Jacques: Nathanaël, please go and brush your teeth.

  Nathanaël: Dad, I’m not sleepy.

  \( \text{(4.2)} \)

  Fig. 4.1  Nathanaël and Jacques.

Jacques appeals to inferences based on beliefs. The crucial question is the nature of inference rules: are inferences rules based on social conventions or on general cognitive mechanisms? If (4.2) seems to show the relevance of a social convention as *one brushes one’s teeth before going to bed*, which kind of social
convention can we appeal to explain the interpretation of the answer in (4.3) as an acceptation or a refusal?

Peter: Do you want some coffee?
Mary: Coffee would keep me awake.

Examples (4.2) and (4.3) explain why implicit communication is more relevant than explicit communication: implicit communication conveys in a more economical way more information than explicit communication. This explains why pragmatic inferences are nondemonstrative, that is, are not truth-preserving, cancelable (defeasible), deductive, have as premises beliefs (contextual assumptions) and are universal (not socially or culturally determined).

• Utterance vs. sentences. Pragmatics has as its object utterances rather than sentences. Sentences are maximal units of linguistics, composed by grammatical and lexical morphemes and have meanings. On the other hand, utterances are occurrences of specific sentences by a speaker in a particular setting and have senses in contexts. For instance, Nathanaël’s answer I’m not sleepy says that Nathanaël says that he is not sleepy and implicates Nathanaël does not want to go to bed and Nathanaël does not want to brush his teeth right now via contextual assumptions as one brushes one’s teeth before going to bed and one goes to bed when one is sleepy.

In summary, pragmatics accounts for language use in communication, explains how inferences work in utterance comprehension, why nonliteral communication is preferred to literal communication and why utterance interpretation is linguistically under-specified.

4.1.2 Types of Pragmatic Theories

Fig. 4.2 gives a brief history of pragmatics. The origin of pragmatics is Austin’s William James Lectures (1957) [3], which exposed the first theory of speech acts, developed in 1969 by Searle [4] and later in a formal theory (illocutionary logic, [5]). Speech act theory is the basis of one of the most important hypotheses in generative linguistics, the Performative Hypothesis [6] at the origin of Generative Semantics (cf. [7] and [8] for histories of generative linguistics). The second origin of pragmatics is Grice’s William James Lectures (1967, [9,10]), which gave rise to two main pragmatic frameworks, the Theory of Generalized Conversational Implicature [11] and Relevance Theory [12]. Whereas the first neo-Gricean paradigm adopts a new version of the Sapir-Whorf hypothesis (linguistic relativism), the second post-Gricean theory is a cognitive theory, following Fodor’s hypothesis on the modularity of mind [13].

Gricean approaches to verbal communication are called radical pragmatics, because they make a clear-cut distinction between linguistic systems and processes and pragmatic mechanisms. Within this framework we can distinguish three types of principle-based theories: (i) Classical Gricean Pragmatics, based on the Principle of Cooperation, maxims of conversation and the notion of implicature [9],
(ii) Neo-Gricean Pragmatics (the Theory of Generalized Conversational Implicatures [11]) and (iii) Post-Gricean Pragmatics, i.e. Relevance Theory [12].

- Gricean Pragmatics is based on the Principle of Cooperation: Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged [9]. The principle of Cooperation is said to be satisfied if the speaker respects or exploits conversational maxims. These maxims are the Maxims of Quantity (Make your contribution as informative as required but not more), the Maxim of Quality (Make your contribution true), the Maxim of Relation (Be relevant) and the Maxims of Manner (Be clear: avoid obscurity, avoid ambiguity, be brief and be orderly).

- Neo-Gricean Pragmatics is a first simplification of Gricean pragmatics. In Levinson’s Theory of Generalized Conversational Implicatures [11], there are only two maxims, the maxim of quantity and the maxim of minimization, raised at the level of principles: the Q-Principle (maxim of quantity) claims that the speaker must give the strongest information with respect to the purpose of the conversational exchange, whereas the I-Principle (maxim of minimization) states that the speaker must say as little as necessary; in this case, the hearer is allowed to understand more. When conflicts arise between implicatures, the I-Implicature is cancelled against a nondisputable proposition, and the Q-Implicature wins against the I-Implicature.
Relevance Theory states that verbal communication is an ostensive-inferential process, implying both code and inference, and gives to context a crucial role. Context is not given but chosen, and defined as a subset of the mutual cognitive environment. Information in communication is processed through the Principle of Relevance, which says that the speaker has produced the most relevant utterance in the circumstances. Relevance is relative to cognitive effects (the more cognitive effects, the more relevance) and cognitive efforts (the less cognitive efforts, the more relevance). Relevance plays a role in both communication and cognition: speakers have expectations of optimal relevance and cognitive effects must balance cognitive efforts.

4.2 THE BORDER BETWEEN SEMANTICS AND PRAGMATICS

4.2.1 The Classical vs. Gricean Views

The question of the border between semantics and pragmatics is very crucial, because the underlying question is the limit of linguistic processes. In the classical view, semantics takes charge of conventional or lexical, i.e. nondefeasible meanings, as semantic entailment and meaning postulates (for instance John killed Mary ⇒ Mary is dead). In the classical view, pragmatics has in charge meaning in context, which is by definition nonconventional, the result of conversational implicatures. Typical examples of nonconventional meaning (conversational implicatures) are metaphors and irony.

The classical view has been challenged by the Gricean view. In the Gricean view, the semantics-pragmatics border is not linked to the difference between conventional meaning and meaning in context. Indeed, Grice defines a type of implicatures linked to the form and meaning of words, called conventional implicatures. In (4.4)–(4.6), words like even, therefore, but are responsible for specific meanings (Bill is not expected to like Mary, there is a semantic entailment between being an Englishman and being brave, and there is a semantic contrast between having children and being a researcher):

\[
\text{Even Bill likes Mary.} \quad (4.4)
\]

\[
\text{John is an Englishman; he is, therefore, brave.} \quad (4.5)
\]

\[
\text{Anne has four children, but she is a research fellow.} \quad (4.6)
\]

The border between semantics and pragmatics passes through the difference between truth-functional meaning (what is said) and non-truth-functional meaning (what is communicated). Pragmatics is thus defined as follows: pragmatics = meaning – truth-conditions. Fig. 4.3 shows the specific domains of semantics and pragmatics.

4.2.2 Conventional and Conversational Implicatures

In the Gricean view, the domain of pragmatics is thus restricted to implicatures. As Fig. 4.3 shows, there are two types of implicatures, i.e. two types of pragmatic meanings: conventional implicatures and conversational implicatures.
Conventional implicatures are triggered by specific expressions, but their meaning is detachable (the implicature is attached to a specific word), non-cancellable (you cannot negate a conventional implicature) and non-truth-functional (the content of the implicature does not play a role in the truth-conditions of the sentence). In (4.4), *even* triggers at least two conventional implicatures, given in (4.7) and (4.8):

- Even Bill likes Mary. \hspace{1cm} (4.4)
- Other persons than Bill like Mary. \hspace{1cm} (4.7)
- Among these persons, Bill is the less expected to like Mary. \hspace{1cm} (4.8)

Clearly, these meanings do not contribute to the truth-conditions of what is said, that is the proposition (4.9):

- Bill likes Mary. \hspace{1cm} (4.9)

Conversational implicatures are the result of the application of one conversational maxim and can be triggered by a linguistic expression (generalized conversational implicature) or not (particularized conversational implicature). The conversational implicatures are nonconventional (they are the results of conversational maxims), nondetachable (the implicature is attached to a meaning), cancelable (implicatures can be canceled) and, as conventional implicatures, non-truth-functional. A typical generalized conversational implicature is the
The temporal meaning of *and* (‘and then’), as in (4.10):

\[ \text{Max pushed John and John fell.} \]  

(4.10)

### 4.2.3 The Pragmatic Exclusive Meaning of *or*

The border problem between semantics and pragmatics can be illustrated by the exclusive reading of *or* (only one disjunct is true, not both). In logic, *or* has an inclusive reading (*P or Q* is true if one disjunct is true or both). This is problematic, because the pragmatic meaning of *or* is exclusive, as in (4.11):

\[ \text{On a menu: Cheese or dessert.} \]  

(4.11)

Tables 4.1 and 4.2 give the truth tables for inclusive and exclusive *or*:

**Table 4.1** Truth table of inclusive (logical) *or*.

<table>
<thead>
<tr>
<th>P</th>
<th>Q</th>
<th>P ∨ Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>1</td>
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<td>0</td>
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</table>

**Table 4.2** Truth table of exclusive (pragmatic) *or*.

<table>
<thead>
<tr>
<th>P</th>
<th>Q</th>
<th>P ∨ Q</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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What is the explanation for this divergence in meaning? Is *or* ambiguous between its logical meaning and its pragmatic meaning? Is the linguistic meaning of *or* radically different from its logical one? Pragmatics has given a very interesting answer to this question: the exclusive meaning of *or* is pragmatically derived from its logical inclusive meaning. In other words, the *or*-semantic meaning is inclusive, and the *or*-pragmatic meaning is exclusive. The explanation is the following: the exclusive meaning is the result of a scalar implicature. A scalar implicature is based on a quantititative scale, which allows two types of relations: (i) the upper-bound term implies the lower-bound term; (ii) the lower-bound term conversationally implicates the negation of the upper-bound one. If *or* belongs to a quantitative scale with *and* (*< and, or >*), one can predict that (4.12) is an entailment (‘→’), whereas (4.13) is a scalar implicature (‘+>’):

\[ \text{Cheese and dessert} \rightarrow \text{Cheese or dessert} \]  

(4.12)

\[ \text{Cheese or dessert} +> \neg(\text{cheese and dessert}) \]  

(4.13)
The formal demonstration is the following: or-exclusive meaning has the same truth-conditions as the conjunction of or-scalar implicature and or-disjunctive meaning. So or-exclusive meaning (\(\lor\)) is pragmatic, as shown in (4.14) and in Table 4.3:

\[(P \lor Q) \leftrightarrow \neg(P \land Q) \land (P \lor Q)\] (4.14)

<table>
<thead>
<tr>
<th>P</th>
<th>Q</th>
<th>P \land Q</th>
<th>\neg(P \land Q)</th>
<th>P \lor Q</th>
<th>\neg(P \land Q) \land (P \lor Q)</th>
<th>(P \lor Q) \leftrightarrow \neg(P \land Q) \land (P \lor Q)</th>
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</table>

Table 4.3 Truth table for scalar implicatures.

### 4.3 INFERENCES

Pragmatics has to say something about inference, because pragmatic meaning is mainly inferential. In this section, inference will be defined as a logical process including premises, conclusions and rules (Section 4.3.1). Semantic inference like presupposition will be the object of the next section (Section 4.3.2) and finally the status of implicature as inference will be raised (Section 4.3.3).

#### 4.3.1 Logical Inference

Logical inferences are valid inferences: an inference is valid if the truth of the premises entails the truth of the conclusion. In logic, such an inference is said to be truth-preserving. Logical validity is a matter of logical form, not a matter of content. For instance, (4.15) is an example of valid inference, whereas (4.16) is an invalid inference:

\[
\text{All } A \text{ are } B. \\
\text{All } B \text{ are } C. \\
\text{Therefore all } A \text{ are } C. \tag{4.15}
\]

\[
\text{No } A \text{ is a } B. \\
\text{No } A \text{ is a } C. \\
\text{Therefore no } B \text{ is a } C. \tag{4.16}
\]

Inferences are triggered by inference rules, which ensure the validity of inferences. In logic, there are two types of inference rules: deductive rules and inductive rules. Inference rules of classical logic are deductive (they are truth-preserving contrary to inductive rules) and are of two types: eliminative rules and introductive rules. A deductive rule is eliminative if it eliminates in its output a logical connective contained in the input of the rule. An eliminative rule provides new information, i.e. a
nontrivial implication. A deductive rule is introductive if it introduces in its output a logical connective. An introduction rule allows redundancy or iteration, i.e. a trivial implication.

*Modus ponendo ponens* is an elimination rule, and *and*-introduction an introduction rule:

\[
\text{Modus ponendo ponens (if-elimination)} \\
\text{Inputs } \begin{align*}
(i) & \text{ if } P, \text{ then } Q \\
(ii) & \text{ } P \\
\end{align*} \\
\text{Output } Q
\]  

(4.17)

*And*-introduction

\[
\text{Inputs } \begin{align*}
(i) & \text{ } P \\
(ii) & \text{ } Q \\
\end{align*} \\
\text{Output } P \text{ and } Q
\]  

(4.18)

Deductive rules (either eliminative or introductive) can be analytic or synthetic. An analytic rule has only one premise as input, whereas a synthetic rule has two premises as inputs. *And*-elimination is an analytic rule, and *or*-elimination a synthetic rule.

*And*-elimination

\[
\text{Input } P \text{ and } Q \\
\text{Outputs } \begin{align*}
(i) & \text{ } P \\
(ii) & \text{ } Q
\end{align*}
\]  

(4.19)

\[
\text{Modus tollendo ponens (or-elimination)} \\
\text{Inputs } \begin{align*}
(i) & \text{ } P \text{ or } Q \\
(ii) & \text{not-} P \\
(iii) & \text{not-} Q \\
\end{align*} \\
\text{Outputs } \begin{align*}
Q \\
P
\end{align*}
\]  

(4.20)

One relevant question is the nature of pragmatic inferential rules. We can predict that if the results of pragmatic inferences are nontrivial implications, it should be produced by synthetic deductive elimination rules. This is the hypothesis of Relevance Theory (Section 4.4).

### 4.3.2 Semantic Inference

The typical example of semantic inference is *presupposition*. Semantic presupposition is defined as follows: a statement \( P \) presupposes a statement \( Q \), iff in all situations where \( P \) is true, \( Q \) is true and in all situations where \( P \) is false, \( Q \) is true. The classical example of semantic presupposition is (4.21) and its negation (4.22), which both presuppose (4.23):

\[
\text{The King of France is bald.} \\
\]  

(4.21)
The King of France is not bald. \hspace{1cm} (4.22)

There is a present King of France. \hspace{1cm} (4.23)

In (4.21) and (4.22), the definite description the King of France presupposes the existence and the uniqueness of the King of France.

The semantic (truth-functional) definition of presupposition defines presupposition as a special case of semantic entailment. Semantic entailment is defined as follows: \( P \) semantically entails \( Q \) if every situation that makes \( P \) true, makes \( Q \) true. Semantic presupposition can now receive a truth-functional definition: a sentence \( P \) semantically presupposes a sentence \( Q \), iff (i) \( P \) entails \( Q \) and (ii) \( \neg P \) entails \( Q \). This definition seems very convenient, because it makes a clear-cut distinction between semantic inferences like presuppositions and pragmatic inferences like implicatures. Unfortunately, semantic presupposition raises an unsolvable problem. Under the definition of semantic presupposition, a presupposition is always true. Here is the demonstration ([14,15]).

1. \( P \) presupposes \( Q \).
2. Therefore, \( P \) entails \( Q \) and \( \neg P \) entails \( Q \).
3. (a) every sentence \( P \) has a negation \( \neg P \).
   (b) \( P \) is true or \( P \) is false (Bivalence).
   (c) \( P \) is true or \( \neg P \) is true (Negation).
4. \( Q \) must always be true.

Is this formal demonstration empirically correct? In fact, the prediction of the semantic definition of presupposition is false, because a presupposition can be false, as (4.24) shows. If (4.21) and (4.22) presuppose (4.23), (4.24) negates it:

The King of France is not bald, because there is no King of France. \hspace{1cm} (4.24)

These observations have led to a new definition of presupposition. Presuppositions can be false and share this property with conversational implicatures. Thus presuppositions and implicatures are non-truth-functional aspects of meaning. We can show this parallelism between implicature and presupposition by comparing (4.25) and (4.27), where the scalar implicature (4.26) and the presupposition (4.28) are defeated.

Anne has not three children, she has four children. \hspace{1cm} (4.25)

Anne has exactly three children. \hspace{1cm} (4.26)

John doesn’t regret having failed, because he succeeded. \hspace{1cm} (4.27)

John failed. \hspace{1cm} (4.28)

The new definition of presupposition is thus pragmatic. On this definition, presupposition is not any more a property of sentences, but relative to a set of background beliefs defining the context:

"A proposition \( P \) is a pragmatic presupposition of a speaker in a given context just in case the speaker assumes or believes that \( P \), assumes or believes that his addressee
assumes or believes that \( P \), and assumes or believes that his addressee recognizes that he is making these assumptions, or has these beliefs.” [16]

For instance, the background beliefs (pragmatic presupposition) (4.30)–(4.31) will be responsible for the readings (4.32)–(4.33) of sentence (4.29):

My cousin is no longer a boy. \((4.29)\)

My cousin is a male human being. \((4.30)\)

My cousin changed his sex. \((4.31)\)

My cousin is now a male adult. \((4.32)\)

My cousin is now a woman. \((4.33)\)

4.3.3 Pragmatic Inferences

While conventional implicatures are triggered by particular words and are not cancelable, conversational implicatures are triggered by conversational rules. For instance, (4.34) implicated conversationally (4.35), via the maxim of relevance:

John has a rendezvous with a woman. \((4.34)\)

\[\implies \text{The woman is not his wife/mother/sister.} \quad (4.35)\]

Conversational implicatures are thus the results of applying the Principle of Cooperation and the conversational maxims. In drawing pragmatic inferences, the hearer assumes the speaker is cooperative and rational. Assuming speaker’s cooperation is assuming that he respects or exploits the conversational maxims (Quantity, Quality, Relation, Manner). Let us take an example based on the respect of the maxims of quantity. The maxims of quantity says that the speaker must give the strongest information (‘Make your contribution as informative as is required’, ‘Do not make your contribution more informative than is required’ [9]).

What does happen in (4.36)? This utterance implicates (4.37): if the speaker is cooperative, he must respect the first maxim of quantity and thus give the strongest information:

The flag is white. \((4.36)\)

\[\implies \text{The flag is entirely white.} \quad (4.37)\]

The question is how such an implicature is computed? Grice [9] gives the following description of how implicatures are processed:

1. The speaker (\( S \)) has said that \( P \).
2. There is no reason to think that \( S \) is not observing the maxims.
3. \( S \) could not be doing this unless he thought that \( Q \).
4. \( S \) knows (and knows that the hearer (\( H \)) knows that he knows) that \( H \) can see that he thinks that the supposition that he thinks that \( Q \) is required.
5. \( S \) has done nothing to stop \( H \) from thinking that \( Q \).
6. S intends H to think, or is at least willing to allow H to think, that Q.

7. And so, S has implicated that Q.

This description can apply to examples as (4.36). But what about scalar implicatures and more generally generalized conversational implicatures, that is, conversational implicatures triggered by specific words?

Scalar implicatures are based on quantitative scales. Formally, a quantitative scale is an ordered set of predicates \( \langle e_1, e_2, e_3 \ldots e_n \rangle \), such that if \( A \) is a sentential frame and \( A(e_1) \) a well-formed sentence, then \( A(e_1) \) entails \( A(e_2) \), \( A(e_2) \) entails \( A(e_3) \), etc. [15]. Examples of quantitative scales are \( \langle \text{all, most, many, some, few} \rangle \), \( \langle \text{and, or} \rangle \), \( \langle n, \ldots, 5, 4, 3, 2, 1 \rangle \). A scalar implicature receives the following definition: given any scale of the form \( \langle e_1, e_2, e_3 \ldots e_n \rangle \), if a speaker asserts \( A(e_2) \), then he implicates \( \neg A(e_1) \), if he asserts \( A(e_3) \), then he implicates \( \neg A(e_2) \) and \( \neg A(e_1) \), and so forth.

Scalar implicatures are Generalized Conversational Implicatures (GCI). A GCI is a conversational implicature triggered by a specific linguistic expression, but is cancelable. For instance, in (4.38), (a) implicated (b), (c) entails (d) and (d) entails (a):

(a) Some of the students were at the party.

(b) Not all the students were at the party.

(c) Some, in fact all, of the students were at the party.

(d) All of the students were at the party.

(4.38)

Is it possible to find a general explanation about how implicatures are processed? There seems to be a general procedure of licensing pragmatic inferences [14]:

1. Draw all potential inferences (implicatures, presuppositions).

2. Check their compatibility with mutual knowledge before drawing the actual inference.

Pragmatic inferences have to be triggered within a precise order, to avoid contradictions. This order is the following [14]:

1. The entailments of the uttered sentence \( S \).

2. The clausal and scalar conversational implicature of \( S \).

3. The presupposition of \( S \).

So, in (4.39), its potential presupposition (4.40) is not actual, because the following explanation (because-clause) entails (4.41), which is contradictory with the potential presupposition ‘succeed(\( x \)) \rightarrow \neg \text{fail}(\( x \))’. This explains why (4.39) is not a contradiction, and why presuppositions can be cancelled: they are cancelable as any other pragmatic inferences.

John doesn’t regret having failed(not-P), because he succeeded(Q). (4.39)

John failed(P). (4.40)

John succeeded(Q). (4.41)
Thus (Neo-)Gricean pragmatics defines implicatures as inductive inferences: the inductive property of implicatures explains their cancelability.

4.4 RELEVANCE THEORY

Relevance Theory (RT) [12] is a Post-Gricean theory that diverges on some important points from Gricean and Neo-Gricean approaches. RT does not refer to the principle of cooperation and any conversational maxims, but reduces all pragmatic principles and rules to the Principle of Relevance. Secondly, RT does not share with (Neo-)Gricean theories the hypothesis that inferences are the results of inductive rules. Thirdly, RT is a cognitive approach of verbal communication and gives a cognitive and communication definition of relevance.

4.4.1 Pragmatics and Human Mind Working

The main hypothesis of RT is that processes implied in pragmatic interpretation are not language specific. On the contrary, they are general and universal, not culturally determined, all human beings share them, and, for the simplest of them, human beings share them with superior mammals. The vision of human mind in RT is hierarchical [13]:

1. Perceptual data are processed within transducers, which are translated into a format accessible to input systems.
2. The perceived translated data are processed within a specialized modular input system, producing the first coded interpretation.
3. The central system of the mind completes the first coded interpretation by comparing other information already known or simultaneously given by other input systems and draws inferences.

Fig. 4.4 gives an iconic interpretation of the hierarchical treatment of information by the mind:

Before applying this hierarchical model of the mind to language interpretation, it is worth giving some information about modules and the central system of the thought [13].

- What is a module? A module is an input system, which is domain specific and informationally encapsulated. The operations a module triggers are automatic, mandatory, fast and have shallow outputs.
- What is the central system? The central system of the thought is complex and nonspecialized, working out the interpretation of data and reasoning used in daily life as well as the production and the interpretation of complex and subtle reflections specific to scientific researches and artistic activities.

What could be the relationship between such a theory of mind and linguistic theory? RT hypothesizes that linguistics corresponds to an input system specialized in the treatment of linguistic data and pragmatics belongs to the central system. Moreover,
RT claims that the study of utterances pragmatic interpretation could shed light on the working out of specific processes of the central system.

What is the precise articulation between linguistic and pragmatic processes? The linguistic input system yields a partial coded interpretation from which the central system works to yield a full interpretation of utterances. Thus the interpretation of utterances is a mixed process: the code corresponds to the linguistic part of the interpretation and the inference to its pragmatic counterpart. So one of the main task of pragmatics is to explain processes by which this completion works.

4.4.2 From Logical form to Propositional form

The first task of pragmatics is to explain how linguistic interpretation is completed as a full interpretation, including the determination of what is said and implicated. Let us begin with the output of the linguistic input system.

The output of the linguistic module is a *logical form*. In RT, a logical form is an ordered string of *concepts*. A concept is the mental counterpart of a linguistic item. It is through concepts that information necessary for building contextual assumptions is accessed. So inferential processes have access to information yielded by input systems and encyclopedic knowledge: the linguistic input system yields a logical form, whose concepts (their addresses) enable the access to encyclopedic knowledge. The encyclopedic knowledge is stored in long-term memory, which contains a set of information about the world. Long-term memory is completed by two other memories: short-term memory, which contains a limited number of items (3 to 7) used in the current process, and mid-term memory, which contains the results of recent processes.
In RT, utterance interpretation is an inferential process whose premises are the logical form of the sentence uttered and the context. The information in the context comes from long-term memory, i.e. concepts in logical form, short-term memory, i.e. immediately perceptible data drawn from the situation or the physical environment, and mid-term memory, i.e. data driven from the interpretation of preceding utterances. Now not all of this information can belong to the context, that is, the set of contextual assumptions used as premises in the inferential process. The actual context is a small part of the cognitive environment for an individual at a given time, that is all the information accessible to an individual at a given time from short-term, mid-term and long-term memories. Last but not least, a context is not given, but constructed utterance after utterance.

What is now the relation between concepts and contexts? Logical form contains the addresses of concepts that are necessary to access long-term memory. So access to encyclopedic information is possible through the addresses of the concepts. More generally, a concept has three types of entry:

- a logical entry, containing information about logical relations a concept entertains with other concepts;
- an encyclopedic entry, containing information about objects corresponding to concepts;
- a lexical entry, corresponding to the linguistic counterpart of the concept.

To sum up, the construction of the relevant context is directly dependent on information stored in memory. Concepts play a crucial role in accessing information in long-term memory, whereas the other types of memories yield information coming from the physical environment and the interpretation of previous utterances.

4.4.3 Cognition and Relevance

How is the central cognitive process driven? The aim of the cognitive process is to achieve the intention communicated by the speaker through his utterance. The identification of intention in communication is thus crucial. RT makes a distinction between two types of intention: informative intention and communicative intention.

- The informative intention is the speaker’s intention to bring to his audience the knowledge of a given information.
- The communicative intention is the speaker’s intention to bring to his audience his informative intention.

So, the recognition of the speaker’s information intention, i.e. the set of assumptions he wants to communicate, passes through the recognition by the addressee of his communicative intention. As communication implies speaker’s intention recognition, communication is not simply a code process. RT defines communication as an ostensive-inferential process. In ostensive-inferential communication, a speaker brings about in his audience his intention to make manifest to him an information. The ostensive side is what the speaker does, that is, showing his communicative intention,
whereas the inferential side is what the audience does, that is, inferring speaker’s informative intention.

RT moreover claims that human cognitive activity aims at the construction and modification of the representation of the world by an individual and communication plays a role in that process, for instance by adding new information to old. Now, for cognitive activity to be relevant, it is not sufficient to build and improve the representation of the world: this representation must also be true. So an information is relevant if it has a minimal cognitive effect, for instance if it brings about a new information and it is true.

Relevance is the core concept of RT. RT claims that it is possible to reduce Grice’s conversational maxims to one maxim, the maxim of relevance. Being relevant for a speaker supposes giving the required quantity of information (maxims of quantity), telling the truth (maxims of quality), speaking clearly and without ambiguity (maxims of manner). But RT makes a stronger claim: not only are all maxims implied by the maxim of relevance, but communicative and cognitive processes are governed by a unique principle, the principle of relevance. The principle of relevance is a general principle implied by the notion of ostensive-inferential communication and is at the basis of inferential processes. It states that every utterance communicates the presumption of its own optimal relevance. So the principle of relevance underlies the working out of interpretive processes, as soon as these processes are about acts of ostensive-inferential communication.

How does relevance play a role in ostensive-inferential communication? The act of ostensive-inferential communication warrants relevance. As the ostensive property communication implies hearer’s attention, the hearer is naturally expecting that what the speaker wants him to communicate is worth processing. This expectation of relevance is thus the result of what communication is: an ostensive-inferential process. But expectations of relevance can be disappointing, if no effects or too weak effects are drawn. In order to balance the expectation of relevance, RT defines relevance as implying both cognitive efforts and cognitive effects:

- **cognitive efforts** are those efforts necessary to the processing of the sentence and the creation of context;
- **cognitive effects** are conclusions drawn from the inferential process: they are contextual effects.

We can now give a motivated definition of relevance:

- *ceteris paribus*, the less cognitive efforts the processing of an utterance requires, the more relevant is the utterance;
- *ceteris paribus*, the more cognitive effects the processing of an utterance produces, the more relevant is the utterance.

Cognitive efforts are those efforts caused by the length of the utterances and the words uttered, the accessibility of context, i.e. the formation of contextual assumptions, and the complexity of the deductive rule used. Cognitive effects are of three types:

- the addition of a new information drawn as a conclusion (*contextual implication*);
• the strengthening of an old information;
• the eradication of an old information, when contradiction arises between an old and a new information.

How is the context chosen? One of the premises of the context is given by the utterance, and corresponds to its logical form. The other premises are driven from different origins: the encyclopedic knowledge (long-term memory), perception (short-term memory) and the interpretation of preceding utterances (mid-term memory). But the important point is that information building the context is that that produces enough effects for the utterance to be relevant. So the selected context is the relevant one.

If relevance is relative to the contextual effects obtained during the interpretive process, the question of the stopping of the interpretive process arises. RT gives a simple answer to this question: the interpretive process stops when sufficient cognitive effects are obtained to balance cognitive efforts. This process can thus be short and costless if sufficient effects arise quickly and easily.

Now, how can the addressee be sure that what he gets (contextual effects) corresponds to the speaker’s informative intention? Nothing can guarantee it, because verbal communication is not a code process, but an ostensive-inferential one. But what the addressee knows is more than nothing: the first interpretation which comes to his mind is the interpretation consistent with the principle of relevance, that is, the interpretation which is governed by the addressee’s presumption of optimal relevance.

4.5 CONCLUSIONS

In this section, we have introduced basic concepts of pragmatics. Pragmatics today is a new discipline, connected to linguistics (syntax and semantics), cognitive sciences, but also to philosophy of language and mind, computational sciences and anthropology. The Gricean approach to pragmatics, either Neo- or Post-Gricean, is certainly, with the Chomskian revolution in formal linguistics, one of the greatest changes in language sciences during the last century. Moreover, no linguistic engineering application will be satisfying unless a minimal of pragmatics is taken into account.

References


