SRI International

MANAGEMENT OF MISCOMMUNICATIONS: TOWARD A SYSTEM FOR AUTOMATIC TELEPHONE INTERPRETATION OF JAPANESE-ENGLISH DIALOGUES

Technical Note 438

May 19, 1988

By: Sharon L. Oviatt

Artificial Intelligence Center
Computer and Information Sciences Division

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

Management of Miscommunications:
Toward a System for Automatic Telephone
Interpretation of Japanese–English Dialogues[1]

Sharon L. Oviatt

May, 1988

Abstract

This report presents exploratory research on miscommunications and their resolution
during Japanese–English interpretation, based on interviews with experienced pro-
fessional interpreters. "Brokering" is identified as a naturally occurring and central
dialogue management strategy that supports interpreted communications. A com-
prehensive, ecologically oriented description of brokering is provided that focuses on
its structure, functions, and the communicative factors associated with its use. In
addition, analyses are provided of three types of disruptive miscommunication that
predominate during Japanese–English interpretation, along with the brokering tech-
niques that interpreters use to resolve them effectively. Implications of these research
findings for the design of an automatic Japanese–English telephone interpretation sys-
tem are discussed. It is argued that such a system would benefit from incorporation
of a brokered approach to interpretation that is based on adequate recognition of a
speaker's intentions.

The concept of a telephone system capable of automatically interpreting Japanese–English conversations, no matter how limited the task domains selected, is a challenging proposition. For scientists and technologists to arrive at an optimal system design, it will be important to clarify how human communication takes place during interpretation, during use of the telephone, and with speakers as culturally and linguistically discrepant as Japanese and Americans. Few empirical studies have examined the constraining influence of interpretation, telephone modality, or their interaction on communicative structure and success. Likewise, little is known of the compensatory behaviors that speakers naturally engage in to support these demanding forms of communication. In addition to these unresolved issues, any system designed to handle Japanese–English interpretation also must identify the cultural differences in communicative behavior that are likely to disrupt successful interaction most seriously. Once these communicative black holes are identified, through which human interactions are prone to collapse, it will be necessary to circumnavigate them if our vision of technological advance in international communication is to succeed.

To begin building a foundation for research on interpretation and Japanese–English communicative interaction, a rich but overlooked source of information was consulted: experienced professional interpreters. Interpreters were interviewed about "brokering" during interpretation. During brokering, the interpreter engages in subdialogues with the two speakers in an effort to actively assist them in achieving their communication goals. In the first section of this paper, the research procedure is summarized. In the second section, brokering is defined and a comprehensive, ecologically oriented description is provided of interpreters' perspective on brokering as a natural, integral part of the interpretation process. Interviewees' reports of actual Japanese–English interpretation encounters are summarized, and discussions are offered of the communicative factors that influence the selection of brokering behavior, as well as the communicative functions of brokering. This presentation represents the interpreters' viewpoint on the structure and function of individual interpretations, examined within context, and with supplementary information about the interpreters' motivation and goals in particular interactions.

One of the primary ways in which brokering supports interpreted communication is through the resolution of miscommunications. In the third section of this report, interpreters' descriptions of three predominant sources of miscommunication in Japanese–English interpretation are summarized, as are their brokered approaches to resolving these challenging situations. Interpreters' characterization of these problematic types of dialogue is presented from the viewpoint of the Japanese and English participants, and an assessment is provided of how and why these difficulties are generated and what their consequences are for human interaction.

The fourth section of this paper argues that, since complex systems cannot be de-

1

signed to avoid all sources of error, they must be designed with the resources to manage or repair difficulties that arise if they are to succeed at all. This is particularly true for the resolution of miscommunications in any automatic system complex enough to interpret Japanese–English telephone conversations. For this reason, it is important that exploratory qualitative research begin to study both the substantial human factors problems that continually disrupt Japanese–English interpretations, and effective techniques for resolving these miscommunications that could potentially be modeled and incorporated into an automatic system. In this fourth section, research presented in the second and third sections is synthesized and discussed in terms of its implications for the development of such a system. The fifth and final section of this report outlines a plan for empirical research to examine interpreters' brokering in more detail during telephone interpretation.

1 Summary of Procedure

Six professionals with expertise in Japanese–English language interpretation and cultural differences were interviewed about their experiences with 1) brokering during interpreted conversations, and 2) communicative difficulties between Japanese and English speakers. Interviews lasted between $1\frac{1}{2}$ and 2 hours, and were tape recorded for accuracy. Appendix A lists the interview questions that were used to guide discussion with interpreters.

All individuals selected for interviewing had worked as interpreters of Japanese–English communications, and had professional experience ranging from 8 to 25 years. In addition, three of the six also had taught students about techniques of interpretation and about the Japanese and English languages. The other three interpreters had experience teaching, developing educational programs, and writing about Japanese–English cultural styles and relations. All six of the interviewees had graduate-level training in areas related to intercultural communication and interaction. Among the professional fields represented were: interpretation and translation, communications, American literature, education, psychology, and cultural anthropology. For the purposes of this exploratory investigation, it was anticipated that a broader range of information could be collected from interviewees representing diverse educational backgrounds. Individuals with graduate-level training and teaching experience were selected in order to increase the likelihood that they would be capable of providing analytical descriptions of their professional activities, as well as a higher yield of information.

Four of the six subjects were Japanese natives, and two were Americans. In five cases, the subjects had lived in their native country at least through adolescence, while in the sixth case the subject had resided alternately in Japan and the United States during

2

childhood. Experience living in the nonnative country ranged from $1\frac{1}{2}$ to over 25 years. In addition to extensive experience living in both countries, four of the six interviewees also had experienced long-standing Japanese–English intercultural marriages, which further reinforced their professional expertise. In three of these four cases, both languages were spoken in the home.

Interpretation experience of the interviewees was diverse. Domain specialties ranged from "escort" interpretation for foreign visitors, interpretation during cultural and social events, business meetings, technical meetings and seminars, government negotiations, legal proceedings, and international conferences. Four of the six interviewees had engaged almost exclusively in consecutive interpretations, one person had accepted a mixture of consecutive and simultaneous interpretation assignments, and the sixth person accepted assignments primarily as a simultaneous interpreter.

2 Interpreters' Descriptions of Brokering Behavior

Interpreters provided self-reports and observations that included a wide variety of examples of brokering behavior, the details of which assist in clarifying when and why brokering occurs. Interpreters related views regarding their self-prescribed role and communicative goals during particular exchanges, and their insights into the effect of brokering in these cases. Finally, they specified circumstantial and attitudinal factors that operate to constrain the use of brokering in certain professional settings.

The interpreters interviewed all reported that it is often necessary to take verbal initiative in the form of brokering in order to function as a helpful agent in expediting the communicative goals of the two primary speakers. Their descriptions indicated that brokering is a frequent, naturally occurring behavior that they engage in to varying degrees in different circumstances, and that aids in the production of high quality interpretations. Interpreters' accounts of brokering behavior and circumstances, which are summarized below, serve to elucidate the various ways in which brokering contributes to the success of ongoing communications. As a prelude to this report, a working definition of the term *brokering* is outlined below.

2.1 Brokering as an Approach to Interpretation

The conventional view of a professional interpreter's role is that of a conduit— a semi-automatic, passive, neutral, essentially powerless intermediary through whom communications are transmitted from the speaker of one language to that of another. A standard literal interpretation is the professed outcome or goal of such a model of communication.

This view of the role of professional interpreters is, however, an ideal that cannot strictly be realized. One goal of the present paper is to clarify why this conceptualization of the interpretation process is untenable.
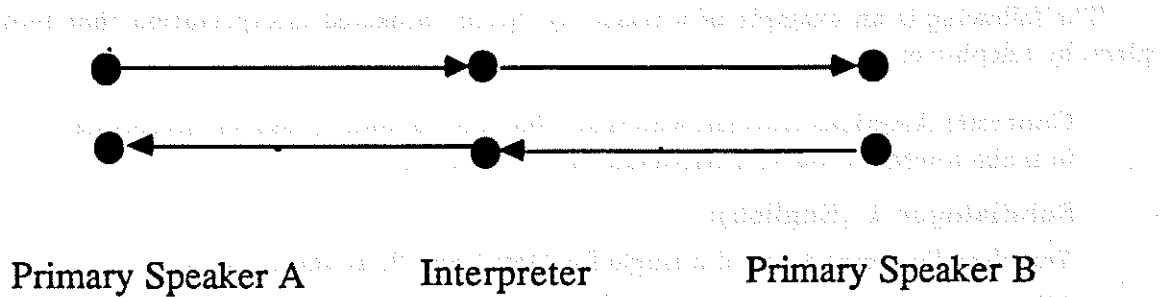
In contrast with this conventional view of interpretation, professional interpreters engage naturally in subdialogues with both of the primary speakers during actual exchanges in which the participants are motivated to achieve certain goals.[2] Throughout this paper the term *brokering* will be used to refer to conversations or parts thereof in which the interpreter conducts one or more subdialogues directly with one or both of the conversational participants. As illustrated in Figure 1, during a brokered subdialogue the source and recipient of the message now become the interpreter and one of the two primary speakers, rather than the two speakers. Any of these three people can initiate brokering. Brokering occurs in order to expedite a task, which may be large or small in scope. For example, interpreter–speaker brokering may range from briefly establishing the meaning of a word to a lengthier multistep interaction for the purpose of obtaining a suitable hotel reservation. Furthermore, in the course of brokered subdialogues, the interpreter or "broker" assumes an active role in promoting the communicative goals of the interpreted conversation.

---

[2]There are many other prototypes in American society of professional intermediaries who function in this manner as they work with two clients. For example, real estate brokers engage naturally in subdialogues with their clients as they work to promote a sale. In most cases, professionals who function as intermediaries actually serve one client from whom they receive reimbursement, and this incentive induces them to represent the needs and goals of their own client more carefully. The commercial reality of such arrangements is a strong factor that undermines the neutrality of interpreters, in contrast to what is asserted by the conduit model.

Conventional Literal Interpretation

Primary Speaker A   Interpreter   Primary Speaker B

Brokered Interpretation

Primary Speaker A   Interpreter

Interpreter   Primary Speaker B
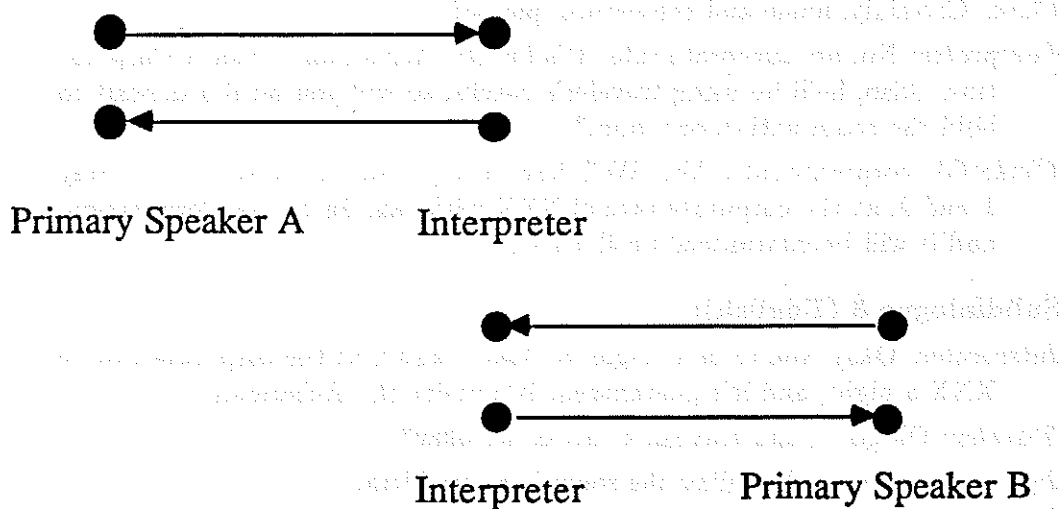
Figure 1: Communication Flow Among Participants During Interpreted Conversations in Which the Transaction Entails a "Conventional Literal" or a "Brokered" Approach

The following is an example of a relatively "pure" brokered interpretation that took place by telephone:

> **Context:** American traveler, who is not fluent in Japanese, asks an interpreter to make a reservation at a particular hotel in Tokyo.
>
> **Subdialogue 1 (English):**
>
> *Traveler:* I'm going to need a single for May 1 and 2, at the corporate rate.
>
> *Interpreter:* When will you be arriving on May 1?
>
> *Traveler:* Oh, be sure they'll guarantee the room past 6 p.m., because I probably won't get in before 8 p.m. I'll be paying in traveler's checks.
>
> **Subdialogue 2 (Japanese):**
>
> *Interpreter:* Do you have a single for May 1 and 2, at the corporate rate?
>
> *Clerk:* Certainly, name and conference, please?
>
> *Interpreter:* No, no, corporate rate. It's for Dr. Ackerman of Sierra Corporation. Also, he'll be using traveler's checks, so will you need a deposit to hold the room until 8 or 9 p.m.?
>
> *Clerk:* Oh, corporate rate. Yes. We'll have a single for Dr. Ackerman on May 1 and 2, at the corporate rate of XXX with tax, for Sierra Corporation, and it will be guaranteed until arrival.
>
> **Subdialogue 3 (English):**
>
> *Interpreter:* Okay, you're in a single for May 1 and 2 at the corporate rate of XXX a night, and it's guaranteed. It's under Dr. Ackerman.
>
> *Traveler:* Oh good, and traveler's checks are okay?
>
> *Interpreter:* Yes, and holding the room is no problem.

As the above dialogue illustrates, the interpreter frequently engages in a series of alternating subdialogues between the two speakers while brokering is occurring. An interpreter can either initiate a subdialogue or respond to a subdialogue initiation from one of the primary speakers and, in this respect, the interpreter's role is necessarily an active one. Although brokering can be conducted in a relatively pure form, such as the example above, interpreters report that it is most frequently intermixed with segments of dialogue in which the conventional literal approach is used.

An example of a "mixed" brokered dialogue segment would be the following (same context as previous example):

Traveler (to interpreter, in English): I need a single for May 1 and 2, corporate rate.

Interpreter (to clerk, in Japanese): I need a single room for May 1 and 2, at the corporate rate, please.

Clerk (to interpreter, in Japanese): Yes, I have a single at the conference rate for May 1 and 2. Name, please?

***Interpreter (to clerk, in Japanese):* No, no, corporate rate. Do you have corporate rates?

Clerk (to interpreter, in Japanese): Oh, yes, certainly. Name?

Interpreter (to traveler, in English): Okay, fine. Name?

Traveler (to interpreter, in English): Dr. Ackerman. I won't be arriving until 8 p.m.

Interpreter (to clerk, in Japanese): Dr. Ackerman. (silence) Hello? Hello? (silence)

***Traveler (to interpreter, in English):* Will they guarantee the room past 6 p.m.?

Interpreter (to traveler, in English): Just a minute. The clerk isn't there. Perhaps he's waiting on someone at the desk.

** *Subdialogue Initiation*

The stars indicate locations where the interpreted dialogue shifts into a brokered subdialogue between the interpreter and one of the primary speakers. The starred participant is the initiator of the subdialogue. In the first subdialogue indicated, the interpreter initiates an error resolution, since the clerk has misinterpreted the word "corporate" for "conference." The second subdialogue is initiated by the American traveler after a confirmation delay, since the the traveler is anxious for feedback that the room will be guaranteed in spite of a late check-in time.

In an interpreter-initiated subdialogue, the interpreter interpolates new information into the flow of the conversation, which is designed to elicit a response from one of the primary speakers. In terms of the conversational power structure, the interpreter momentarily *drives* the conversation during such subdialogues. In English, the presence of a question, third-person reference, or pronominal shift often marks a brokering initiation by the interpreter or speaker. For example, in the two dialogue segments above, the use of

7

"he" and "they" in reference to the third party is characteristic of brokered subdialogues. Third-person pronouns and pronominal shifts are likely to be a less reliable marker of brokered subdialogues in Japanese, due to the high rate of pronominal ellipsis, especially in spoken Japanese (Clancy, 1982).

The present definition of brokering includes communications in which the subdialogue initiations and responses can be conveyed through a mixture of nonverbal and verbal information. In fact, it is a common occurrence for one subdialogue "turn," whether an initiation or a response, to be restricted to nonverbal expression. For example, the following encounter of two foreign dignitaries took place at a cocktail party. A smiling Russian speaker greeted an American listener with, "I'm happy to see you again, you son of a bitch!" (which was translated by the female interpreter). This expression is commonly used in Russian to joke and inspire camaraderie without intending offense. The American listener reacted with an annoyed facial expression and a questioning glance at the interpreter. At this point, the interpreter perceived from the American's nonverbal expression of annoyance that he had probably misunderstood the Russian's intent. The interpreter also decided that perhaps these two men were not quite as friendly as she had assumed, and that perhaps she had erred in deciding to interpret the phrase in its closest colloquial form. So she responded to the American by smiling and saying in a sincere tone of voice, "He is happy to see you." In this case, a brokered subdialogue occurred between the American and the interpreter, initiated nonverbally by the American, and the interpreter responded with a mixture of verbal and nonverbal signals. The interpreter's verbal response was designed to repair the gaffe by reinforcing the positive intent of the original Russian greeting. In addition, by the interpreters's use of "he" in this response, it is clear that the message is now a direct one from the interpreter to the American.

In this paper, the term brokering also extends to private interactions between the interpreter and one of the two participants that take place either before or after the three-person interpreted exchange. For example, an alternative way for the interpreter to have diffused the social tension generated during the Russian–American exchange might have involved providing an explanation to the American in private after the meeting. In practice, this type of resolution is more likely to be selected if the American is also the interpreter's client.

Throughout this paper, "brokering" will be distinguished from "cultural–linguistic buffering." During cultural–linguistic buffering, an interpreter devises relatively more subtle adaptations of the speaker's original message while an interpreted dialogue transpires between the two primary speakers. Since the source of all initiations and responses is one of the two primary speakers, no subdialogue occurs. The adaptations made by the interpreter are anticipatory and relatively automatic ones that often involves making the interpreted message more comprehensible or socially appropriate to the listener. Some

examples of cultural–linguistic buffering by an interpreter include 1) filling in ellipted subject and verb phrases so that an American listener can comprehend and follow a Japanese speaker's topic, 2) adjusting or adding honorifics to an American expression to tailor it appropriately for a Japanese listener and occasion, 3) moderating extreme emotional expressions by adopting a more neutral tone of voice, by selecting relatively more neutral modifiers, or by omitting expletives, 4) replacing culturally bound idioms and metaphors with expressions in the listener's native language that best capture the speaker's intended message or effect. As it turned out during the Russian–American exchange, interpreter buffering by deleting the expletive might have been more appropriate socially. Cultural–linguistic buffering tends to support the same communication goals that brokering does (see Table 1 below) and, like brokering, the interpreter can adapt a message through the use of nonverbal as well as verbal strategies.

2.2   Communicative Functions of Brokering

In the course of interviewing interpreters, examples of brokering behavior began to emerge that to a large extent could be clustered according to the functions listed in Table 1. For most examples of brokering, interpreters cited one particular predominant effect that they were attempting to achieve. Other secondary functions frequently could be identified also, since the communicative functions reported are interrelated. While one of the functions of brokering focused mainly on the quality of information exchanged (1), others centered on the flow and structure of information (2, 5), or on speaker state and interaction (3, 4).

When the interviewees recounted their brokering experiences, many of the circumstances they described involved attempts to ensure that the message would be understood accurately by the listener, and to resolve any misunderstandings between the speakers. For example, interpreters frequently reported filling in background knowledge for the audience during lecture interpretations by explaining the meaning of neologisms, "in-house" technical jargon, idiomatic compound words, significant political and historical events that have occurred within one culture, and so forth. They also provided culturally distinct definitions for the same terminology when differences in meaning between the two target languages were of consequence to the lecture. For example, during a lecture on consciousness, one interpreter provided Western definitions of "conscious," "subconscious," and "unconscious," since Japanese usage of these terms is less categorically distinct than that intended by Freudian theory. Occasionally interpreters also clarified the specialized meaning of Japanese "kigos" for English-speaking audiences.[3] Kigos are culturally bound symbols used in haiku to allude to seasons (e.g. - "hana," which means flower in English,

---

[3]Kigos are distinct from the difficult and elaborate vocabulary of keigo, which refers to the complete linguistic system of honorific language.

Table 1

Communicative Functions of the Brokered Interpretation Strategy Frequently Cited by Interpreters

1. Promoting accuracy and clarity, including the avoidance and resolution of miscommunications.

2. Promoting the speed, flexibility, and general efficiency of communication.

3. Diffusing social and emotional tensions that might impede or block communication.[4]

4. Facilitating the establishment and maintenance of mutual communication goals.

5. Keeping the communication channel open.

is a kigo that refers to cherry blossoms in spring; "tsuki," which means moon in English, is a kigo that refers to the harvest moon in fall (Blyth, 1981)). In addition to their special-ized denotative meaning, kigos evoke distinctive sensory and emotional responses in other Japanese listeners because of their connotations. During general conversation, they may be used to forge mutuality and rapport. In all of the foregoing clarifications, interpreters described their goal as being provision of sufficient information for the listeners to infer the speaker's intended meaning, while at the same time keeping the interpolation brief enough to minimize disruption of the speech.

Interpreters engage in a variety of brokering techniques to promote accuracy and resolve misunderstandings. When filling in background knowledge of the type described above, they often initiate brokering directly with the listeners in order to amplify the message. This is usually signaled by a change of voice. For example, the interpreter might provide a direct translation of a given phrase and then say, "In Japanese this means" or "The speaker means," followed by the appropriate background information. This approach satisfies the listeners' need for clarity, and also achieves separation of the speaker's literal message from the interpreter's information about it.

In one-to-one interpreted communication, the listener often initiates brokering with the interpreter. This may be presented either as direct requests for clarification, or as nonverbal cues indicating a lack of comprehension. In addition, interpreters are more likely during one-to-one communication to question the listener about his or her comprehension of a message. A common tactic is to issue a polite probe such as, "Was the message clear?" or "Was my interpretation of the message clear?" This phrasing avoids placing exclusive responsibility for successful comprehension on the listener, while still accomplishing a relatively direct request. Interpreters emphasized the importance of this type of verbal delicacy for diffusing embarrassment and defensiveness among Japanese listeners. They also strongly advised that speakers frequently and clearly confirm their understanding of the other person's main points, and that they summarize their own main points. In this connection, the interpreters recommended supplementary use of visual materials to reinforce main points in the conversation with pictures, numbers, and other symbols. This advice is standard among written resources on the effective use of interpreters (Harris & Moran, 1987; Van Zandt, 1976).

In the clarification subdialogues discussed above, the interpreter and the listener were the principal speakers. However, interpreters related many examples of multistep clarifi-cation sequences in which they needed to request clarification from the original speaker

---

[4]Interpreter brokering that attempts to prevent or alleviate "loss of face" for either speaker is a common occurrence during Japanese–English interpretation that illustrates this function.

to ensure their own comprehension before either initiating or continuing a clarification subdialogue with the listener. In these cases, interpreters expressed feeling some pressure to keep their own requests for clarification to a minimum, partly to reduce fragmentation of the conversation, but also to avoid the possible stigma of appearing unfamiliar with the subject domain. Despite this bias, interpreter requests for clarification are often unavoidable if the speaker's intended meanings are to be understood and translated successfully.

In addition to these naturally occurring clarification subdialogues, interpreters reported that their own clients frequently request interpretive assistance in private after a meeting has ended. That is, clients ask interpreters to "read between the lines" with respect to the other person's verbal or nonverbal behavior during the face-to-face conversation. According to interpreter reports, delayed brokering occurs in up to 50% of certain types of interpreted interactions, including business negotiations and escort services. Essentially, the speaker seeks advice in order to understand the other person's intentions more clearly. Their concern usually centers on some issue that could not be resolved in person, and that is frustrating their attempts to plan some important action. Common Japanese–English communication difficulties that lead to delayed brokering will be discussed further in Section 3. The two most commonly cited strategies that interpreters use to handle these requests are 1) reiterating the client's literal message, and then providing their own interpretation of its meaning along with a general explanation, and 2) assisting the client to reformulate the question, and encouraging the client to initiate a clarification dialogue directly with the other speaker.

The brokering described above obviously promotes accuracy and, in some cases, assists in resolving miscommunication between speakers. One general effect of interjecting clarification subdialogues into interpreted conversations is a fragmentation and slowing down, or "downshifting," of the communicative exchange into a finer grained form. This downshifting also has been noted in task-oriented dialogues that are not interpreted (Cohen, 1984). Judging from interpreter reports, one precondition for downshifting of this sort is the speaker's perception of potential or actual communicative difficulty that he or she wishes to avert, and it is also a common phenomenon during the resolution of miscommunication. It should be pointed out that interpreter brokering for error resolution is generally a faster and more efficient strategy than resolution through the strictly conventional approach, since the overall number of speaker turns is reduced. For example, in Subdialogue #1 in the mixed brokering example in Section 2.1, two speaker turns are required to resolve the clerk's confusion regarding "conference" and "corporate" in this interpreter-initiated subdialogue. By contrast, in a conduit-style interpretation without any interpreter initiations, the error would be passed along to the traveler for correction. This would cost a minimum of four speaker turns.

12

In addition to reducing the overall number of speaker turns, brokering offers the potential of reducing the number of interpreter vacillations between one primary speaker and the other. This is most evident during pure brokered exchanges, in which more time is devoted to subdialogues with each of the speakers. During these subdialogues, a two-person conversation takes place exclusively in one language. Since the interpreter does not need to shift as frequently between the two primary speakers, problems of speaker address and synchrony are less likely to be prevalent and to disrupt the conversation. Interpreters believe that this structural modification makes the interpreted exchange faster and more efficient.

Finally, as illustrated in the pure brokered dialogue segment in Section 2.1, pure brokering is characterized by the subdialogue-level organizational macrostructure that is superimposed on the two-person exchange. Within this macrostructure, each subdialogue is relatively flexible by comparison with the degree of structural rigidity needed to maintain a conventional interpretation. Whether this potential for more flexible structuring during pure brokering actually results in a more efficient interpretation depends largely on whether the interpreter is knowledgeable in the subject matter and skillful in coordinating the flow of information to reduce redundancy. In short, flexibility in the organization of pure brokered exchanges offers the potential for enhanced efficiency of the interpretation.

Interviewees described numerous brokering examples that were interpreter-initiated efforts to diffuse social or emotional tensions that threatened to impede or block communication between the speakers. For example, one interpreter described an encounter in which a Japanese man presented a gift to an American while they dined. Although the American thanked the donor briefly, he neither opened the present nor acknowledged it as extensively as a typical Japanese would have done. The interpreter's appraisal was that the Japanese man looked disappointed. During the awkward moments that ensued, the interpreter leaned over to the Japanese and said, "He's planning to open it later. He's a bit hurried." The interpreter explained that she engaged in brokering in this instance because she wanted to dispel the awkward silence and social tension that had been generated inadvertently. She also expressed concern that the Japanese man might form the false impression that the American had intended to act rudely, a conclusion she hoped to forestall. In this latter respect, brokering also was designed to avoid a miscommunication and negative stereotyping of the American.

In another incident, a young American woman working as a bus driver arrived late to pick up a group of Japanese businessmen on their way to a formal reception. The businessmen had been waiting on a street corner for an entire hour. Just before the bus finally arrived, one angry businessman approached the interpreter for advice on acceptable social protocol for dealing with the bus driver, if and when she arrived. The businessman expressed his desire to scold her verbally, but the interpreter advised him, "There is no

point feeling angry, and you should not scold her. Listen to her explanation." The interpreter recognized that a verbal scolding might be expected among Japanese under these circumstances, especially given the difference in status of the two individuals. However, she responded to the Japanese man's inquiry, which was essentially a brokering initiation, with the self-described aim of reducing his frustration and anger before the bus driver's arrival precipitated a confrontation. This dialogue exemplifies the use of brokering to diffuse social and emotional tensions. It also illustrates the point that brokering in the form of a private subdialogue can occur in advance of an interpreted conversation as well as during or after it.

A more extreme example of interpreter brokering, which was initiated with the goal of reducing social and emotional tensions, was described by an interpreter whose working languages included German. He had traveled around the United States with a German prosecutor who was interrogating former hostages. Their job was to collect evidence for a case that involved abduction and airplane hijacking. During this series of interviews, the topics raised were highly emotionally charged ones for the former hostages. On two occasions, an interviewee began to cry during questioning, and was unable to continue the session. The interpreter perceived that the prosecutor's questions were too direct and aggressive, and that his style was severely heightening tensions on a topic that was already emotionally loaded for the former hostages. The result was blockage of the very information that was the desired goal of the meetings. The interpreter reported that, although he was not asked explicitly to do so, he began assuming responsibility for putting the interviewees at ease through the use of an informal and personal approach, communicative indirection, and an extensive general "softening" of the prosecutor's language and style. In the course of his efforts, the interpreter often brokered directly with a former hostage to achieve these objectives. Evidently, the prosecutor recognized the interpreter's success rate at rendering the interviewees emotionally receptive and forthcoming with valuable information, because he gradually turned over responsibility for large segments of the interrogation to the interpreter himself. That is, a pattern emerged of increasingly extensive brokered subdialogues between the interpreter and former hostages. The interpreter's brokering not only reduced the hostages' emotional tension, but accomplished the more fundamental goal of keeping the communication channel open.

Another cluster of brokering examples was presented in which interpreters' self-described function was to assist in establishing and maintaining a set of mutual communication goals between the two speakers. This theme often surfaced in the context of Japanese–English business meetings in which the two parties ventured into discussions with radically different agendas in mind. For example, one interpreter presented a case in which a Japanese businessman's expectations of a pro forma meeting conflicted with an American businessman's expectations of substantial progress in face-to-face negotiations. After the

14

American's attempts to discuss new issues were blocked several times by the Japanese, the interpreter suggested a brief recess. During this intermission, she discussed her analysis of these conflicting agendas with her American client, who then decided to postpone discussion of his intended topics. Interpreters advise that the advance circulation of a written agenda is a wise precautionary measure for avoiding agenda conflicts of this type.

Smaller scale agenda conflicts also were described by interpreters as requiring a brokered approach. This sometimes involved assisting the speakers with synchronizing transition to new topics. For example, in one case an American businessman continued to apologize profusely for an error, in spite of the Japanese businessman's attempts to downplay the error and move on to a different issue. After nonverbal and then verbal bids by the Japanese speaker to change topics, none of which were successful, the interpreter intervened. She described her response as 1) discontinuing interpretation of the American's apologies and, at a later time, 2) turning to the American and repeating the Japanese man's most explicit verbal bid to change the topic and, finally, 3) suggesting to the American that his dialogue partner was indeed satisfied with his apology, and now wanted to know what he thought of the new issue raised. In this case, the interpreter described her primary objective as being the establishment of a mutual agenda in order to progress beyond the impasse that had stalemated the meeting. Secondarily, of course, the interpreter was attempting 1) to correct the American's misimpression that the Japanese man continued to harbor a significant negative reaction to the error, 2) to reduce tensions generated by this topic conflict, and 3) to promote a better coordinated and, therefore, speedier and more flexible communication. In the final analysis, many communicative functions were subserved as a result of brokering in this case, although the interpreter reported her conscious focus as being on the mutuality of the speakers' communicative goals.

A rather different example of an interpreter's effort to maintain the mutuality of the speakers' communication goals arose during litigation between a Japanese defendant and an American plaintiff. As background, it should be explained that during legal interpretation it is customary for two interpreters to work together cross-checking one another, and to concentrate on producing a painstakingly literal rendition of the testimony. This type of interpretation is time-consuming and requires occasional discussion between the interpreters. During this particular legal proceeding, the prosecutor confronted the two interpreters with, "How can we trust this interpretation of the defendant's statement, when the interpreters take so long to construct their version of it?" The interpreter who related this experience felt that she had been made a scapegoat,[5] and that the prosecution

---

[5] Several interviewees reported that scapegoating of interpreters during high-level government negotiations and legal proceedings is very common and, of course, stressful for the interpreter. In general, interpreters are taught to accept this as part of their job.

was manuevering to derail the credibility of the defense by introducing mistrust of the interpreters. The interpreter responded with the rebuttal, "You do not understand what is required to produce an accurate legal interpretation." Through this statement, she defended her credibility and her role as an interpreter, and attempted to assert herself as a cooperative agent with nonpartisan goals and helpful intentions. Secondarily, she also aspired to repair a miscommunication and reduce tension generated by the prosecutor's real or feigned suspicions. In extreme cases, of course, a lack of trust can cause one person to discontinue being emotionally receptive to the conversation. This can undermine the entire communication process just as easily as factors like lack of comprehension or general social/emotional tensions. This type of brokering to establish and maintain mutual goals is especially prevalent during all types of competitive negotiation.

In connection with this discussion on the mutuality of speakers' goals, it is important to bear in mind that Japanese and English speakers do not necessarily place equal value on the same communication goals. For example, while American speakers tend to place high priority on keeping the conversation going and the communication channel open, Japanese speakers place greater emphasis on avoiding loss of face for both dialogue partners and on showing general consideration for the feelings of others (McGloin, 1983; Noguchi, 1987; Samarin, 1965). When these two goals conflict during Japanese–English exchanges, it is common for the conversation to end abruptly and painfully (Noguchi, 1987). A good interpreter recognizes the potential for typical goal conflicts such as this, and will work to keep the communication channel open by 1) very carefully attending to and accommodating the Japanese person's desire to preserve each participant's self-esteem, and 2) helping both speakers to focus in a positive manner on the goals that they do share. Fundamental cross-cultural differences in the priorities assigned to different communicative goals can make the interpreter's job very challenging. On the other hand, this is an area in which the skills of a good interpreter can play a vital role in supporting successful communication.

2.3 Communicative Factors that Influence Brokering

Many communication factors emerged from the interpreter interviews that appear to be associated with an increase in the probability of brokering during interpretation. The factors identified, listed in Table 2, include interpreter and speaker characteristics (1, 2, 3), communicative focus on goals (4, 5), perceived difficulties with the task or speakers' ability to interact easily (6, 7, 8, 9, 10, 11), and constraining situational factors (12, 13, 14).

16

Table 2

Communicative Factors Reported to be Associated with an Increase in Brokering During Interpretation

1. Interpreter is perceived by one or both primary speakers to be highly skilled and effective.

2. Interpreter is highly motivated to assist one or both primary speakers in achieving their goals, and is perceived by the speakers to be trustworthy and cooperative.

3. One or both of the primary speakers prefer to communicate in an indirect, nonconfrontational manner.

4. Task-oriented context focuses the speakers on successful accomplishment of certain actions and goals, rather than on personal expression per se.

5. Task-oriented context is perceived by the speakers and interpreter to be difficult, due to the nature of the task or performance demands.

6. Communication modality other than face-to-face is used (e.g., telephone), which restricts the information channels and the familiar structure of tripartite interpreted communication.

7. One or both primary speakers have very limited knowledge of the other speaker's language or culture, and this limitation is recognized by the interpreter.

8. Topic is emotion-laden and/or the speakers are very emotionally aroused, and the interpreter is sensitive to these conditions.

9. Primary goals of the speakers are in conflict and/or the intentions of one or both speakers are concealed or unclear, but the interpreter clearly discerns speaker goals and intentions.

10. Situation calls for special attention to social protocol.

11. Situation does not entail any legal or other important consequences that would require the interpreter's formal, precise scrutiny of utterances.

12. Interpreter is not threatened by litigation or other penalties for assuming the responsibility of initiating actions as a helpful agent.

13. Situation is structured to permit consecutive rather than simultaneous interpretation.

With respect to interpreter and speaker characteristics, brokering is likely to be more frequent when one or both of the primary speakers have confidence in the interpreter's skill level and track record. When the primary speakers perceive that the interpreter is particularly effective and highly skilled, then this perception increases the likelihood that they will use the interpreter as an information resource, thus initiating more brokering in the process. However, a distinction needs to be made here between perceived and actual skill level of the interpreter. When the actual level of interpreter skill and effectiveness is high, including unusually good familiarity with the communication domain, topic, terminology, and/or participants, then the interpreter may actually initiate less brokering. This is because the linguistic and cultural accommodations the interpreter makes to support the communication process are more likely to be automatic, anticipatory, and in the realm of what we have described as cultural–linguistic buffering. Since buffering and brokering serve many of the same communicative functions, the more successful anticipatory buffering the interpreter can accomplish to avoid communicative difficulties, the less need there will be to initiate explicit brokering.

An even more essential precondition for increased speaker-initiated brokering than perceived interpreter skill is the speaker's impression of the interpreter as trustworthy and motivated to help. If they believe that the interpreter recognizes their intentions and goals and is motivated to cooperate in achieving them, then they will rely more heavily on the interpreter and brokering will be increased overall. For example, when speakers feel the need to depend on the interpreter, either during an actual miscommunication or prior to an anticipated one, speaker-initiated brokering is more likely at these junctures if the interpreter is perceived to be dependable. In this respect, the incidence of brokering depends heavily on "amae," or the belief that one can depend securely on some trustworthy agent (Doi, 1976; Doi, 1981).

The probability of brokering also rises when speakers prefer an indirect, nonconfrontational approach. When this is the case, brokering between the two primary speakers is most likely to proceed in a manner that permits spatial and temporal separation of the brokering events, rather than a single face-to-face interpreted meeting with all three people present. Situational factors can determine this preference in specific instances, but the individual personalities, style, and cultural background of the speakers greatly influence their baseline preference for choosing a nonconfrontational brokered approach. For example, authorities on Japanese social behavior and communication have claimed that a general preference for nonconfrontational behavior is pervasive in Japanese society (Lebra, 1976; Lebra, 1984; Nakane, 1970), and that this has led to a high rate of mediated communications within the culture. This form of communication is typically favored for delicate situations or conflicts in order to reduce interpersonal tensions and avoid loss of face. Japanese marriage arrangements serve as a prototypical example of this preference (Vogel, 1971). The "nakohdo" or marriage arranger, who is well known to both families and motivated to assist with making a match, acts as the originator of negotiations. This triadic structure, and especially the assumption of responsibility by the nakohdo, detracts from either family's personal humiliation or loss of face in the event of a rejection (Vogel, 1971). Although American culture does not exhibit all the same social institutions and conventions involving mediated communication, nonetheless Americans select this approach in many of the same situations and for many of the same reasons as do Japanese people.

Other factors associated with more brokering that were pinpointed by the interviewees related to the goal-oriented nature of the communication focus. For example, selection of brokering is more prevalent when successful and efficient completion of a task is vital, while personal expression is relatively de-emphasized by comparison. Secondly, opting for a brokered approach is common when the task itself is routine or even menial and the speakers are not interested in allocating time to it. A broker who is knowledgable and experienced with the task domain, however limited it may be, is likely to be viewed by the primary speaker as a potentially more successful and efficient means of accomplishing the task. Consequently, speakers tend to delegate direct responsibility to the interpreter in such cases, so that relatively pure brokering becomes more likely.

Perceived difficulty of the task itself, or of the speakers' ability to interact smoothly during a communication, formed a large cluster of factors linked with increased brokering behavior. In these cases, mixed brokering was the norm, and the proportion of brokering to conventional segments was likely to increase with difficulty. For example, speakers were more likely to broker when the task or communication modality were unfamiliar or difficult in some way. A frequently cited example involved the use of the telephone. Individuals attempting to accomplish a task with a foreign speaker generally perceived

telephone transmission to be awkward and difficult, if not aversive, perhaps for a variety of reasons. First, there is some evidence that task-oriented conversations conducted by telephone are more time-consuming than face-to-face encounters (Chapanis, Parrish, Ochsman & Weeks, 1977), and interpreted conversations also clearly require more time to complete. Secondly, the average person has little or no experience conducting interpreted telephone conversations,[6] although he or she may have engaged in face-to-face ones. This would generate uncertainty during such dialogues, and might lead to dialogue and other behavioral disorganization. Thirdly, the loss of the visual channel virtually eliminates gestural and affective sources of support for keeping the communication channel open – at a time when success of the communication is already threatened by the cross-cultural gap between speakers. Exchange of feedback regarding the speaker's affect is damaged during interpreted telephone dialogues because facial expressions are absent and, even under circumstances in which the two speakers can hear one another's voices, the affect conveyed by intonation would be reduced to coarse-grained cues like volume. In addition to loss of the visual channel, a fourth and related problem is that listener confirmations of the speaker's message are precluded. Of course, confirmations expressed by nodding one's head or through positivity/negativity of facial expressions disappear along with all other visual cues. During noninterpreted telephone conversations, listeners may compensate for this visual blockage by increasing their verbal confirmations to provide the speaker with adequate feedback. However, this compensation cannot take place during interpreted telephone calls because, when an interpreter intermediates, he or she is the recipient of all confirmation feedback from both primary speakers. The ultimate result is complete disruption of the speakers' natural system of mutual acknowledgement. Finally, the regulation of turn-taking may be less well synchronized via telephone, and is recognized as a special problem for interpreted telephone conversations (Iida, Kogure, Nogaito, & Aizawa, 1987). Since conventional interpreted conversations increase the overall number of required speaker turns, there is more latitude for uncertainty and difficulty with shifts in turn-taking than during either noninterpreted calls or brokered interpretation. There is also some evidence that speakers are less tolerant of pauses in telephone dialogues, which they subjectively experience as being longer and less acceptable than pauses in face-to-face interactions (Butterworth, Hine, & Brady, 1977). This subjective impression may generate some anxiety that would only be further exacerbated by unavoidable delays in interpretation. All five of these difficulties associated with interpreted telephone conversations are generated by an interaction between the interpretation process itself and the inherent modality limitations of telephone transmission. Together these factors produce

---

[6]This is particularly true of American English speakers. In the United States, human interpretation of two-party telephone calls is currently offered by some telephone companies. Companies like AT&T also are developing more sophisticated telephone systems involving, for example, human interpretation of multiparty conference calls.

a substantial set of reasons why speakers perceive interpreted telephone communication to be fraught with difficulty.

Interpreters acknowledged that they are more inclined to assume a pure brokering role, or to broker more extensively, for a speaker who has little or no linguistic or cultural familiarity with the other speaker's background. In such cases, the interpreter views the speakers as likely to have great difficulty interacting smoothly. Similarly, when a topic is loaded emotionally, or when speakers are aroused emotionally, interpreters broker in an effort to neutralize disruptive emotions that threaten to block information flow. Situations that bind speakers to conform to a strict social standard or protocol during interpretation also frequently require more brokering in order to successfully meet the formal demands of the occasion. Under these conditions, preparatory brokering may take place in advance of the event. Finally, interpreters frequently cited examples of communicative exchanges involving conflicting speaker goals, along with unclear or concealed speaker intentions, as being particularly rife with brokering. Of course, this last set of conditions characterizes a variety of competitive and adversarial relations that are structured to encourage interpersonal conflict, challenges, and negotiation, which makes their resolution generally more complex. When such an exchange precipitates a lack of mutual trust, then communication breakdown is threatened, and the need for intervention through brokering or cultural buffering typically is intensified.

Although brokering is a frequent and naturally occurring behavior during interpretation, and one that supports ongoing communication in many essential ways, all of the interviewees maintained that biases against brokering constrain its use among professional interpreters. On the one hand, the interviewees felt that all good interpreters must broker to promote successful, high quality communication and make the interpretation resemble a speech prepared in the listener's own language. On the other hand, they related that the professional image or ideal of interpreters is still based on the conduit model. That is, interpreters are expected to be humble, unobtrusive, neutral, powerless, and to perform "literal" interpretations passively. Since to broker is to assume a more responsible and powerful role than the conduit model permits, interpreters viewed it as risky under certain circumstances. This discrepancy between the professional ideal and the actual experience of brokering places interpreters in a double bind. Most interpreters recognized this discrepancy, and they reported it to be a source of occupational stress. However, in some instances interviewees were defensive about acknowledging brokering, and this led to some resistance on the topic during interviewing.

Interpreters emphasized that successful brokering is difficult because it requires extensive knowledge of the speakers' needs, intentions and goals. They also confided that brokering is demanding because of the social responsibility that it incurs. In addition to being difficult, interpreters pointed out that brokering is sometimes penalized. For

21

example, students in schools of translation and interpretation are penalized for brokering when it is construed as editorializing. Strong constraints against brokering also exist during legal proceedings, in which an interpreter's initiation of "helpful" actions toward one party could be viewed as unethically manipulative and could incur liability. In short, interviewees uniformly acknowledged the necessity of brokering for high quality results, although under certain circumstances they either avoided this role or assumed it with considerable caution.

It is clear from interviewees' reports that interpreters engage in brokering quite naturally, and to different degrees in different circumstances. Furthermore, interpreters view brokering as supportive of the ongoing communication in various ways that have been outlined above, and they regard it as an indispensable element of high-quality interpretation. Independently of whatever ideals society at large may harbor with respect to interpreters' professional role and behavior, interpreters themselves report that they are active intermediaries whose behavior is necessarily as goal-oriented as that of the primary speakers, and whose role it is to assist in accomplishing the task at hand. Successful performance of this role requires assuming the responsibility of an agent who actively negotiates for particular purposes during the exchange of information. The terms "broker" and "brokering" reflect these basic aspects of human interpretation.

Interviewing interpreters about brokering has facilitated the identification and preliminary description of the many factors outlined above. While self-reports and observations have provided a rich source of basic issues to consider during this exploratory survey, they are nonetheless a mere starting point for investigation. Further empirical work should aim to elucidate more clearly how the brokered and conventional approaches to interpretation differ in terms of language and human performance, as well as how they dovetail naturally in different communication contexts.

3 Interpreters' Descriptions of Predominant Japanese–English Miscommunications

The interpreters provided examples of the general communication difficulties and misinterpretations encountered most often between Japanese and English speakers. They also discussed techniques that they use to handle these challenging situations, including frequent and extensive brokering. In this section, interpreters' self-reports and observations regarding these predominant communication difficulties are summarized, with special emphasis on the underlying mismatch in dialogue style between Japanese and English speakers in linguistic indirection. As background for this presentation, differences

in the use of communicative indirection between Japanese and English speakers will be introduced with a brief literature overview.

3.1 Differences in Communicative Indirection Between Japanese and English

Considerable evidence exists in support of the claim that Japanese communication is more indirect than English, both verbally and nonverbally (Holden, 1983; Loveday, 1986; Ramsey, 1984). For example, ellipsis occurs at a high rate in Japanese and is especially notable with respect to self-reference, negation, and certain types of noun phrases that can be either unspecified or underspecified by comparison with English (Hinds, 1978; Shibamoto, 1983; Takami, 1987; Watanabe, 1986). Many Japanese requests are ellipted also, especially when spoken, and they often end with idiomatic "closing signals" such as "ga" and "keredomo." These sentence-final particles render the speaker's intention less clear and direct (Hinds, 1983; Iida et. al., 1987; Martin, 1975), which leads to a more polite expression. In both languages, linguistic indirection is considerably more prevalent in spoken modalities than in written ones (Clancy, 1982; Cohen, 1984).

Verbal explicitness and directness is not considered as desirable stylistically in Japanese as it is in English, a bias that has been related to the historical concept of "kotodama" – the belief that words have spirits, so that speaking can cause things to happen (Ramsey, 1984). Therefore, speaking directly or boldly is discouraged. The related concept of "haragei" encourages heart-to-heart communication in which one guesses or anticipates the inner thoughts of the other. It has been claimed that verbal directness is not the preferred style among Japanese because it implies a breakdown of the nonverbal, intuitive communication process, and because it is distasteful from the Japanese viewpoint to direct others' thoughts and conclusions (Loveday, 1986; McGloin, 1983; Ramsey, 1984). In addition, verbal directness is considered impolite, especially with respect to negation and refusal, because it humiliates the listener and causes loss of face (Hill, Ide, Ikuta, Kawasaki & Ogino, 1986; Hinds, 1983; McGloin, 1983). By contrast, the Japanese place relatively higher cultural value on establishing a tone of emotional positivity and mutuality, and on promoting social harmony, which may sometimes result in placing less communicative emphasis on information transfer and denotative explicitness as valued goals (Hinds, 1983; Hinds, 1985; Ramsey, 1984).

Authorities also have claimed that verbal directness is not as necessary for communicative clarity among Japanese because of compensation due to their greater cultural homogeneity as a nation and the expectation of group perspective taking, their greater degree of conventional "code-prescribed" behavior, and their more extensive reliance on information imparted through nonverbal cues (Argyle, 1981; Holden, 1983; Maynard,

23

1986; Ramsey, 1984). With respect to the latter, for example, meaningful paralinguistic strategies like gaze aversion, silence and elongated pauses are defensive behavior patterns that the Japanese rely on heavily to establish the meaning of negation (Ramsey, 1984). Although such sources of semantic constraint and information may help to compensate for the extensive use of indirection in conversations among Japanese, it is unclear how cross-cultural exchanges with nonnative speakers are influenced by the extensive Japanese use of indirection. Exploratory empirical work is needed to begin identifying the major areas of communicative difficulty between Japanese and other foreign speakers, and to establish the relative influence of various communicative factors on the cross-cultural patterns that are uncovered. Among the factors worthy of further study are cross-linguistic differences in indirection per se, and cross-cultural differences in speakers' expectations for indirection.

3.2 Three Predominant Obstacles to Japanese–English Communication

In the course of interviewing interpreters, three prevailing themes emerged that presented obstacles to Japanese–English communication. These three themes were described by interpreters as recurrent sources of communication difficulty or failure that also lead to stress, frustration, and negative stereotyping of the speakers. All of the problems entail one person's inability to evaluate the communicative intent of the other speaker on some consequential issue. This uncertainty then leads to frustration because it prevents the person from making plans and completing actions to which he or she is committed. The resolution of these miscommunications often requires extensive brokering. Table 3 identifies the three significant miscommunication themes that were cited most frequently by interpreters.

3.2.1 American Recognition of Japanese Intent to Affirm/Negate

The first theme uniformly cited by interpreters was the typical difficulty that Americans have in recognizing Japanese intent during responses to requests for affirmation/negation. That is, oftentimes an American speaker will question a Japanese listener directly on some issue, with the intention of eliciting a yes or no response. Unlike the typical American listener, however, the Japanese person does not respond verbally in the affirmative or negative and, in some cases, may not respond at all. This lack of a clear response is generally puzzling and frustrating to the American, who does not know why the Japanese person has not answered, and so is unable to make decisions or plan actions that depend on the requested information.

24

Table 3

Predominant Obstacles to Successful Japanese—English Interpretation Most Frequently Cited by Interpreters

1. American's inability to recognize Japanese speaker's intent during responses to yes/no questions.

2. Japanese person's inability to recognize American speaker's intent during responses to requests for assistance.

3. The speakers' mutual uncertainty regarding each other's comprehension of the message.

Many cases were recounted of American businessmen and professionals who, in the course of negotiating with their Japanese colleagues, attempted to ascertain whether the answer to an offer of a contractual arrangement was yes or no. Instead of the desired decisive response, the Japanese often responded with 1) silence, 2) silence, followed by a change of topic, or 3) silence, followed by a response that left the American feeling uncertain, such as "We will look into this possibility for the near future," or "There are many things here for us to study. We are happy to be meeting with you," and so forth. Frequently, such encounters induced the American to attempt immediate face-to-face clarification which, when not successful, then led to later American initiations of brokering with the interpreter or some other intermediary. In many cases, the Japanese intention was to present a sufficiently polite negative response that the American would feel neither humiliated nor offended (Hinds, 1985). In still other cases, an American may misinterpret Japanese phrases like "Kekkou desu" ("That is good") to be clear positive responses, even though their positivity/negativity actually depends on discourse context (Iida et al., 1987). Once again, the Japanese intention often is to provide a polite refusal so as not to injure the American's self-esteem. Unfortunately, such misunderstandings are particularly problematic for the American, since he or she misinterprets the response as clear, not realizing that further clarification is needed. In some instances, unclear responses are generated because the Japanese speaker intends to take time to seek a consensual decision from his or her group before signaling a clear response. In these cases, the Japanese stylistic preference for verbal indirection is compounded by a different

25

speed and process of group decision-making, both of which are unfamiliar to the typical American.

To make matters more uncertain from the American's viewpoint, the Japanese person's silence or lack of a clear verbal response is not always indicative of negation or deferred decision-making. Consider the following paraphrased example:

An American researcher telephoned a Japanese professor who worked at a nearby university. The two had never met before, but the American explained her current research and her interest in speaking with authorities in the Japanese professor's field. The American indicated that she would be visiting the university, and asked if the Japanese woman would have time to meet.

> A: "Would you be interested in meeting with me to
> discuss these issues?"
>
> J: (silence)

During the silence, the American began anticipating either a refusal or some type of excuse. Instead, the following dialogue unfolded in a gradual and circumspect manner, with no direct answer ever forthcoming from the Japanese professor:

> J: "You may be interested in speaking with Professor
> Kuboda, who is also an authority on this issue. His
> number is xxx-xxxx."
>
> A: "Oh, thank you. It sounds like I should give him a
> call as well."
>
> J: "How soon were you hoping to meet with people?"
>
> A: "Well, this is a busy time of the year, and I'm not
> in a rush. Probably classes and exams will be over
> for you by mid-March. Do you think you might
> be interested in meeting, perhaps sometime before
> then?"

J: (silence)

"I live in Longville, and I commute past your office
on my way to teach. Perhaps I could arrange to
stop by for a meeting at your office sometime. It's
a long ride down to my university."

A: "Oh, well, I don't want to inconvenience you, and
I was planning to be at your university anyway to
speak with some other people, so I'm happy to meet
you there if it's easier for you."

J: "I am in Wednesdays through Fridays, and I'll be
here until the third week of March. Maybe you
would like to phone Professor Kuboda first, to see
if you can meet us both during one visit."

A: "Yes, that's a good idea. Then I will see if he can
meet Wednesday through Friday before mid March,
and I'll call you back tomorrow to see if we can
arrange a time. It was a pleasure speaking with
you."

J: "My pleasure, also. Good-bye."

In this case, although the Japanese woman did not respond in the affirmative or
negative to either of the American's direct questions, her intention to accommodate the
American researcher eventually became clear through her offer to come to the American's
office. This presupposition of an affirmative response was then further reinforced through
an additional indirect statement indicating when she was available. To summarize, silence
and lack of a clear verbal response by the Japanese woman were followed by a gradual
process of probing and negotiating, and then by a series of affirmative presuppositions
presented as polite offers to accommodate various aspects of the American's needs. During
this exchange, the American was apprehensive of refusal during the silent intervals that
followed her direct questions. From her perspective, the exchange involved a protracted
period of uncertainty, which created some difficulty in deciding what to say. In spite
of these tensions for the American, she tolerated the silences and followed the Japanese
speaker's conversational lead, which was established after the first silence. The result
was a successful negotiation, and a conversation that concluded without any problematic
dysfluencies.

Interpreters described the American style of direct questioning and expectation of

definite categorical answers as being generally foreign, offensive and stressful to Japanese listeners. They observed that Japanese generally dislike being put on the spot with direct questions, to which they simply won't respond. This accords with Hinds' (1983) discussion of Japanese speakers' reaction to "threatening" questions, e.g., those that are viewed as a violation of propriety, and the various maneuvers that Japanese speakers use to handle these threatening questions. Interpreters explained their perception that the Japanese conceptual style involves a more tentative, reflective outlook and a greater tolerance of ambiguity that is incompatible with expectations of definite answers. In addition, the Japanese dialogue style entails relatively muted, indirect statements and a gradual, circumspect, nonconfrontational approach to negotiating and entering into obligations with others. Given this substantial mismatch in conceptual, communicative and social styles, it is hardly surprising that a Japanese listener might respond to an American's direct requests with silence or indefinite answers that appear both evasive and defensive.

Interpreters noted that this pervasive problem Americans have with the Japanese style of affirmation and negation is actually just one of several difficulties that Americans have understanding the indirectness of Japanese conversational discourse.[7] At the discourse level, for example, interpreters described Americans' reaction to the relatively unfocused and circular rhetorical style of Japanese dialogue as being puzzling, evasive and illogical. During conversations, Americans evidently feel unable to predict the direction of the Japanese dialogue or its purpose. That is, the American is overwhelmed by the extent of conversational uncertainty. Interpreters indicated that, although this phenomenon is a pervasive one, it is perhaps most apparent during social occasions. Interpreters reported feeling at a loss to compensate for overall discourse differences at this level in any way that would render the Japanese presentation less strange to the American sensibility, except to say that good familiarity with the topic domain helps in bridging the gap. At any rate, communicative uncertainty on issues other than affirmation/negation was less frequently cited by interpreters as presenting major practical problems for Americans.

Interpreters sometimes reported dissociating or distancing themselves from particularly blunt American questions by conveying them in the following brokered form: "The speaker is asking...(followed by direct question)." As in many other examples of brokering, in these cases the interpreter signals brokering with a distinct change of voice. One interpreter described this type of preface as providing a basic acknowledgment of the Japanese listener's perspective, as well as warning the Japanese listener that, "Here comes one."

Interpreters reported several different strategies for helping Americans resolve these

---

[7]Interpreters admitted that some confusions over affirmation and negation also are caused by interpreter error. Such confusions can be created, or at least exacerbated, by the presence of constructions such as double negatives, which interpreters are more prone to misinterpret.

dilemmas caused by the indefiniteness of Japanese affirmation/negation intent. Generally, their approach involved brokering with the American after face-to-face interpretation. Depending on the circumstances, sometimes the interpreter would repeat the literal Japanese reply, and then provide an analysis of what the Japanese person meant, along with some explanation regarding Japanese communication and perspective on the situation. However, it was more common for an interpreter to encourage the American to arrange another opportunity to speak with the Japanese person about the unresolved issue. Instead of simply asking the question again directly, some interpreters suggested that they would help the American to reformulate the question to be more compatible with Japanese dialogue style and expectations for indirection. For example, instead of asking directly whether the Japanese agreed to an arrangement or not, the American might be advised to approach the discussion by describing a way he or she might accomplish a first step in the arrangement – a step presupposing Japanese acceptance. This should be put forth as a tentative plan, one that perhaps the American is thinking about aloud. It should be delivered slowly enough to give the Japanese time to think further about the possibility as they speak. Interpreters suggested that this slower, more tentative and indirect approach, presented as the American's wish or vision for a future arrangement, would be more likely to elicit some clues about whether the Japanese person's response is positive, negative, or entails a delay. Interpreters indicated that perhaps the most difficult thing for Americans is to realize that, in addition to completely reformulating the structure of their requests, they must also alter their communicative goals. Instead of expecting to elicit a definitive yes or no, Americans often must learn to be satisfied with partial clarification of the Japanese attitude toward the matter at hand.

3.2.2 Japanese Recognition of American Intent to Assist

The second recurrent theme that interpreters highlighted was the extremely common report by Japanese speakers that they are unable to determine whether an American intends to accommodate them after a request for assistance has been made. This theme surfaced in a wide range of examples provided by the interviewees. The common elements involved, first, a Japanese speaker making a request that is presented extremely indirectly relative to American English standards. The American listener then either does not fully recognize the nature or extent of the Japanese speaker's need for assistance or, quite frequently, does not even recognize that a request has been made. As a result, the American tends to wait passively for further information, while either not providing assistance or underestimating the need expressed. The Japanese typically cannot understand the reason for this lack of forthcoming assistance and, in many cases, automatically concludes that the American must be intentionally unwilling to accommodate him. The outcome

29

is a pervasive Japanese uncertainty about whether and to what extent Americans will provide assistance in a wide range of situations. The Japanese reports that he cannot predict whether he will be able to rely on the American to be accommodating toward him, both in specific instances and more generally. This can often be very frustrating for the Japanese person, and can lead to negative stereotyping of the American.

The following exemplifies this problem during a simple task-oriented exchange between a Japanese visitor and an American saleswoman in a shoe store in the United States. The Japanese woman entered the store to buy a pair of shoes. She noticed that the shoes she was interested in were well beyond her reach on a high shelf. The following interaction ensued, as reported by the Japanese woman:

J: Looks at shoes on a high shelf, then looks at the saleswoman.

A: Looks back at the Japanese woman, and smiles.

J: Looks at the saleswoman, looks and points toward the shoes and utters emphatically, "shoes," then looks with annoyance at the saleswoman again.

A: Continues looking at the Japanese woman, and asks, "Yes, what about the shoes?"

J: Continues looking at the American saleswoman, and says in an angry tone of voice, "I want to try the shoes. Get the shoes down, please."

A: Replies, "Oh," and retrieves a footstool to take the shoes down.

The Japanese woman perceived that she had made three clear requests for assistance, which were increasingly directive. She reported her belief that a Japanese salesperson would have recognized a patron's intent to try on the shoes after the initial bid involving a clear glance at both the shoes and the saleperson. As a customer in a shoe store, the Japanese woman thought that her need should be obvious from context. Since the saleswoman had not been busy, the Japanese woman could not understand why she didn't assist, and reported already feeling annoyed with the saleswoman's rudeness by this point. After the saleswoman failed to respond to the second bid, an actual verbal reference to "shoes," the Japanese woman felt considerable irritation and stress. She reported her impression that the American's response, "Yes, what about the shoes?" was contrary and

30

antagonistic. By the time the Japanese woman had been forced to produce a verbally explicit request, her third bid for assistance, she reported feeling very angry that a salesperson would be so rude. She felt humiliated and said that she would not shop at this store again. It is instructive that the Japanese woman did not entertain the possibility that the American might not have understood her intention clearly. Instead, the Japanese woman's buildup of tension during this interaction led directly to the inference that the American was deliberately unaccommodating. As a result, she stereotyped the American negatively, and voiced a desire to close the communication channel permanently. Tensions during this particular encounter may have been heightened further by strong Japanese expectations for subservient behavior from clerks and salespeople during commercial transactions.

Like the first theme presented in Section 3.2.1, this second common obstacle to successful Japanese–English communication also appears to be rooted to a large extent in major differences in linguistic indirection. The shoe store example recounted above demonstrates the greater Japanese reliance on nonverbal behavior to convey intentions and meaning. Interpreters related many other examples of verbal requests that were so ellipted that Americans could not comprehend them. For example, while registering for an international conference, the following exchange took place between a Japanese scientist and the American conference organizer:

> J: "I will send you an abstract by the due date, so
> that please."
>
> A: "Uh huh, okay."

In this example, the entire content of the Japanese request was omitted, although the Japanese scientist intended to request comprehensive assistance with obtaining information and applying to register as a speaker at the conference. He was, in effect, requesting that the American infer and take care of all the usual, customary needs of a person in his position. This may have entailed an expectation on his part, for example, that the American would then respond by asking if he needed guidelines for submission, if he had received the conference registration package yet, if he had questions about airline charters and nearby available hotels, and so forth. Instead, the American understood the message to be a relatively literal but incomplete statement. The American responded with a confirmation, as a placeholder, since he expected that the Japanese scientist probably had more to say. Interpreters provided similar examples of general Japanese requests for assistance in which the actual content of the request was omitted and had to be inferred from context. Other common phrases signaling a request for action included, "We'll be in your debt," "I shall be beholden to you," and so forth.

It has been pointed out that ellipsis is considered a polite strategy in Japanese speech, in the sense that it relieves the listener of any imposition to either think or to respond in a particular way that may be too constraining. Ellipsis defers to the listener by permitting consideration of a range of options (Hinds, 1983; McGloin, 1983). Since the contextual cues associated with needing assistance may already be quite strong, the considerate Japanese speaker believes that it is generally more polite to rely on ellipsis while making requests for assistance in order not to overwhelm the listener with a sense of burden.

In addition to cross-cultural differences in expectation for direct expression of requests, another factor contributing to the communication problem discussed above involves major differences between Japanese and Americans in overall social organization and, in particular, in expectations for negotiating, assuming, and fulfilling obligations to others. For example, Americans tend to expect to agree verbally upon a set of responsibilities in a point-by-point manner. By contrast, Japanese tend to make extensive and sensitive inferences automatically about what another person's needs might be in a particular situation. Then they tend to assume general responsibility for the other person's welfare in a relatively comprehensive way. For example, take the case cited earlier of the American researcher who requested a meeting with the Japanese professor. Upon arrival at the university on the day of the appointment, the American was surprised to learn that the Japanese professor had voluntarily arranged for the American to meet with two other authorities, to have lunch with a third person in the department, to observe a laboratory class, and even to have her car reparked in a more convenient lot. Although an American might organize similar arrangements for an academic visitor under certain circumstances, he or she would be unlikely to assume this type of responsibility automatically and without prior discussion. This leads to the unfortunate situation of cross-cultural encounters in which the Japanese automatically accommodates the American, but the American does not reciprocate without first being asked — which, of course, the typical Japanese is unlikely to do! This imbalance in the assumption of social responsibility further fuels the negative stereotype that Americans are unaccommodating, self-absorbed and rude. It also sets up the Japanese participant for frustration and resentment.

Interpreters' techniques for helping a Japanese resolve uncertainty about American intentions to provide assistance often involved brokering to clarify the Japanese person's goals, followed by issuing the request to the American more directly. This request was generally presented at a level of directness intermediate between the preferred Japanese and American styles. This strategy of face-to-face brokering tended to be adopted when the Japanese request was sufficiently specific, and when the American was unlikely to have any reasons to resist complying. When the Japanese request was judged to be unacceptably broad, first the interpreter brokered with the Japanese person regarding his or her goals, and then the interpreter decomposed the request into a series of specific

questions for the American that covered the Japanese person's primary needs. In addition, the interpreter sometimes brokered with the Japanese person after the fact to explain background information about American expectations for making requests that are as limited, detailed and explicitly stated as possible. Japanese mastery of this approach requires some familiarity with American conceptual style and social organization, a relaxation of Japanese standards of politeness, as well as what amounts to training in linguistic assertiveness.

3.2.3 Speaker Uncertainty Regarding Listener Comprehension

The third theme that was uniformly reported by interpreters as a pervasive source of communicative difficulty between Japanese and English speakers was the speakers' uncertainty regarding comprehension of one another's utterances. That is, both Japanese and American speakers frequently behaved in a way that indicated their concern about whether their listener had understood them. Since a lack of comprehension undermines one of the most basic communicative goals of the participants, it is not surprising that interpreters reported that it commands considerable attention during interpretation.

A variety of behaviors revealed the speakers' preoccupation with this potential communicative pitfall. For example, the speakers frequently initiated brokering with the interpreter in an effort to gauge the extent of a listener's comprehension and, if necessary, to repair it. Speaker repetitions, slower presentation rate, and so forth, also were prevalent, and reflected the speaker's perception that successful listener comprehension is a precarious matter. Iida et al. (1987) also discuss speakers' uncertainty about listeners' comprehension as a problematic feature of interpreted telephone conversations. During such exchanges, they noted that speakers are anxious for assurance that their message is being understood, so they interrupt the interpreter numerous times. They also engage in "explicative dialogues" with the interpreter when it becomes necessary to clarify intended meanings. In the terminology of the present paper, these behaviors involve speaker-initiated brokering with the interpreter.

Several factors obviously contribute to speakers' uncertainty about listener comprehension during face-to-face interpreted conversations, as well as the ensuing conversational "interruptions." First, speakers lack confidence, to some extent, because in fact they have received more frequent feedback that the listener does not comprehend during interpreted conversations with nonnative speakers. The frequency of this experience with genuine lack of listener comprehension sensitizes speakers to the possibility of further miscommunications, which may be generated partly by differences in linguistic indirection and partly by such problems as the first two miscommunication themes already discussed in Sections 3.2.1 and 3.2.2.

33

Second, interpreters also noted that the substantially prolonged lag in communication during interpreted conversations results in additional time during which the speaker's concern about a listener's comprehension heightens while he or she waits idly for some form of feedback. This delay is especially lengthy during Japanese–English interpretations for a variety of reasons. First, it is noteworthy that Japanese speakers leave a relatively long pause before replying. More time is also required to interpret Japanese sentences since interpreters cannot begin constructing the interpretation until they have heard the verb, which occupies the final position. By contrast, an interpretation of English can typically begin in mid-phrase.

Third, differences in the dynamics of confirmation by listeners exert a major influence on the speakers' sense of assurance and confidence that they have been understood during interpreted Japanese–English conversations. Although, to the uninitiated, verbal confirmations may give the appearance of extraneous behavior devoid of major consequences for overall communicative performance, this is not the case. The presence of confirmations clearly acknowledge that one is listening and receptive which, of course, is essential to continuation. The rate, synchrony and placement of confirmations all contribute to the speaker's impression that the listener is comprehending, which is vital for creating a sense of mutuality and, ultimately, for expediting the speakers' joint communicative goals.

In noninterpreted conversations, there is a highly interactive, direct and rapid encounter in which the speaker converses while the listener synchronizes verbal confirmations appropriately. In contrast, during interpreted conversations the listener is precluded by the communication structure from confirming simultaneously. The listener must wait to hear the interpreter's message. In addition to this disturbing confirmation lag, it is possible that the uncoupling of the primary speakers' direct, synchronized interactions could result in fewer listener confirmations overall. Further investigation is needed of the extent to which the interpretation process alters the usual structure of verbal confirmation.

Cross-cultural differences between Japanese and English speakers in the habitual rate and placement of verbal confirmations can further disrupt the speaker's assessment of his or her listener's comprehension. For example, Japanese communication displays a relatively high rate of confirmation, both verbally and through headnodding (Maynard, 1986). Researchers have reported Japanese verbal confirmations at double to triple the typical American rate for comparable conversations (Clarke & Kanatami, 1980; Maynard, 1986), and as being particularly salient during telephone conversations (Lebra, 1976). The relatively high rate of Japanese confirmations has been interpreted as reflecting the high priority given to interpersonal harmony, in the sense that the Japanese listener is eager to accommodate the speaker's perceived need for feedback (Hinds, 1983). American listeners not only confirm much less frequently, they reserve their confirmations for constituent boundaries and sentence endings. Japanese speakers provide backchannel feedback at the

34

same grammatical completion points, but they also frequently confirm slightly in advance of boundaries or at other points in between (Maynard, 1986). Research reports have indicated that Japanese conversants feel "abandoned" during conversations with relatively nonconfirming Americans, and they keep asking, "Are you listening?" (Lebra, 1976). This is problematic even without the intervening interpretation process. When interpretation adds a delay in the receipt of confirmations, Japanese speakers must wait even longer than usual for confirmation from the American listener because of the interpretation delay associated with Japanese final verbs. All of these factors could heighten the Japanese speaker's concern regarding American comprehension. Americans have different reasons for becoming anxious about Japanese comprehension. For instance, Americans often report feeling unsettled about Japanese interjections of backchannel feedback before a phrase has even been completed, and they begin doubting that the Japanese partner understands at all. Doubt is further intensified during long pauses before the Japanese person presents their substantive reply, since silence to Americans often signals a problem (Laver, 1975; McLaughlin & Cody, 1982). This lengthy silence increases the American's vigilance and concern. Together with other factors discussed above, this creates special strains for the American speaker's confidence that he or she has been understood.

Other research has revealed that speaker uncertainty about listener comprehension is a substantial problem during Japanese–English interpreted conversations conducted by telephone (Iida et al., 1987). Of course, telephone exchanges block nonverbal sources of listener confirmation, such as headnodding, since the visual channel is unavailable. To complicate matters further, telephone interpretation prevents the speaker from receiving verbal confirmations, since the interpreter intermediates. This is a by-product of the fact that interpreters must focus on hearing and interpreting the primary speaker's message, and cannot simultaneously allocate attention to hearing and conveying listener confirmations. Although the listener may confirm upon hearing the interpretation, during the typical two-way telephone exchange it is the interpreter who both conveys the interpretation and receives the feedback. This complete blockage of confirmatory feedback to the speaker may play a large role in disrupting interpreted telephone conversations. In spite of this, it is possible that receipt of feedback by the interpreter at least may result in indirect improvement to the quality of the interpretation by helping the interpreter to know when clarification is needed.

The first and second obstacles outlined above, which involve 1) American inability to recognize Japanese intent during responses to requests for affirmation/negation and 2) Japanese inability to recognize American intent during responses to requests for assistance, are both problems that are inherent in Japanese–English cross-cultural exchanges. Both of these two classes of difficulty arise when a speaker issues a request for action,

with the expectation that the listener will respond in a specific way. In both cases, the speaker's expectations are not fulfilled, which results in frustration. General cross-cultural differences in the extent and form of linguistic indirection are a primary source of these communicative difficulties. This disparity in indirection is magnified during requests for assistance and affirmation/negation, since Japanese speakers rely heavily on linguistic indirection when requesting assistance and when responding to direct requests for affirmation/negation. In addition, both of these communication problems are complicated by general differences in conceptual outlook and social organization between Japanese and English speakers, which generate some resistance to responding in the listener. The third obstacle outlined, mutual speaker uncertainty regarding the listener's comprehension, appears to be a problem stemming principally from difficulties imposed by the interpretation process more generally. However, additional complications are rooted in Japanese-English differences in verbal behavior, such as the habitual rate and placement of confirmations. Brokered approaches to interpretation apparently can play a major role in managing all three of the communication problems outlined.

By consolidating information from experienced professional interpreters and from the research literature, it has been possible to begin identifying the more important and disruptive difficulties encountered by Japanese and English speakers during interpretation. It also has been possible to begin probing the dynamics of how and why these miscommunications occur, as well as their consequences for subsequent interaction. By performing task analyses on interpreters' examples of problematic dialogues, including assessment of the behaviors and viewpoints of both participants, it has been possible to construct a preliminary characterization of these miscommunications and their basis. Additional emphasis was placed on uncovering basic interpreter strategies for resolving these miscommunications and, in particular, on establishing the details of how brokering is used to expedite resolution. Further empirical research would be helpful for collecting more precise information about the natural frequencies of these three communication problems within different communication contexts. Finally, research designed to study the effectiveness of the basic principles behind different interpreter resolution techniques, conducted within naturalistic contexts of practical utility, could provide essential information for the development of an automatic telephone interpretation system for Japanese and English speakers.

4 Implications for the Design of a Japanese–English Automatic Telephone Interpretation System

One strategy that has been advocated by artificial intelligence for the development of complex information systems is designing for the "management of trouble" (Brown & Newman, 1985). Since complex systems cannot be designed to avoid all sources of error, they must be designed with the resources to manage or repair any serious processing difficulties that arise if they are to succeed at their objectives. In the context of a natural language system as complex as automatic telephone interpretation, adopting this viewpoint means that communication will have to be supported with features that can promote resolution of the inevitable miscommunications.

4.1 Brokering for Dialogue Management

Section 2 of this report discusses brokering as a common general strategy that interpreters use to avoid and resolve miscommunication, among other purposes. What might a brokered approach to interpretation, or the option to engage in brokering selectively, have to offer an automatic telephone interpretation system? To begin with, if both speakers and the interpreter engage in brokering naturally and frequently during interpreted dialogues, then pressure to broker is likely to exert itself during any system's attempts to interpret automatically. If a system is not designed with this natural inclination in mind, then brokering initiations are likely to be disruptive and to result in frustrated users. Furthermore, since brokering functions to support communication in several vital ways that were discussed in Section 2.2, including the avoidance and resolution of miscommunications, then it may be advantageous to acknowledge it as a source of strength in producing high quality interpretation, and to build some provision for it into an automatic system. In short, if brokering occurs naturally and subserves communicative success, then it should be studied, modeled, and designed into a system, rather than basing the system on either a conduit model or no model at all.

Further evidence for the desirability of incorporating a brokered approach into an automatic telephone interpretation system comes from interpreter reports that speakers' inclination to broker is heightened during telephone use. During a simulation study, Iida and colleagues (1987) also documented that speakers who engaged in an interpreted telephone conversation 1) alternated in addressing their remarks to the interpreter and the other primary speaker, 2) frequently interrupted the interpreter, and 3) often engaged in explicative dialogues with the interpreter to clarify intended meanings. The frequency of these phenomena in their study corroborates interpreters' reports that brokering is a particularly prevalent and central behavior during telephone interpretation. Interpreters

37

related their impression that brokering increases because speakers are concerned about being able to converse easily and accomplish their task during interpreted telephone calls. This may be true for a variety of reasons discussed in Section 2.3, including speakers' lack of familiarity with this form of communication as well as its inherent information limitations.

According to interpreters' reports, the likelihood of brokering also increases when the communication focus is on successful accomplishment of a task, rather than on personal expression per se. When the task is perceived to be simple and menial, such that personal representation is neither necessary nor preferred due to inconvenience, speakers more often select a pure brokered approach. Initial automatic interpretation systems are likely to be able to handle constrained and clearly definable tasks, and they may well be used principally for repetitive service-oriented transactions such as making travel reservations.[8] Brokering could be particularly suitable for tasks with these characteristics.

As pointed out in Section 2.2, interpreters report that brokering tends to be a faster and more efficient strategy than conventional interpretation. Examination of the differences in dialogue structure between these two techniques reveals that improved efficiency may be due to a reduction in the overall number of required speaker turns during brokering, as well as by the decreased number of interpreter shifts between the two primary speakers and target languages. A reduction in speaker alternations would minimize the asynchrony due to turn signaling and shifting that occur so frequently in conventional telephone interpretation, thereby diminishing this source of delay and error. Within brokered subdialogues, there also is more potential for flexible organization of the two speakers' dialogue initiations and contributions than is possible during the execution of three-person conventional interpretation in which interpreter initiations are not permitted. This efficiency advantage can be expected to be most pronounced during pure brokered exchanges. Under circumstances in which the speakers prefer to broker, and the interpreter is both knowledgeable in the domain and skillful in coordinating the flow of information to minimize redundancy, one reason pure brokering becomes an attractive option is its increased efficiency.[9] Future empirical work could provide a basis for estimating the magnitude of

---

[8]Professional interpreters reported that they would welcome automatic interpretation for these purposes, since such assignments are considered time-consuming and boring. Most interpreters would not resist automation for such tasks because they do not tend to view them as part of their professional responsibility in the first place.

[9]Topic expertise and recognized topical common ground between the speakers are known to enhance conversational efficiency, as reflected in reduction of words and speaker turns (Clark & Wilkes-Gibbs, 1986; Isaacs & Clark, 1987). The potential exists for particularly efficient interpretations when 1) the interpreter and speakers know the domain well and recognize their mutual knowledge, such that they are willing to initiate shortcuts to make the future dialogue more compact, and 2) a brokered approach is adopted that permits these conversational reductions.

this efficiency advantage for different domains and proposed systems. To summarize, it is clear that any system would benefit from the capability of actively initiating brokering with each speaker for clarification. In addition, system design that permits flexibility in the initiation of brokering by either the interpretation system or the speakers, as occurs during actual human interpretation, may prove vital to both the efficiency of interpretation and the accuracy of intent recognition.

A system capable of functioning as a pragmatically oriented broker would act as an agent that knows and expedites the communicative goals of the two speakers representing different language communities. Such a system would aim for a high level of communicative utility and efficiency in terms of success in obtaining the desired effect on the listener, rather than on preserving the literal interpretation of the speaker's message. There is reason to believe that a pragmatic brokered system may be well suited for handling many of the difficult aspects of interpretation, such as the fundamental multi-goal nature of coordinated communication. More specifically, for example, brokering may be a suitable method for detecting and managing some of the differences between Japanese and American speakers in the priority placed on various fundamental communication goals. As discussed earlier, successful management of the overriding cross-cultural goal conflicts often may be essential to keeping the communication channel open.

Other potential strengths of the pragmatically oriented brokered system include minimization of "cultural distance" between speakers, and suitability for handling nonliterality of meaning, including indirection and ellipsis (Shaw, 1987; Shen, 1985; Vasconcellos, 1986). The concept that cultural distance needs to be minimized for interpretation to succeed reflects the view that communication channels and patterns must be modified comprehensively for effective support of cross-cultural communication (Nida, 1976; Nida & Taber, 1982; Shaw, 1987). Ultimately only a functional approach to interpretation that permits sufficient tailoring of interpreted communication to the different culture-bound goals and intentions of the respective speakers can succeed in reducing cultural distance (Wierzbicka, 1985). Examples will be presented in Sections 4.1.1 and 4.1.3 of a brokered approach to the interpretation of indirection and speaker confirmations that would reduce cultural distance between the speakers.

4.1.1 Management of Differences in Indirection

As discussed in Section 3.1, linguistic indirection is considerably more prevalent in spoken modalities, such as telephone interaction, than it is in written ones. This is true for both the Japanese and English languages. Professional interpreters have also revealed that differences in linguistic indirection may be one of the primary sources of miscommunication between Japanese and English speakers. Any automatic system for Japanese–English

telephone interpretation will need to be adept at handling various indirect expressions and at managing cross-cultural differences in indirection.

As effort is expended on designing a system to interpret indirect language, and to resolve misinterpretations that result from indirection, it will be important to acknowledge that miscommunications occur continuously, at many levels, and with differing consequences. It will not be possible to avoid or resolve them all. Therefore, from a human factors standpoint, a distinction should be made between those miscommunications that are relatively benign in their impact on task performance and human interaction, and those that have a destructive impact by seriously impeding or preventing successful completion of a task, threatening closure of the communication channel, and leading to negative personal stereotypes. First and foremost, it is essential that system design address the subset of destructive miscommunications that are most common and have the most debilitating effect on the dialogue participants' performance and satisfaction. One goal of the present research effort has been to ferret out three such types of miscommunication that disrupt Japanese–English interpretation. Section 3.2 of this paper presents these problems for consideration by system prototype designers.

Since two of the three main obstacles to successful Japanese–English interpretation can be ascribed to extensive cross-cultural differences in the use of indirection, clearly any automatic system will need to be able to recognize a wide range of indirect expressions and elliptical sentences. Section 3.2.2 presents examples of common Japanese requests that are partially or totally omitted and must be inferred from nonverbal and other contextual cues, as well as from tangentially related language (e.g., shoe store and international conference examples). In effect, the content of these Japanese requests is largely or even completely indeterminate linguistically. Although extensive indirection is habitual and effective among Japanese speakers, it appears to create frequent difficulties during cross-cultural interaction with Americans who are unable to recognize Japanese intent. These examples suggest the magnitude of the problem posed by indirection for any system designed to interpret telephone conversations automatically between Japanese and American speakers.

How can an automatic system be designed to manage these problematic differences in indirection effectively? Interpreters' descriptions of resolution strategies, presented in Sections 3.2.1 and 3.2.2, can be examined for principles to guide system development. The main techniques employed by interpreters to help Americans recognize Japanese affirmation/negation intent included 1) brokering to explain Japanese linguistic indirection and noncategorical conceptual style, which are incompatible with the American expectation of yes/no answers, 2) brokering to encourage the American to seek clarification from the Japanese speaker, 3) brokering to reformulate the American's question into a more indirect form, 4) brokering to encourage relaxation of the American's communicative goals, so

40

that a less categorical reply becomes acceptable, and 5) brokering to assist the American, by means of a general explanation of Japanese communicative indirection, to recognize indirectly stated Japanese responses when they occur. By comparison, the primary techniques that interpreters valued for promoting Japanese recognition of an American's intent to assist included 1) brokering with the Japanese partner to explain the American's expectations of linguistic directness, logical and categorical conceptual style, and different view of social obligations, 2) brokering with the Japanese for clarification of a particular goal in terms of assistance required, 3) reformulating the Japanese request to make it more direct and explicit for the American, 4) brokering with the Japanese person to break down a goal of obtaining assistance into a set of more specific and limited goals, and 5) brokering to help the Japanese interlocutor, through a general explanation of American communicative directness and social organization, to understand why assistance from the American may be limited or not forthcoming.

To summarize, the highly parallel resolution strategies used by professional interpreters to handle these two classes of miscommunication included providing explanatory information for the puzzled speaker, reformulating the speaker's request to be more or less directly stated, and encouraging revision of the speaker's communicative goals to be more or less specific, logical and categorical. Interpreters' efforts to alter a speaker's request and goals were aimed at making them more in accordance with the listener's cultural expectations. In both cases, a clarification subdialogue with the Japanese person was needed in order to extract sufficient linguistic determinacy for the American partner to formulate a response.

Examination of these interpreter strategies suggests that brokering may be an effective design choice for the management of cross-cultural differences in indirection that would have to be handled by any automatic interpretation system for Japanese–English speakers. Following interpreters' lead, a system could be designed to alter automatically the literal form of these speaker requests for action to render Japanese requests more explicit and direct, and American ones less so. A system might also adopt some of interpreters' specific strategies for performing these reformulations. For example, when Americans seek an indication of Japanese acceptance, a more indirect approach could include some of the following elements: 1) describing step 1 in a tentative proposal (for which acceptance is sought), 2) expressing the proposition as a casual "think-aloud," rather than directing it toward the Japanese partner, 3) presenting it as a personal "dream" or wish for the future, rather than as a firm agenda, 4) speaking slowly so that the Japanese person is given the opportunity to reflect on the matter as it is presented, 5) establishing fairly vague temporal limits, rather than pressing for a definite and strict time frame, and so forth. Further research is needed to generate a bank of parallel techniques for altering the expressions used by speakers, and to determine when to apply them most effectively.

41

In addition to system design dealing with the appropriate directness of expressions, the brokering done by interpreters suggests that the most comprehensive and successful resolution of these types of miscommunication require that the system convey some supplementary explanation to the speakers. Explanation could be provided through brokered subdialogues, which in many cases could be brief. It should be designed to promote a shift in the speakers' communicative goals, so that expectations for the listener's response become more realistic. It also should help the speaker to understand more clearly the reasons for the listener's response. A more informed speaker viewpoint on the listener's cultural norms regarding conceptual style, social organization and linguistic expression must provide the basis for these new expectations.

Since both types of miscommunication described in this section involve requests for action, further examination of such requests should be particularly high priority for any system aimed at coordinating speakers to accomplish tasks during service-oriented exchanges. Clearly, further task analysis of actual dialogues is needed, as well as theoretical work on intent recognition during requests for action. Several other challenging research issues must be addressed in order to design a system that can manage the two types of miscommunication described. One issue concerns the nontrivial problem of how to design explanatory subdialogues that will result in a sufficient shift in the speaker's view of the listener, so that the speaker will be able to understand and accept the listener's response. Another substantial challenge involves designing a system to politely and indirectly structure clarification subdialogues with the Japanese person that are nonthreatening and non-stressful, while still producing sufficient linguistic determinacy for the American to act. This applies both to extraction of adequate information regarding affirmation/negation intent and to increased linguistic determinacy regarding requests for assistance. Establishment of guidelines for optimal length, content, and repair strategies for accomplishing these clarification subdialogues will require careful consideration and investigation.

Any automatic system should be designed with strategies to prevent the communication channel from closing down due to failure, which would block task success by default. Obviously system failures could have serious repercussions for user satisfaction and willingness to engage the system in the future. Succeeding at this design challenge will require a more thorough understanding of the most common disruptive miscommunications that occur between Japanese and English speakers, especially within the system's proposed task domain. The system should incorporate brokering techniques that are designed specifically to resolve those miscommunications that have objectionable consequences for either the task or human relations. The determination of what should be considered objectionable is complex, and will depend in part on the task objectives and values of the speakers.

42

4.1.2 Management of Spoken Dialogue

In constructing a spoken telephone interpretation system, a number of basic issues must be addressed regarding users' expectations and their overall model of system performance. These issues begin with whom the speakers believe they are addressing as they speak. That is, depending on the type and extent of brokering capabilities available, the speakers must receive clear orientation as to whether they are addressing another speaker directly or speaking to an intermediary. If the latter, then the functional capacities of the intermediary need to be clarified, such as whether it will perform as an automatic interpreter or as a brokering interpreter capable of subdialogues. When brokering capabilities are incorporated, speakers will need to be instructed in whether they can expect to interact and receive feedback from the system and, if so, what kind of feedback is possible. Without adequate familiarization with basic system features and capabilities, users interacting with a natural language system will tend to have inflated expectations of the system's linguistic and conceptual coverage that will hinder performance (Hendrix & Walter, 1987; Small & Weldon, 1983; Turner, Jarke, Stohr, Vassiliou, & White, 1984). As Hendrix and colleagues (1987) have stated, "In fact, unrealistic [user] expectations pose the greatest human factors problem in the design of a natural language interface."

There is some evidence that user expectations are further inflated by the use of spoken natural language interfaces, compared to keyboard-based ones (VanKatwijk, 1979). This may not be surprising, given that people experience natural speech as a very rapid, direct and tightly interactive modality (Chafe, 1982; Oviatt & Cohen, 1988), which is governed by an array of conversational rules and is rewarding in its responsiveness. In fact, perhaps the most distinctive behavioral characteristic of dialogue is its extraordinarily speedy and highly coordinated interactivity. This prominent characteristic has implications for user's expectations for pacing and turn-taking synchrony during interactions with spoken interfaces. As an example, VanKatwijk (1979) found that users interpreted a slow system response time to mean that the system either had not heard or had not understood them. Consequently, speakers repeated their requests rather than waiting for processing to be completed. The system then interrupted with its spoken feedback during the user's repetition, which disrupted the interaction further. It can be argued that this spoken interface appeared to elicit additional user expectations concerning the system's ability to follow basic conversational rules of pacing, interruptions, turn-taking, and the like.

System support in the form of confirmations is critical, especially feedback reassuring the speaker that processing is continuing even though delays take longer than typical conversation. Such confirmation support can ease the behavioral pressures for natural conversational pacing and turn synchrony in any spoken interface. This support is particularly important for an automatic telephone interpretation system in which system lags

43

will be compounded both by subjective distortion of telephone delays and by the lengthy process of interpretation itself. In addition, since both interpretation and system delays will be *variable* in length, it is unrealistic to expect that users will gradually learn to adjust their expectations and behavior as they would to an additional fixed lag. They will continue to need confirmation support in order to converse smoothly in the face of these variable sources of lag. Future experimental work needs to identify the best methods for conveying a system model to users that will constrain user expectations of a spoken interface appropriately, so that the system's linguistic, conceptual, and interactional coverage are clear, and so that dialogue and performance can be supported in an optimal way. The system capabilities that would be needed to handle speaker confirmations during automatic telephone interpretation of Japanese–English are considered in Section 4.1.3.

In addition to handling inflated user expectations, a spoken interface for telephone interpretation will need to accommodate different linguistic phenomena and discourse organization than keyboard-based language systems. Research has established that spoken communication differs in major ways from written modalities in both Japanese and English (Blass & Siegman, 1975; Chafe, 1982; Chapanis et al., 1977; Clancy, 1982) and, more specifically, that telephone dialogues differ from keyboard ones (Cohen, 1984). This research literature indicates that, among other things, spoken communications tend to be delivered much more rapidly, to be less planned, less concise, less complex and less well integrated syntactically, with fewer abstract ideas, shorter and less varied vocabulary, more pauses and dysfluencies, more hedges, quantifiers, and function words, more self-reference and pronouns in general, more requests for confirmation and listener confirmations, more repetition, more noun phrase reductions with repeated reference, more indirection, a more fine-grained decomposition of requests, and more metacomments about the content and discourse itself. In addition, spoken dialogues involving speaker interaction differ substantially from noninteractive spoken monologues, as in telephone versus audiotape (Krauss & Weinheimer, 1966, 1967; Oviatt & Cohen, 1988). Many of these basic modality effects on the organization of speakers' dialogues will need to be accommodated either through system design or user training before a successful automatic interpretation system can be designed. Simply tacking on a speech "front end" to a Japanese–English interpretation system would be likely to incur major system integration discontinuities that could render the system uninhabitable (Wulfman, Isaacs, Webber, & Fagan, 1988).

4.1.3 Support for Speaker Confirmations

Confirmations during a dialogue provide assurance to the speaker that information is being received and that communicative intent is being recognized accurately. When confirmations are not forthcoming, this cues the speaker to elaborate or to initiate a clarification

subdialogue with the listener. Confirmations also play a vital role in helping speakers to establish recognition of their accumulated common knowledge as the dialogue progresses. This mutual recognition then provides the basis for an easing of the speakers' conversational effort, which is evident in a reduction of speaker turns and total words that enhances the efficiency of the overall dialogue.

Any telephone-based interpretation system, and especially one focusing on task-oriented exchanges, will require well designed confirmation support of speakers. A number of factors combine to make confirmations an especially difficult problem for the type of system proposed. As discussed in Section 3.2.3, Japanese and English speakers have different conventions and expectations for the rate and placement of verbal confirmations, which inadvertently generate speaker uncertainty, concern, or even misimpressions about listener comprehension. Speaker uncertainty regarding listener comprehension, one of the three major communication obstacles described by interpreters, threatens a speaker's basic goal – a coordinated, intelligible dialogue. In addition, the telephone modality, the interpretation process, and task-oriented contexts each impose special pressures on communication. These pressures often produce speaker anxiety about being understood, which increases the need for confirmations. When interpretations are conducted by telephone, even independent of task and cross-cultural pressures, the resulting blockage of confirmations creates problems for the design of an automatic system.

How should an automatic system handle confirmations in a way that supports this demanding form of interpretation? A straightforward method to convey listener confirmations to the speaker at their literally presented rate and location, as suggested by the conduit model, would not reduce cultural distance as a source of speaker uncertainty and misimpression. Dropping confirmations altogether, which represents what happens during human telephone interpretation, evades the central issue by failing to support the speakers' sense of mutual comprehension at all. An alternative proposition might entail designing a system to reduce cultural distance between the two speakers. Provided the incoming language was processed successfully, the system could automatically increase or decrease the rate of confirmations and alter their locations within a phrase to match the expectations of the listener. By definition, a system designed to accomplish this sort of cross-cultural tailoring would represent a pragmatically oriented, brokered approach to interpretation. Development of such a system would have to be based firmly on empirical analyses of actual communication exchanges between members of the two target cultures.

Mere reduction of cultural distance would, however, be insufficient for an automatic telephone interpretation system. Such a system would still need to overcome the imposed blockage of confirmations. A system designed to model pure brokering provides a good opportunity to alleviate this blockage. As this system engages in direct subdialogues with each speaker, it easily can provide immediate confirmations to the speakers in acknowl-

45

edgment of signal reception as the message is actually processed. In this respect, a pure brokered model is particularly suitable for communication tasks requiring strong confirmation support. However, for systems based on a mixture of brokered and conventional interpretation, the problem of blocked confirmations remains unsolved during segments of conventional interpretation. During these segments, it is possible that the confirmation blockage might be overcome through parallel transmission of actual verbal confirmations (with adaptations to rate, placement, etc.) from the listener as the system is simultaneously generating an interpreted message from the speaker. This would make confirmations available during the conventional segments, although they still would be subject to the usual lag imposed by face-to-face interpretation. Under these circumstances, the speaker would have to wait longer for confirmations during conventional interpretation segments, and feedback would not be coupled in a meaningful way with specific message segments. Ultimately, a relatively natural and effective confirmation system may be easier to support during brokered subdialogues than during conventional sections. For this reason, a pure brokered approach may be more suitable for constrained tasks that require strong confirmation support.

Introduction of a video-telephone would not solve confirmation problems in any simple way, since the gestural conventions of Japanese and American speakers are entirely different (Maynard, 1986; Ramsey, 1984). For example, differences between Japanese and American speakers in the rate of headnodding are even more pronounced than those for verbal confirmations (Maynard, 1986). Although a supplementary visual display adds a further source of potential information for the speakers, cross-cultural differences in the way confirmations and other gestures are presented may simply confuse speaker comprehension and substitute visual disparities to be resolved in place of verbal ones. Whether a supplementary visual display could be designed to result in an overall net gain in successfully interpreted messages is an empirical issue that remains to be addressed.

The research literature and professional interpreters both provided ideas for incorporating system confirmation capabilities at another level. These sources suggested that the main propositional points presented by the speakers should be summarized repeatedly and clearly during the interpretation. In this connection, they advised reinforcing main points through supplementary use of the visual modality.

Within a task-oriented service domain, these ideas could be implemented in the form of a "visual preconfirmation" system. In the case of phoning for a hotel reservation, for example, the clerk would submit a copy of the agreed upon reservation details for the customer to examine over a visual channel before the conversation ended. If the reservation were correct, the customer could accept it, and a hard copy of the visual preconfirmation would be issued for the customer's future reference. If any aspect of the reservation was not correct, then the customer could resume the interpreted conversation until clarifica-

tions or corrections produced an acceptable preconfirmation. The term "preconfirmation" implies that the summarized propositions are tentative and under negotiation, and that it is not until the customer inspects and approves this visual preconfirmation that it is considered an actual agreement. At that point, a hardcopy "confirmation" could be issued.

In addition to visual clarification, this system feature ensures that the task is completed and the customer's and hotel's goals are each met at a sufficient level of satisfaction. A system designed in this manner builds confidence and trust among its users by demonstrating a commitment to meeting their goals. This is an important attribute since, as interpreters revealed, the speakers must believe that an interpreter (or system) is going to be effective, trustworthy and cooperative in assisting them to achieve their goals before they will rely on it heavily. Users should be instructed in advance regarding the system's capabilities, including that 1) dialogue with the system can continue until the task is completed to the user's satisfaction, and 2) a clear visual preconfirmation will be issued so the arrangements can be double-checked, and either approved or corrected. With this advance reassurance, users are much less likely to be apprehensive about the system's or listener's comprehension. In addition to permitting the user to feel more in control, both the immediacy and visual nature of this preconfirmation feedback could be used to provide strong positive reinforcement that would encourage further system use. Future research is needed on optimal confirmation feedback at both the signal reception and propositional levels to promote a successful automatic telephone interpretation system for Japanese and English speakers.

4.2 Brokering as Cooperative Conversation

Brokered interpretation may be viewed as a special type of cooperative conversation, in which the task for the interpreter is to alternate in assisting the two primary speakers as they attempt to achieve their communicative goals. In brokered interpretation, the dialogue form is a series of subdialogues between the interpreter and each speaker in his or her native language. In the brokered model, the interpreter's role as a cooperative intermediary is overtly acknowledged. This section describes the work on cooperative dialogue systems and their relation to salient difficulties confronting the development of a Japanese–English telephone interpretation system.

Research from the computational linguistics branch of artificial intelligence has considered the development of computer systems that function as cooperative conversants (Cohen & Perrault, 1979; Cohen, Perrault & Allen, 1982). Such systems attempt to help users achieve their communicative goals, which may involve doing more than is requested, or even finding and suggesting alternatives to what is requested. These systems are based

on an approach to communication that treats utterances as actions that a speaker plans and reasons about in attempting to alter a listener's mental state. Such actions have been called *speech acts* by philosophers of language (Austin, 1962; Searle, 1969). Examples of speech acts include requesting, informing, suggesting, warning, and advising. This theoretical outlook proposes that algorithms for reasoning about communicative action should be special cases of algorithms for reasoning about action more generally. According to this view, a theory of rational interaction provides the foundation for understanding communication.

In the analysis of cooperative dialogues, it is postulated that listeners are motivated to understand why speakers say what they do, and to infer their communicative goals and plans. It is important to specify that cooperative dialogue ideally involves mutual recognition of the *intentions* behind one another's utterances (Allen, 1979; Allen & Perrault, 1980; Grice, 1957). That is, listeners attempt to infer what the speaker intends to accomplish through communication, rather than adopting a superficial interpretation based exclusively on literal statements and observable events. The listener therefore must collaborate in constructing a set of beliefs to be held mutually with the speaker, which then provides a framework for understanding the speaker's viewpoint on some topic of shared knowledge. It is this state of *cultivated mutuality* that provides a predictive base for the listener, and that supports the accuracy of the listener's inferences about the speaker's intended plans (Allen, 1979; Cohen, 1978; Schiffer, 1972).

A listener infers the speaker's communicative plan using knowledge of the general domain, the speaker's expected higher-level goals, and a plausible account of the intentions behind the speaker's utterance. The listener then also attempts to evaluate the soundness of the speaker's plan – that is, whether the plan is likely to be a successful vehicle for achieving the speaker's higher-level communicative goals. For example, consider meeting someone on the street who is carrying an empty gas can and who asks, "Where is the nearest gas station?" (Grice, 1957). First, the listener would most likely infer that the speaker plans to use the answer to proceed to the nearest station to buy gasoline. If the listener only specified where the nearest gas station was located, even though he knew it to be closed, he might be accused of actively thwarting the speaker's intended plan. By contrast, a cooperative response would assist the speaker with his higher-level plan of obtaining gas by suggesting alternatives to obvious obstacles. Generally, speakers assume that a cooperative listener will point out known alternatives for satisfying their blocked goals (Allen, 1979; Allen & Perrault, 1980; Cohen, 1978), although cooperation at this level requires voluntary social compliance by the listener as well as recognition of the speaker's intent.

To summarize, conversation is generally guided by speaker expectations for cooperative interaction at many levels – at the level of signal reception, intended plan recognition,

potential obstacle detection and, usually but not always, assistance with plan implementation as well. Speaker expectations for cooperative interaction at the level of intent recognition, the core capability in this series, are relatively strong and automatic by comparison with the levels that follow. Since listeners are unable to predict the content and potential value of a message before they understand it, clearly they are more captive collaborators at this level of dialogue interaction.

Clarifying speaker intent should be a critical design objective for any system, as neither coordination nor mediation between speakers can take place without accurate recognition of intent. Construction of any system capable of brokering for clarity and resolution of miscommunications will have to be based on theories of intent recognition that are sufficiently robust and specific to be operational. Considerable research in artificial intelligence has focused on plan recognition for communication (Allen & Perrault, 1980; Cohen, 1979; Kautz, 1988; Pollack, 1988; Sidner, 1985). The approaches to intent recognition advocated in this literature were based on Allen and Perrault's (1980) use of plan recognition for understanding indirect speech acts. Their system was able to infer the intended meaning underlying a variety of indirect requests for action, including conventional ones (e.g., "Can you tell me when the Tokyo train leaves?"), nonconventional ones (e.g., "The door is closed," as a request to open the door), third-party speech acts (e.g., "My manager asked me to ask you when the train leaves" or "My manager wants to know when the train leaves"), and elliptical fragments (e.g., "the Tokyo train?"). In attempting to further the speaker's plan, the system employed the obstacle detection and resolution method, which often led it to provide more information than was actually requested. For example, if the system believed that the phrase, "the Tokyo train?" was a question about the departure gate for that train, it was capable of responding, "track 5, 3:15," thereby also supplying the needed departure time. Essentially, then, Allen and Perrault's system reasoned about the intent behind a speaker's utterance by trying to fit an initial speech act characterization to an expected action plan for the speaker. Their plan recognition algorithm focused on the goals that speakers might be trying to achieve, based on both prior discourse and commonsense beliefs about the given domain. It also included rules for reasoning about the effects and preconditions of actions, and heuristics for guiding the system's search for possible speaker plans for a given utterance. The inferences drawn by this system relied on basic principles for reasoning about actions and plans.

Based on these principles, Cohen's (1979) system employed computational methods for short-cutting frequently used inference paths by creating derived inferences or "lemmas." These derived inferences provided the means for analyzing conventionalized indirect speech acts (Morgan, 1978). Subsequent work has addressed the separation of domain and discourse plans (Litman and Allen, 1987), the separation of the listener's beliefs from his or her model of the speaker's beliefs so that the speaker's plans can be evaluated for

soundness (Pollack, 1986), and methods for handling plan recognition in a more rigorous manner (Kautz, 1988). Most of this early work treated plans as data structures. Recently, Bratman (1987) and Pollack (1988) have argued that plans are mental states, comprised of beliefs and intentions. Current research is developing logical foundations for integrating theories of intention and belief with a general theory of action in order to provide a basis for more principled theories of speech acts and communication (Cohen & Levesque, 1987 & 1988; Perrault, 1987). Research in the near future is likely to synthesize the foundational work on mental states and speech acts with Pollack's and Kautz's treatments of plan recognition in order to generate new theories and algorithms for handling indirect speech acts.

When brokering is viewed as a plan-based form of cooperative conversation, avenues are suggested for approaching problems that any automatic telephone interpretation system will have to surmount. Among the problems to be addressed are blockage of speakers' mutual confirmations and cross-cultural differences in linguistic indirection. For example, a cooperative conversation system could confirm a listener's reception or comprehension of the speaker's message, and could do so in a manner that supports the speaker's communicative goals, once two capabilities are added. First, the system would require a cooperation strategy of informing the speaker whenever one of the speaker's goals has been achieved. Second, the system would have to be capable of attributing goals to the speaker. Special consideration would need to be given to providing speaker feedback regarding goal achievement 1) when the speaker cannot be assumed to know the achievements by default, 2) when the goals involved are especially important to dialogue support, and 3) in a manner that is tailored appropriately to cross-cultural expectations. Such a system could be orchestrated to provide periodic speaker feedback as a message is received by the listener, with the rate and placement of confirmations matched to the native speaker's habitual confirmation pattern. It also could be designed to acknowledge comprehension of propositions, identification of particular referents, and so forth. Future systems will need to be able to discriminate between instances when feedback is especially pertinent at the propositional level and those when it is not. For example, some system feedback could be fine-tuned for responding to certain classes of emphatic grammatical constructions and intonational signals that effectively communicate a speaker's intent to seek acknowledgment.

As discussed earlier, linguistic indirection is particularly evident in the fragmentation of typical telephone conversations, and in the pervasive ellipsis of spoken Japanese. Furthermore, as outlined in Sections 3.2.1 and 3.2.2, differences in the habitual level of linguistic indirection between Japanese and English speakers are a pervasive source of miscommunication during interpretation. The plan-based approach to inferring communicative intent has been shown to provide suitable initial tools for recognizing the intended

meanings of many indirect requests and fragmentary utterances (Perrault & Allen, 1980). This theoretical framework and set of techniques could potentially be extended to cover many of the frequent forms of indirection found in Japanese–English telephone dialogues. In Allen and Perrault's plan-based approach to the analysis of indirect action requests, the superficial outer shell of linguistic indirection is analyzed within a given context and attributed to the speaker's expected communicative goals and plans. Used as a basis for Japanese–English telephone interpretation, a plan-based approach to indirection would 1) facilitate basic intent recognition for each speaker, and 2) reduce cross-cultural differences in linguistic forms to a common plan-based code for communicative exchange that is designed to parallel the speakers' intended communicative actions more closely as they engage in a particular task.

The third-party references that occur so frequently during brokered subdialogues, such as "Be sure they'll guarantee the room past 6 p.m.," are amenable to handling with modifications of the third-party speech act techniques originally proposed by Cohen and Perrault (1979) for speech act generation, and by Allen and Perrault (1980) for speech act understanding. The core of these techniques is the potential capability for speech acts to refer to other speech acts in their propositional content. This capability would play a prominent role during dialogue interpretation, where it is common for one speaker to request that the interpreter make a request of the other conversant, or for the interpreter to describe to one person what the original speaker just said. A comprehensive analysis of speech acts (see Cohen & Levesque, 1988) is needed in order to provide a proper semantics for third-party utterances. The shifts in address and pronominal usage that surface in third-party references need to be explored further as potential linguistic markers of brokering activity. Identifying markers of this sort will be necessary in order to construct accurate and efficient algorithms for detecting speaker intent during three-person interpretation.

As professional interpreters pointed out, brokered subdialogues are one of the central ingredients in high-quality interpretation. Such subdialogues are more frequent during communications perceived to be difficult, including telephone interpretation. The theory of cooperative conversation, as implemented in early prototype systems, shows how dialogue systems can take the initiative by asking questions, making requests, and suggesting alternatives, in order to promote achievement of the conversants' goals. These systems ask clarification questions just as they would ask other questions – when they have the goal of acquiring information (Appelt, 1981; Cohen & Perrault, 1979). In this respect, engaging in clarification subdialogues is a natural outgrowth of this theoretical perspective on cooperative conversation. In addition, it should be pointed out that any system architecture designed to support cooperative conversation based on plan recognition would already provide the domain and dialogue knowledge needed for brokering during task-oriented

interpretations. In these respects the two are compatible, and plan-based models of cooperative communication provide substantial leverage on the development of brokered interpretation systems.

Further research needs to address how the brokered approach can best be incorporated into different types of systems. One choice involves whether to select a relatively pure brokered approach or a more complex mixture of conventional and brokered interpretation that approximates most human interpretation. The logistics of devising a mixed system require investigation. Since one advantage of a mixed system is the ability to finely tune one's use of brokering in a manner sensitive to communicative needs and circumstances, it is possible that a speaker-controlled brokering switch would be a desirable feature. Since interpreters reported considerable natural variation in the extent of brokering in different situations, a speaker-controlled switch that offers flexible tailoring may be important to the success of a system. In addition, such an option would increase the user's internal locus of control, a design goal that has been supported consistently by the user-interface literature (Schneiderman, 1987).

5 Planned Research

As a next step in the investigation of brokering during interpretation, an empirical study will be conducted of Japanese–English telephone interpretation. This study will examine dialogue and performance as a function of brokered versus conventional approaches to interpretation in service-oriented tasks that vary in difficulty and structure. One major goal of this study is characterization of the differences between brokered and conventional interpretation. Another main goal is evaluation of how well different tasks are handled by these two approaches to interpretation. A secondary goal is assessment of the extent and sources of individual differences in preference to use the brokered versus conventional interpretation approach. Based on information collected from professional interpreters, it is hypothesized that tasks perceived to be difficult will require more brokering, and therefore will be handled more accurately and efficiently with a pure brokered approach, while less difficult tasks may be handled adequately using the conventional approach. Furthermore, since this research involves telephone interpretation focusing on tasks, which speakers perceive to be intrinsically difficult for many reasons, natural brokering initiations are expected to intrude during the conventional interpretation condition. To the extent that this occurs, a mixed brokering model will have been demonstrated to fit the data more closely than a conduit model for this type of interpretation. In this case, a specification will be given of the proportion of brokering that occurs as a function of task and individual

52

differences, and comparisons will be made between conditions that essentially function as mixed versus pure brokering.

To compare the characteristics and effectiveness of brokered and conventional interpretation strategies for different tasks, a mixed factorial design with repeated measures is proposed. Translation method (brokered, conventional) and task difficulty (easy to hard) will be the within-subject factors, and sex (female, male) and job role (clerk, client) will be the between-subject factors. Translation method and task difficulty are selected as within-subject factors, because the proposed main goals of the study entail looking for a main effect on the first factor (translation method) and for an interaction between the first and second factors (translation method and task difficulty). The proposed experimental design offers a reduction in the variance associated with these factors, and a subsequent increase in experimental power in a manner tailored to the main goals of the study.

Each subject will be instructed to use either a brokered or conventional approach with a human interpreter to accomplish different tasks over the telephone. After completing these tasks, subjects' preference for the two interpretation methods will be assessed, and then appraisals of the two methods will be collected based on their experiences with different types of tasks. Comparisons of subjects' dialogue and performance in different conditions will be based on a comprehensive evaluation of the experimental tasks. This will include measures of time to task completion, miscommunications and repairs, indices of cooperative planning, speech acts, linguistic indirection, confirmations, speaker preference and satisfaction with the two interpretation methods, evidence of brokering during the conventional interpretation condition, and linguistic markers of brokering activity. This study will focus on an analysis of the results from American English native speakers.

Through data collection in the context of the proposed empirical framework, it will be possible to elucidate the influence of one's overall approach to interpretation on dialogue structure and human performance, as well as the suitability of different interpretation strategies for accomplishing different types of tasks. Ideally, the results of this type of experiment will assist in clarifying the dynamics and potential utility of different models of telephone interpretation. In addition, such experimental results can provide a firmer empirical foundation for the design of accurate and robust automatic interpretation systems. This can be accomplished by offering test cases of the more frequent and important phenomena that theoretical work needs to accommodate, and by supplying a basis for constructing and improving algorithms and system design more generally.

6 Conclusion

The present report examines the nature and organization of interpreted communication with the goal of providing a conceptual foundation for understanding brokering. Interpreters reported that they often found it necessary to take verbal initiative in the form of brokered subdialogues to expedite the communication goals of the primary speakers. Their descriptions indicated that brokering is a frequent, naturally occurring behavior in which they engage to varying degrees in different circumstances. Furthermore, brokering supports the production of high quality interpretation in a number of vital ways.

A discussion also is provided of interpreters' basic strategies for resolving three predominant types of disruptive miscommunication among Japanese and English speakers. A detailed analysis is offered of the basis and consequences of these communication difficulties for human interaction. A major source of two of these types of miscommunication, which occur during requests for action, is the mismatch between Japanese and English speakers in linguistic indirection. Another source of communicative difficulty is speaker uncertainty about whether the listener has comprehended the message at all, which is generated in part by blockage or alteration of the speakers' system of mutual confirmation. Brokering is a major vehicle that interpreters use to expedite resolution of all three of the described obstacles to high quality Japanese–English interpretation.

Finally, the implications of these research findings are considered for the design of an automatic system. Goals and strategies are specified for creating a system that manages miscommunications by incorporating strategic brokering capabilities, either in pure or in mixed form. Such a system must be based on adequate recognition of communicative intent. Detailed consideration is given to system capabilities for handling indirection and confirmation as sources of difficulty during Japanese–English exchanges. A plan is described for future empirical research that is designed to provide a more comprehensive and controlled assessment of dialogue structure and human performance during brokered and conventional interpretation.

The research reported here represents an initial exploratory step to collect information about naturalistic human interpretations, using professional interpreters as informants. Methodologists advise that it is wise to anchor any research program in careful qualitative observations collected from naturalistic or quasi-naturalistic field settings (Bronfenbrenner, 1979; Cole, Hood, McDermott, 1978; Tunnell, 1977). By building from naturalistic observation to simulations or other more controlled experimentation, researchers are in a better position to isolate major phenomena for inclusion as factors in their experimental designs, while at the same time introducing the most appropriate and necessary controls. This approach ultimately enhances the external validity of research results. In addition, the variety of research methods included in this unfolding progression of studies makes it

possible to test for convergence of results on the more important research propositions.

In the present investigation, several aspects of face-to-face Japanese–English interpreted communications have been studied, since telephone interpretation is not widely available and automatic systems for telephone interpretation have yet to be prototyped. In contrast, face-to-face interpretation is a relatively practiced form of communicating for many people, involving highly organized conventions and patterns of behavior. For this reason, it provides a valuable avenue for gathering preliminary qualitative information on the more common disruptive miscommunications that any automatic system will have to accommodate. It also provides an opportunity to examine effective interpreter techniques for resolving miscommunications that could be modeled or adapted for incorporation into an automatic system.

The design of a telephone system capable of automatically interpreting Japanese–English conversations will depend on close cooperation among researchers representing different disciplines and different cultures. Before optimal design features can be determined, a great deal more needs to be learned about human language and performance during interpretation, during use of the telephone modality, and with speakers as culturally and linguistically discrepant as Japanese and Americans. In order to design for acceptance and effective use of such a complex information system, empirical research will need to supply comprehensive analyses of behavior in actual tasks. During system development, this performance information can be collected by first evaluating behavior using currently available methods for accomplishing the task, which may or may not be system based. Later, human performance can be assessed using good quality, naturalistic simulations. Finally, use of actual system prototypes can be tested as different versions become available.

7 Acknowledgments

References

[1] J. F. Allen. *A Plan-Based Approach to Speech Act Recognition.* Technical Report 131, Department of Computer Science, University of Toronto, Toronto, Canada, January 1979.

[2] J. F. Allen and C. R. Perrault. Analyzing intention in dialogues. *Artificial Intelligence*, 15(3):143–178, 1980.

[3] D. Appelt. *Planning Natural Language Utterances to Satisfy Multiple Goals.* PhD thesis, Stanford University, Stanford, California, December 1981.

[4] M. Argyle. *Bodily Communication.* Methuen, London, U. K., 1981.

[5] J. L. Austin. *How to do things with words.* Oxford University Press, London, 1962.

[6] T. Blass and A. W. Siegman. A psycholinguistic comparison of speech, dictation and writing. *Language and Speech*, 18:20–34, 1975.

[7] R. H. Blyth. *Haiku, Volume 2: Spring.* The Hokuseido Press, Tokyo, Japan, 1981.

[8] M. Bratman. *Intentions, Plans, and Practical Reason.* Harvard University Press, 1987.

[9] U. Bronfenbrenner. *The ecology of human development: Experiments by nature and design.* Harvard University Press, Cambridge, Massachusetts, 1979.

[10] J. S. Brown and S. E. Newman. Issues in cognitive and social economics: From our house to Bauhaus. *Human-Computer Interaction*, 1:359–391, 1985.

[11] B. Butterworth, R. R. Hine, and H. D. Brady. Speech and interaction in sound-only communication channels. *Semiotica*, 20(1-2):81–99, 1977.

[12] W. L. Chafe. Integration and involvement in speaking, writing, and oral literature. In D. Tannen, (Ed.), *Spoken and Written Language: Exploring Orality and Literacy*, Chapter 3, pages 35–53, Ablex Publishing Corporation, Norwood, N. J., 1982.

[13] A. Chapanis, R. N. Parrish, R. B. Ochsman, and G. D. Weeks. Studies in interactive communication: II. the effects of four communication modes on the linguistic performance of teams during cooperative problem solving. *Human Factors*, 19(2):101–125, April 1977.

[14] P. M. Clancy. Written and spoken style in Japanese narratives. In D. Tannen, (Ed.), *Spoken and Written Language: Exploring Orality and Literacy*, Chapter 4, pages 55–76, Ablex Publishing Corp., Norwood, New Jersey, 1982.

[15] H. H. Clark and D. Wilkes-Gibbs. Referring as a collaborative process. *Cognition*, 22:1–39, 1986.

[16] C. H. Clarke and K. Kanatami. Turn-taking in small group discussions: A cross-cultural study. *Language Lab.*, 17(1):12–24, 1980.

[17] P. R. Cohen. *Chapter 5: The Pragmatics/Discourse Component, Research in Natural Language Understanding*. Technical Report 4274, Bolt Beranek and Newman, Inc., Cambridge, Masschusetts, August 1979.

[18] P. R. Cohen. *On Knowing what to Say: Planning Speech Acts*. PhD thesis, University of Toronto, Toronto, Canada, January 1978. Technical Report No. 118, Department of Computer Science.

[19] P. R. Cohen. The pragmatics of referring and the modality of communication. *Computational Linguistics*, 10(2):97–146, April-June 1984.

[20] P. R. Cohen and H. J. Levesque. *Persistence, Intention, and Commitment*. Technical Report 415, Artificial Intelligence Center, SRI International, Menlo Park, California, February 1987. Also appears in *Proceedings of the 1986 Timberline Workshop on Planning and Practical Reasoning*, Morgan Kaufman Publishers, Inc. Los Altos, California.

[21] P. R. Cohen and H. J. Levesque. Rational interaction as the basis for communication. In P. R. Cohen, J. Morgan, and M. E. Pollack, (Eds.), *Intentions in Communication*, M.I.T. Press, Cambridge, Massachusetts, 1988.

[22] P. R. Cohen and C. R. Perrault. Elements of a plan-based theory of speech acts. *Cognitive Science*, 3(3):177–212, 1979. Reprinted in *Readings in Artificial Intelligence*, Morgan Kaufman Publishing Co., Los Altos, California, B. Webber and N. Nilsson (Eds.), pp. 478-495., 1981.

[23] P. R. Cohen, C. R. Perrault, and J. F. Allen. Beyond question answering. In *Strategies for Natural Language Processing*, pages 245–274, Lawrence Erlbaum Assoc., Englewood Cliffs, N. J., 1982. Also appears as Technical Report No. 4644, Bolt Beranek and Newman, Inc., Cambridge, MA, May, 1981.

[24] M. Cole, L. Hood, and R. McDermott. Ecological niche picking: Ecological invalidity as an axiom of cognitive psychology. 1978. Working paper, Laboratory of Comparative Human Cognition, Rockefeller University.

[25] L. T. Doi. *The Anatomy of Dependence*. Kodansha International, New York, New York, 1981.

[26] L. T. Doi. The Japanese patterns of communication and the concept of amae. In L. A. Samovar and R. E. Porter, (Eds.), *Intercultural Communication: A Reader*, pages 188–193, Wadsworth Publishing Company, Inc., Belmont, California, 1976. 2nd Edition.

[27] H. P. Grice. Meaning. *Philosophical Review*, 66:377–388, 1957.

[28] P. R. Harris and R. T. Moran. *Managing Cultural Differences*. Gulf Publishing Company, Houston, Texas, 2nd edition, 1987.

[29] G. G. Hendrix and B. A. Walter. The intelligent assistant. *Byte*, 251–258, December 1987.

[30] B. Hill, S. Ide, S. Ikuta, A. Kawasaki, and T. Ogino. Universals of linguistic politeness: Quantitative evidence from Japanese and American English. *Journal of Pragmatics*, 10:347–371, 1986.

[31] J. Hinds. Conversational structure: An investigation based on Japanese interview discourse. In J. Hinds and I. Howard, (Eds.), *Problems in Japanese Syntax and Semantics*, pages 79–121, Kaitakusha, Tokyo, 1978.

[32] J. Hinds. Intrusion in Japanese conversation. *Papers in Linguistics*, 16(1):3–33, 1983.

[33] J. Hinds. Misinterpretations and common knowledge in Japanese. *Journal of Pragmatics*, 9(1):7–19, 1985.

[34] N. Holden. The Japanese language: A partial view from the inside. *Multilingua*, 2(3):157–166, 1983.

[35] H. Iida, K. Kogure, I. Nogaito, and T. Aizawa. *Analysis of telephone conversations through an interpreter*. Technical Report TR-I-002, ATR Interpreting Telephony Laboratories, Twin 21 Bldg. MID Tower, 2-1-61 Shiromi, Higashi-ku, Osaka 540 Japan, May 1987.

[36] E. A. Isaacs and H. H. Clark. References in conversation between experts and novices. *Journal of Experimental Psychology: General*, 116(1):26–37, 1987.

[37] H. Kautz. A circumscriptive theory of plan recognition. In P. R. Cohen, J. Morgan, and M. E. Pollack (Eds.), *Intentions in Communication*, M.I.T. Press, Cambridge, Massachusetts, in preparation.

[38] R. M. Krauss and S. Weinheimer. Concurrent feedback, confirmation, and the encoding of referents in verbal communication. *Journal of Personality and Social Psychology*, 4(3):343–346, 1966.

[39] R. M. Krauss and S. Weinheimer. Effect of referent similarity and communication mode on verbal encoding. *Journal of Verbal Learning and Verbal Behavior*, 6:359–363, 1967.

[40] J. Laver. Communicative functions of phatic communion. In A. Kendon, R. M. Harris, and M. R. Key, (Eds.), *Organization of Behavior in Face-to-Face Interaction*, pages 215–238, Mouton, The Hague, 1975.

[41] T. S. Lebra. Nonconfrontational strategies for management of interpersonal conflicts. In E. S. Krauss, T. P. Rohlen, and P. G. Steinhoff, (Eds.), *Conflict in Japan*, Chapter 3, pages 41–60, University of Hawaii Press, Honolulu, Hawaii, 1984.

[42] T. S. Lebra. *Japanese Patterns of Behavior*. East-West Center, Honolulu, 1976.

[43] D. J. Litman and J. F. Allen. A plan recognition model for subdialogues in conversation. *Cognitive Science*, 11:163–200, 1987.

[44] L. J. Loveday. Japanese sociolinguistics: An introductory study. *Journal of Pragmatics*, 10:287–326, 1986.

[45] S. Martin. *A Reference Grammar of Japanese*. Yale University Press, New Haven, Connecticut, 1975.

[46] S. K. Maynard. On back-channel behavior in Japanese and English casual conversation. *Linguistics*, 24:1079–1108, 1986.

[47] N. H. McGloin. Some politeness strategies in Japanese. *Papers in Linguistics*, 16(1):127–145, 1983.

[48] M. L. McLaughlin and M. J. Cody. Awkward silences: Behavioral antecedents and consequences of the conversational lapse. *Human Communication Research*, 8:299–316, 1982.

[49] J. L. Morgan. Two types of convention in indirect speech acts. In P. Cole, (Ed.), *Syntax and Semantics, Volume 9: Pragmatics*, pages 261–280, Academic Press, New York City, New York, 1978.

[50] C. Nakane. *Japanese Society*. University of California Press, Berkeley, California, 1970.

[51] E. A. Nida. A framework for the analysis and evaluation of theories of translation. In R. W. Brislin, (Ed.), *Translation: Applications and Research*, Gardner Press, New York, 1976.

[52] E. A. Nida and C. R. Taber. *The Theory and Practice of Translation*. Brill, Leiden, 1982.

[53] R. R. Noguchi. The dynamics of rule conflict in English and Japanese conversation. *International Review of Applied Linguistics in Language Teaching*, 25(1):15–24, 1987.

[54] S. L. Oviatt and P. R. Cohen. The effects of interaction on spoken discourse. In J. W. Sullivan and S. W. Tyler, (Eds.), *Architectures for Intelligent Interfaces: Elements and Prototypes*, Addison-Wesley Publishing Co., Menlo Park, California, in preparation.

[55] C. R. Perrault. An application of default logic to speech act theory. In P. R. Cohen, J. Morgan, and M. E. Pollack, (Eds.), *Intentions in Communication*, M.I.T. Press, Cambridge, Massachusetts, in preparation.

[56] C. R. Perrault and J. F. Allen. A plan-based analysis of indirect speech acts. *American Journal of Computational Linguistics*, 6(3):167–182, 1980.

[57] M. E. Pollack. A model of plan inference that distinguishes between the beliefs of actors and observers. In *Reasoning about Actions and Plans: Proceedings of the 1986 Conference at Timberline Lodge*, pages 279–296, Morgan Kaufman Publishers, Inc., Los Altos, California, 1986.

[58] M. E. Pollack. Plans as complex mental attitudes. In P. R. Cohen, J. Morgan, and M. E. Pollack, (Eds.), *Intentions in Communication*, M.I.T. Press, Cambridge, Massachusetts, in preparation.

[59] S. Ramsey. Double vision: Nonverbal behavior east and west. In A. Wolfgang, (Ed.), *Nonverbal Behavior: Perspectives, Applications, and Intercultural Insights*, C. J. Hogrefe, Inc., Lewiston, N. Y., 1984.

[60] W. J. Samarin. Language of silence. *Practical Anthropology*, 12:115–119, 1965.

[61] S. Schiffer. *Meaning*. Oxford University Press, London, 1972.

[62] J. R. Searle. *Speech acts: An essay in the philosophy of language*. Cambridge University Press, Cambridge, 1969.

[63] R. D. Shaw. The translation context: Cultural factors in translation. *Translation Review*, 23:25–29, 1987.

[64] D. Shen. Fidelity versus pragmatism. *Babel*, 31(3):134–37, 1985.

[65] J. S. Shibamoto. Subject ellipsis and topic in Japanese. *Papers in Linguistics*, 16(1):233–265, 1983.

[66] B. Shneiderman. *Designing the User Interface: Strategies for Effective Human-Computer Interaction.* Addison-Wesley Publishing Co., Reading, Massachusetts, 1987.

[67] C. L. Sidner. Plan parsing for intended response recognition in discourse. *Computational Intelligence*, 1(1):1–10, 1985.

[68] D. Small and L. Weldon. An experimental comparison of natural and structured query languages. *Human Factors*, 25:253–263, 1983.

[69] K. Takami. Anaphora in Japanese. *Journal of Pragmatics*, 11(2):169–191, 1987.

[70] G. Tunnell. Three dimensions of naturalness: An expanded definition of field psychology. *Psychological Bulletin*, 84:426–437, 1977.

[71] J. A. Turner, M. Jarke, E. A. Stohr, Y. Vassiliou, and N. White. Using restricted natural language for data retrieval: A plan for field evaluation. In Y. Vassiliou, (Ed.), *Human Factors and Interactive Computer systems*, Chapter 8, pages 163–190, Ablex Publishing Corp., Norwood, N. J., 1984.

[72] H. F. Van Zandt. How to negotiate in Japan. In L. A. Samovar and R. E. Porter, (Eds.), *Intercultural Communication: A Reader*, pages 307–319, Wadsworth Publishing Company, Inc., Belmont, California, 1976. 2nd ed.

[73] A. F. VanKatwijk, F. L. VanNes, H. C. VanBunt, H. F. Muller, and F. F. Leopold. Naive subjects interacting with a conversing information system. *IPO Annual Progress Report*, 14:105–112, 1979.

[74] M. Vasconcellos. A functional model of translation: Humor as the case in point. *Babel*, 31(3):134–145, 1986.

[75] E. Vogel. The go-between in a developing society: The case of the Japanese marriage arranger. In G. K. Yamamoto and T. Ishida, (Eds.), *Selected Readings in Modern Japanese Society*, Chapter 1, pages 1–15, McCutchan Publishing Corporation, Honolulu, Hawaii, 1971.

[76] Y. Watanabe. Two kinds of ellipsis in Japanese discourse: A quantitative text study. *Studies in Language*, 10(2):337–351, 1986.

[77] A. Wierzbicka. A semantic metalanguage for a crosscultural comparison of speech acts and speech genres. *Language in Society*, 14(4):491–514, 1985.

[78] C. E. Wulfman, E. A. Isaacs, B. L. Webber, and L. M. Fagan. Integration discontinuity: Interfacing users and systems. In J. W. Sullivan and S. W. Tyler, (Eds.), *Architectures for Intelligent Interfaces: Elements and Prototypes*, Addison-Wesley Publishing Co., Menlo Park, California, in preparation.

A   Appendix: Interpreter Interview

We are interested in identifying and studying successful interpretation strategies that interpreters use in different situations. Our particular research project focuses on Japanese–English exchanges in everyday business contexts, like making hotel reservations or registering for a conference, where people are interested in accomplishing a task.

To help guide us in our research efforts, we would like to ask you some questions based on your experience and views as an interpreter of Japanese/English exchanges. Since we are conducting exploratory research, and are not advocates of one interpretation strategy over another, any answers that you provide will be very helpful.

Thank you for agreeing to be interviewed! Interdisciplinary cooperation among various language specialists like yourself is very much needed to advance our understanding of basic issues in interpretation. All information that you provide during the interview will remain confidential, and we will be happy to debrief you about the results of our research once it is completed.

Background:

1. Work address:

Are you currently working as an interpreter? Teaching others interpretation? Could you please give me a brief description of your current work responsibilities?

2. How did you obtain your training in interpretation? In Japanese/English language and culture?

3. How many years have you worked in this field? What has your past experience been

as an interpreter?

4. With what type of interpretation are you most experienced? Languages?

    Domain (business, legal/technical, etc.)?

    Typical participants & settings?

"Cultural buffering" and "brokering" in interpretation:

1. We are interested in learning more about interpretation strategies that you may have used in different situations in order to minimize misunderstandings and communicate efficiently. We are particularly interested in situations where you may have felt it was necessary to depart from a strictly literal interpretation approach in order for the two participants to understand one another clearly. Can you give examples of instances where you felt it was necessary to rephrase or alter a message so that it would be understood? (In your examples, please include a description of the situation, characteristics of the speakers, and type of dialogue under way)

Has this been an infrequent or frequent occurrence?

2. Can you recall situations in which some sort of miscommunication, or perhaps even a communication breakdown, occurred between the participants? Please describe the situation and how you dealt with it.

3. When you are interpreting, what do you usually do when the listener doesn't appear to understand what is being said?

Do you ever rephrase or explain your interpretation?

Spontaneously stop to confirm whether the listener is understanding by asking if you should proceed?

Ask the listener if the message was clear, and if they understood it?

Ask an indirect question to confirm the listener's understanding?

4. Have you ever asked a speaker for clarification before proceeding with an interpretation, in order to ensure accuracy?

5. As an interpreter, have you ever been asked by your client to provide feedback or advice about an interpretation, or to "read between the lines" with respect to what the other party intended or wanted? How did you handle this request, and what type of information did you provide?

About what aspects of the communication have your Japanese clients most frequently sought advice?

American clients?

6. Can you recall situations in which you acted as an intermediary or "broker" between two speakers? By "brokering" we mean a situation in which you found out the client's specific needs (e.g., to make hotel reservations in an unfamiliar foreign country for a disabled scholar requiring special services), and then transacted directly with the hotel reservations clerk for the most suitable arrangements available. If so, please describe the situation(s).

How frequently have you functioned as a broker?

When do you think brokering is an appropriate or useful strategy?

What do you think the advantages are of a brokered approach?

What do you think the disadvantages/limitations are of such an approach?

Would you say that professional interpreters are generally encouraged or discouraged from using a brokered approach during business transactions?

Why?

Special issues in Japanese/English interpretation:

1. We are interested in hearing about problems encountered frequently during Japanese/English interpretation. What types of miscommunications have you encountered most often be-

tween Japanese and English speakers?

How do you usually avoid or handle these problems?

2. Many people have observed that the Japanese language is more indirect than English, and that this reflects fundamental differences between the two cultures in communication style. In your experience as an interpreter, what differences have you noticed between Japanese and English clients in how verbally direct/indirect they tend to be?

Have you noticed any of these differences leading to confusion or misunderstanding between Japanese and English speakers during interpreted conversations?

How do you usually handle these differences in verbal directness when you interpret between Japanese and English?

3. Pretend that you're acting as an interpreter for a Japanese scholar who wants to register himself and some colleagues for an international conference that is being held in the U.S. During the conversation, your Japanese client says, "We are a large party. We are 10 people." Then he pauses. You know that his goal is to be considered for a discount rate, and that he is indirectly requesting information about a discount. Although another Japanese would recognize this immediately and provide the appropriate information, the American conference registrar does not recognize or respond at all. There is a period of silence. As the interpreter, would you react to this situation? If so, what would you say?

At another point in the conversation, your Japanese client says, "We will send you abstracts by the due date so that, please." The American conference registrar responds, "Um hum, okay." You know that your client needs information about guidelines for submissions, although he does not ask for this information directly, and the registrar does not offer it. You have the impression that the American thinks the conversation has ended. As the interpreter, would you respond? What would you say?

Now suppose that you are interpreting for an American scientist who has contracted to conduct research on cell biology for a Japanese corporation. He presents his Japanese colleagues with research results, which are well received, and afterwards meets with upper-level managers to offer an expanded research plan that requires tripling his budget for the

following year. The Japanese appear surprised, and after a period of silence one manager replies, "We will look into this possibility for the near future." Your American client looks delighted, and offers to prepare a major proposal. Under the circumstances, you believe the Japanese manager's response was clearly negative, and you know that your American client would spend several months of valuable time writing such a proposal. As the interpreter, would you react in this case? If so, what would you say?

4. Have you noticed differences in the extent of linguistic indirection that Japanese address to other Japanese, by comparison with their speech to Americans?

Have you noticed any tendency for Japanese to "code switch" to more direct speech to Americans? Under what circumstances?

5. Are there any written references or local authorities that you would recommend to us on successful interpretation techniques or other issues raised by this interview?

6. Do you have any additional comments, either about the issues we have raised, or about the interview itself?