PAPERS FROM THE ELEVENTH REGIONAL MEETING
CHICAGO LINGUISTIC SOCIETY

APRIL 18-20, 1975

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The Intonational Disambiguation of Indirect Speech Acts*

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Sentences don't always mean what they say. In particular, they aren't always used to perform the speech act which their form makes them best fit for. By now it's a commonplace observation that sentences with the syntactic form of yes/no questions can be used to make requests, as in (1), or that sentences with the syntactic form of *wh*-questions can be used to make statements, as in (2), or suggestions, as in (3), and so forth:

(1) Would you stop hitting Gwendolyn?

(2) Who ever said anything about Gwendolyn?

(3) Why don't you move to California?

There is some disagreement as to whether a case like (2) is literally and conventionally a statement, or whether it is first and foremost a question, from the nature of which the hearer is expected to infer a statement. We will not address ourselves directly to this issue; the point of this paper is to discuss how the way in which such sentences are said, their intonation, is related to their intended usage.

We began this investigation as a result of some remarks made by John Searle in a talk that he gave at the 1974 Linguistic Institute, on the topic of Indirect Speech Acts (which is his term for the non-question usages of cases like (1)-(3), as well as for other cases which we won't deal with in this paper). Searle suggested that the indirect versions of such sentences are intonationally different from the direct versions, in some way, and asked for help from linguists in pinning the differences down.

From the beginning, we felt that there were real and characteristic differences. Although, for a given sentence, certain intonations are perfectly well suited to either type of usage, others are perfectly good in one case, but inappropriate in the other.

For example, if two persons, say Aesop and Baldwin, were walking down the street, and Baldwin caught sight of a restaurant that was new to him, and wanted to know who was responsible for this new addition to their neighborhood, he might turn to Aesop and say:

(4a) Who opened the restaurant?
However, if our two characters were joint proprietors of the establishment, and furthermore Aesop had accused Baldwin of having opened for business on a day they were supposed to stay closed, Baldwin might deny the accusation by saying:

(4)b Who opened the restaurant?

If in response to the accusation, Baldwin were to say (4a), then whatever he might be doing, it would certainly not be the painless and obvious denial accomplished by (4)b. In order to understand how and why these particular patterns work in the way they do on these particular sentences, we spent considerable time investigating the intonation of yes/no questions in general, wh-questions in general, and other relevant categories. In this paper, however, we will restrict our attention to the question raised by Searle, even though our discussion will presuppose some more general ideas which we don't have the space to develop here. We will try to show that there are ways to intonationally disambiguate direct vs. indirect usages of questions; to give a systematic description of the disambiguating factors; to explain why these factors should have the effect that they do.

1.1 What are the disambiguating intonations we're talking about? First of all, there is a way of saying wh-questions which makes them unambiguously "real" questions; its use in contexts suggesting Indirect Speech Act usage is quite strange. Since a frequency/time graph for this contour looks like an elongated tilde, we'll refer to this as the TILDE contour. (4)a was an example of the TILDE contour, and (4)b was, as we saw, quite inappropriate as a negative-implicating rhetorical question. (5) is another example of the TILDE contour. Said in this way, (5) is not appropriate as a suggestion:

(5) Hey Baldwin, the climate here is really bad for you! I've got a suggestion—

Why don't you move to California?

The TILDE contour has the following tonological characteristics:

1. High pitch on the wh-word (and associated elements). The utterance may begin on a mid pitch and rise to this high, or it may begin high.
2. A fall to low pitch on the next major stress of the utterance.
3. A rise in pitch on the last syllable of the utterance.

To show that the initial high pitch is associated with the wh-word, rather than simply occurring at the beginning of the utterance, we consider the case of wh-questions with initial prepositions, which sound strange with high pitch initially rather than on the wh-word, as in (6).

(6) With respect to which aspect of the problem are you most upset??

To show that the medial low pitch is associated with stress, rather than lack of stress, we consider cases like those in (7):

(7)a Who opened the HUNGARIAN restaurant?

b Who opened the HUNGARIAN restaurant?

If we attempt to contrast the adjective Hungarian in the wh-question "who opened the HUNGARIAN restaurant," said with a TILDE contour, we must maintain (or even reinforce) the low pitch on the stressed syllable, as in (7)a. If we try to realize this stress in the more familiar mode, with a pitch prominence, as in (7)b, the result is very strange.

Why should this TILDE contour have the effect of forcing wh-questions to be "real" questions? We have two extremely speculative suggestions to offer.

Speculation 1:

We observe that the same contour is possible on greetings (as in (8)a), assents (as in (8)b), and so forth.

(8)a Hello, Baldwin!
b That's a great idea!

A greeting said in this way is more jovial, expansive, and in general just plain more of a greeting; likewise an assent is more assenting. Perhaps the TILDE contour, in these cases, has the effect of "illocutionary intensification," making an utterance of type X "more of an X," thus making questions "more of a question."

Speculation 2:

The TILDE contour on wh-questions is somewhat similar to what we called the "contradiction contour" in an earlier paper. An example of the contradiction contour would be something like (9):

(9) Elephantiasis isn't incurable!

However, there are important tonological differences between the contradiction contour on declaratives and the TILDE contour on wh-questions. In particular, the normal realization of stress inside the contradiction contour will be precisely the familiar pattern that is so strange in examples of the TILDE contour like (7)b above. Also, as the contour in (9) clearly shows, the initial high pitch of the contradiction contour is not associated with the word stress of elephantiasis. Rather, it is
linked to the initial boundary of the utterance. This is not the case with the TILDE contour, which associates the initial high pitch with the stressed wh-word (whence the unacceptability of (6) above).

Despite these clear differences, it is interesting to note that both of these contours are quite literal-minded. For example, certain sentential matrices, such as "I'm afraid that..." can be parenthetical (or "adsentential"). Thus if one says, with almost any intonation in fact, "I'm afraid that you didn't pass the test", one may be talking not about one's fears, but about the test results. The contradiction contour, however, renders this sentence unambiguously a statement about one's state of mind.

Having apologized for the inconclusive nature of these remarks, let us turn to other ways to say wh-questions. One general class of wh-question intonations can be schematized as in (10), a shape which looks roughly like a hat.

(10) Who opened the restaurant?

Hence, we will call this class the hat contour, for the sake of having a convenient name. These intonations may be characterized by:
1. A high pitch on the wh-word, optionally with a rise from an initial mid or low pitch.
2. The high pitch on the wh-word spreads to the right until a major stress is reached, and
3. After this first major stress, the pitch falls.

In the cases we will consider in this paper, this first major stress is also the last major stress, so that what happens in the more complex cases may safely be ignored. The stress-linked fall (at b in the schema in (10)) may occur immediately after the wh-word, as in (11)a:

(11)a Who opened the restaurant?

or it may be postponed until after quite a long stretch of high pitch:

(11)b Who opened the new Hungarian restaurant on the corner of Boylston street?

In general, almost any version of this "hat" contour may conceivably serve either for a real wh-question or for a negative-implicating rhetorical question, suggestion, etc. However, if the pitch at b in the schema in (10) is markedly higher than the pitch at a, then there is a fairly strong tendency for the utterance to be interpreted as something other than a real question, as in examples (2), (3), and (4)b above.

As we will see later on, this observation can be confirmed experimentally.

Such an observation is of some interest in and of itself; it helps to answer the question with which we began, "How are the intonations of indirect speech acts characteristically different from those of their direct counterparts?" However, we should not be satisfied to leave the matter there—the observation that intonation A has pragmatic effect B does not show even that there exists an entry A in the intonational lexicon, nor yet that if such an entry does exist, its "meaning" is B. The effect B may be achieved indirectly (e.g. by interaction with other elements of the utterance and with the context), the meaning being something rather different; and it is possible that the observed "intonation" may represent the interaction of several unrelated factors, being itself not a linguistic unit at all.

As a matter of fact the "contour" observed in examples (2), (3), and (4)b above is subject at least to the conclusion that its connection with the effect of "indirectness" is an indirect one. It also may not be a significant linguistic unit—for example it may simply be a version of the "hat" contour, modified, say, by some process which links to prominence to pragmatic importance.

However, for purposes of discussion, let's assume that the contour of these examples is a significant unit. To give an adequate descriptive characterization of this contour is beyond the scope of this present paper. For now we will simply observe:
1. The presence of a low pitch near the beginning of the utterance, in association with a stressed syllable;
2. The presence of a high pitch associated with the last major stress of the utterance, with a subsequent abrupt fall;
3. Various ways of getting from the low pitch in 1. to the high pitch in 2. without any significant stretches of negative frequency/time slope.

These features are schematized in (12):

(12) ...X..............X........

(stress) (stress)

Intonations with the characteristics schematized in (12) can be found on many different classes of utterance—if we consider a few such cases, certain generalizations about the use of this contour will emerge which can help us to understand its effect in the case of wh-questions.

Consider a simple declarative sentence, as in (13), said with the contour we've been discussing:

(13) The blackboard is painted orange.

There are two kinds of circumstances in which this would be an appropriate way to say sentence (13):

1. where the speaker is expressing surprise—e.g. walks into the room,
observes the paint job, and exclaims "my god—the blackboard's painted orange!"
2. where the speaker is suggesting that the utterance is redundant or unnecessary—e.g. Question "What color is the blackboard?" Answer "I've told you a thousand times—" or "just open your eyes and look—the blackboard is painted orange!"

The reader is invited to work through a few examples to demonstrate that the appropriate contexts for such utterances are those that involve either surprise or redundancy, as opposed to, say, exasperation or vehemence.

These twin (and in some ways rather opposite) implicatures of surprise and redundancy are also to be found in imperatives:

(14)a Go open the door! (I shouldn't even have to tell you...) b Well, butter my parsnips! (I never would've believed it.)

The same holds true of wh-questions:

(15)a (Albert walks into Sam's room, observes beautiful oriental carpet, and asks in amazement ••• ) Where'd you get the rug? b (Sam and Albert have been discussing Sam's new rug. Albert suggests that Sam ought to get some matching runners. Sam asks well how can he find anything to match. Albert says...) Where'd you get the rug? (Obviously they would have more of the same stuff.)

Both (15)a and (15)b are real questions—the speaker doesn't know the answer, believes the hearer does, and wants to be told. But in (15)a the speaker is expressing surprise, while in (15)b he seems to be expressing the idea that his utterance is unnecessary.

One very common circumstance in which a wh-question is used to make a statement is in the kind of context mentioned in section 0 above, in which a statement or suggestion is made which the speaker regards as preposterous, and which (a)he attempts to dismiss by using a negative-implicating wh-question. In this kind of circumstance the wh-question is clearly felt to be redundant, the idea being that its answer is so obvious that the occasion for asking should never have arisen. Thus the observed association of Indirect Speech Act wh-questions with the contour schematized in (13) arises because of their commonly-found secondary characteristic of redundancy, rather than the primary characteristic of indirectness. If we consider some Indirect Speech Act wh-questions which lack the feature of redundancy, the use of the intonation in (12) is ludicrous:

(16)a (Albert grunts, throws down the thesis he's reading, grins, and says...) When will I ever understand pseudoclefts?? b (Albert replaces the telephone in its cradle, walks to the window, and, looking out, says with a sigh...) Who can imagine the treachery man is capable of?

1.2 Now for questions of the yes/no type. There are ways of saying sentences of yes/no question form which make them unambiguously real questions. For example, the sentence "would you stop hitting Gwendolyn?" can be said as in (17)a. On the other hand, it might be said as in (17)b, which disposed in the direction of being an order or request.

(17)a Would you stop hitting Gwendolyn? b Would you stop hitting Gwendolyn?

In order to understand the nature of this distinction, it's necessary to say a few words about the intonation of yes/no questions in general. The familiar "rising" intonation characteristic of yes/no questions is differentiated from so-called "declarative intonation" in two ways. First, the major stresses in the declarative case are intentionally emphasized by a pitch accent which can be described as high-low or mid-high-low, while in the question cases, they are realized as low-high. Thus in a yes/no question a strong, e.g. contrastive, stress near the beginning of the sentence, which subordinates stresses to the right, will result in a nearly level high pitch being carried along from the stressed syllable to the final syllable of the utterance. Thus in a question like (18)a, the result of the contrast on you is that everything from you to friends is relatively level in pitch, and quite high.

(18)a Are YOU one of Gwendolyn's friends? b So YOU'RE one of Gwendolyn's friends.

This is strikingly different from what happens in a similarly stressed declarative, in which a level low pitch is carried along to the end of the sentence, as in (18)b.

In addition to this difference in the mode of realization of stress, there is a second, more familiar distinction between declaratives and yes/no questions—the latter typically bear rising pitch on the terminal syl-
able, while the former do not. This terminal-syllable rise is differentiated from the stress-realization rise (mentioned earlier) in two ways: first, it is not linked to stress, and second, it is not a rise from low pitch to high pitch, as in the stress-related rises in (17) and (18)a, but rather a rise from wherever the pitch happens to be (usually fairly high) to a still higher pitch. The presence or absence of this terminal rise is independent of the mode of stress realization. That intonation that renders a yes/no question least likely to be interpreted as a real question, is a contour that involves low-high stress realization, as usual, but where there is no terminal rise, yielding a level high which spreads from the last major stress to the end of the utterance, as in (17)b. This case must be kept distinct from the case in which a yes/no question is said with declarative intonation, i.e. mid-high-low stress realization and terminal fall. Said in this way, the sentence could perfectly easily be either a real question or a request.

This far, what we’ve tried to do is to state the problem and to give a brief sketch of our hypotheses. In the remainder of the paper, we will report on the results of some preliminary attempts to justify our claims experimentally.

2.1 To corroborate our intuitions about the appropriateness of various intoned utterances in various contexts, we recorded four subjects acting out various skits. We constructed these skits in pairs, so that it was clear that in one skit the question was being used as a real question, while in the other it was being used non-literally. For example:

(19)a Psychiatsirst: Are you willing to make some sacrifices so that we can proceed with your therapy?

Patient: I’m not sure.

(19)b Teacher: You children are behaving very badly. Myra, please stop running around. And Lennie, I’m not going to tell you again—would you stop hitting Gwendolyn?

In (19)a it is clear that the sentence would you stop hitting Gwendolyn? is being intended as a real question. The force of the same sentence in example (19)b is quite clearly indirect, i.e. that of a request or a command. Example (20) is another context pair:

(20)a Max: You know, Henry, the climate here is really bad for you. I’ve got a suggestion—why don’t you move to California?

b Max: Henry, I’m curious—why don’t you move to California? Is it because you don’t want to leave all your friends in Boston?

The underlined sentence is being used as a real question in (20)b, while in (20)a it is intended as a suggestion.
tour alone, and that (relatively) naive subjects are reliably able to perceive this disambiguation. We have made some suggestions as to the nature of the disambiguating factors:

1. The TILDE contour forces wh-questions to be real questions.
2. The contour schematized in (12) sometimes suggests, but never guarantees, that an utterance is not a real question.
3. In yes/no questions, a prominent final rise forces the utterance to be a real question.

These conclusions suggest the following hypothesis: some intonation contours can "freeze" an utterance pragmatically, i.e., require a literal interpretation, but no intonation contour can force an indirect interpretation.

Whether this turns out to be true even for English, or true more generally, awaits further research. We hope we've given an indication of how such research can proceed.

FOOTNOTES

*We are extremely indebted to Jonathan Allen of the Electrical Engineering Dept. at M.I.T. for the use of his facilities and to Haskins Laboratories for the use of their facilities to synthesize the stimuli used in our experiments. This research was supported in part by a grant from The National Science Foundation, and in part by grant 5 T01 HD00111 from The National Institutes of Health.

1. The wavy lines in our examples represent fundamental frequency against time, with a certain margin of error because of typewriter spacing.

2. For a more comprehensive treatment, see Liberman (in progress) and Sag (in progress).


4. Ibid., 423ff.

5. We feel that the relative lack of success of investigations of English intonation (compared to "conventional" phonological work) is due largely to the extreme difficulty of isolating the linguistic units involved. In the conventional domain of phonology, the question: "What are the linguistic segments (words, phones, etc.) that make up this example?" is relatively easy to answer, at least to a first approximation. In the area of intonation, this necessary first step seems to be a long one, although we are confident that it is a step in the right direction.


7. Thus it is appropriate to say, as a perfectly pleasant, unexasperated way to deliver a compliment:

(i) That's the most beautiful hat I've ever seen!

It's inappropriate, however, for a flunky to come to the podium at the expected hour of the presidential press conference, and say solemnly:

(ii) Ladies and gentlemen, the U.S has invaded Abyssinia.

(unless, of course, he means to express surprise or shock)

Conversely, it is appropriate to say (iii) as the most unvehement

(iii) It's under the bed.

"who-cares-what's-the-difference" way imaginative of answering a question concerning the location of some irrelevant and uninteresting object.

8. Another possibility is that the effect of redundancy is itself secondary. That is, perhaps this contour simply has a meaning of "surprise". Expressing surprise, under this account, would induce the effect that we have described as redundancy. For example, in the case of (15b), the implication: "This utterance is redundant, or unnecessary" could arise because the intonation of this utterance is expressing surprise at the very fact that it's necessary for the speaker to be asking such a question at all. Whatever the correct account may be, it will surely treat the redundancy cases and the surprise cases as a single phenomenon.

9. For further discussion along these lines, see Goldsmith (1974a, 1974b).

10. Both these facts and our account of them are consistent with Larry Horn's observation that "destressing", when accompanied by phonological reduction of the wh-word and the following auxiliary, as in: "[wa'fɔ:ra] move to..." strongly favors a non-literal interpretation, here, that of a suggestion.

11. We used synthetic, rather than natural speech in order to control for the effect of certain extremely poorly understood non-intonational factors such as "tone of voice".

12. For a detailed discussion of the non-intonational factors that induce a negative-implicating interpretation, see Griffin (1974).

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