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Responding to student questions : an analysis of teaching assistant discourse

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Robinson, Ann, M.A.

San Jose State University, 1991

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**RESPONDING TO STUDENT QUESTIONS:
AN ANALYSIS OF TEACHING ASSISTANT DISCOURSE**

A Thesis

Presented to

**The Faculty of the Division of Teacher Education
San Jose State University**

In Partial Fulfillment

**of the Requirements for the Degree
Master of Arts**

By

Ann Robinson

May, 1991

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APPROVED FOR THE UNIVERSITY

ABSTRACT

RESPONDING TO STUDENT QUESTIONS: AN ANALYSIS OF TEACHING ASSISTANT DISCOURSE

by Ann Robinson

The study, based on approximately 150 responses to student-generated questions, examines the information units and cohesive devices in teaching assistant (TA) discourse. Thirty-nine native (NS) and nonnative (NNS) English speaking TAs responded orally to four questions posed by undergraduates in a beginning economics course. To preserve the focus on discourse and avoid the distraction of variable pronunciation, the answers were transcribed and subsequently rated by undergraduate students. The results show that effective packaging of information, appropriate use of discourse markers, and the inclusion of repetition forms, e.g., synonyms, are the key components of successful answers. The study also reveals that while English speaking TAs provided the majority of the successful answers, they also supplied nearly half of the unsuccessful responses. This finding indicates that TA training programs, widely available for NNS TAs, need to include native English speaking TAs as well.

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numerous occasions, she directed my efforts to analyze the massive amounts of data. By rating some of the responses, providing a reliability check on the information units, and asking substantive questions, she contributed significantly to the integrity of the study.

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Chapter 1

Introduction

At major research universities, responsibility for much of the undergraduate teaching has fallen to graduate students serving as teaching assistants (TAs). During the past 20 years, student enrollments have increased while education budgets have decreased. Moreover, the demands on faculty to conduct research and publish their findings have intensified. Consequently, the traditional responsibilities of faculty to lecture, conduct discussions, hold office hours, read exams and papers, and assign final grades have been gradually turned over to apprentice instructors. Faculty continue to choose course material and present lectures. Their teaching assistants, however, serve as the actual tutors for individual students. TAs, then, are more involved in instruction than their title would indicate.

The teaching effectiveness of graduate student TAs became a national concern in the 1970s (Lnenicka, 1972; Staton-Spicer & Nyquist, 1979). In general, very few graduate students with teaching experience enter masters or doctoral programs. Most gain their first teaching experience as TAs in undergraduate courses. Thus, a substantial portion of undergraduate teaching is in the hands of inexperienced teachers. Many universities have begun to offer campuswide TA training programs that include pedagogical techniques to

enhance effective teaching (course and lesson planning, classroom management skills). In addition, some individual disciplines at research universities attempt to upgrade the quality of undergraduate instruction by conducting departmental TA training programs.

By the early 1980s, other training programs were established to accommodate the increasing number of nonnative English speaking graduate students serving as TAs. In addition to offering pedagogical techniques, these programs emphasize English language skills (pronunciation, fluency, communicative competence) and cultural awareness (American undergraduate student behavior, the system of higher education in the U.S.).

The teaching effectiveness of all TAs, native English speaking (NS) as well as nonnative English speaking (NNS), continues to be a highly publicized issue. *The Chronicle of Higher Education* reported that "teaching assistants may be responsible for teaching 25 percent of undergraduate classes, or an even bigger proportion" (November 29, 1989). The first national conference on the training and employment of teaching assistants was held in 1986 at Ohio State University. Conference topics included preparation of TAs for academic responsibilities, practical training approaches, and current policies concerning TA employment. Concern on the national level is recognized in individual universities. For example, the academic senate of the university where this study was conducted expressed concern over the quality of TA teaching, and so in May, 1989, adopted recommendations for improved selection, training, supervision, and evaluation of

teaching assistants.

TA training programs emphasize the multifaceted role of the teaching assistant as a lecturer, discussion leader, tutor, and grader. The topics addressed in these programs usually include planning and presenting course material, using audio visual aids, conducting office hours, and preparing and grading tests. The primary task in each of these roles is to explain course content. The teaching assistant may occasionally lecture on material not covered by the faculty member in charge of the course. The major portion of the TA's time, however, is spent clarifying the lectures by answering student questions in discussion sections, during office hours, and after exams. Evaluations of TAs, then, are usually based on the undergraduate's perception of how well the TAs answer questions. While many universities provide teaching manuals for TAs, they yield few guidelines on how to respond to student questions.

Research on TA performance has been focused on NNS TAs and has emphasized their limited communication skills. Researchers have investigated the overall performance of NNS TAs (Bailey & Hinofotis, 1980) and documented the inappropriate use of specific language devices by NNS TAs (Tyler et al., 1988). Others have reported on special courses designed for NNS TAs (see Bailey, 1984, for a review). Rounds (1987), for example, proposed discipline-specific training programs for NNS TAs based on her study of two NS TAs and three NNS TAs. Except for Rounds' analysis, no study has compared the effectiveness of NNS TAs with NS TAs. Furthermore, no study has examined actual TA responses to

student-initiated questions.

Focus of the Study

The ability to respond effectively to undergraduate questions is an important indicator of TA success. The salient question, then, is What is a good answer? In general, good answers are accurate in content and presented in intelligible language. Furthermore, good answers contain a sufficient amount of information that is appropriate to the audience and context. Finally, answers that exhibit transparent logical order are better than disorganized responses.

The focus of this study was on two of these characteristics, the type and organization of information in TA responses to student-initiated questions. Although accuracy and intelligible pronunciation are essential to good answers, they were not addressed. Because the TAs in this study were graduate students in an internationally recognized department, this study assumed that they had the expert knowledge to provide correct responses to questions in an undergraduate course. Forty percent of the graduate students in the department where this study was conducted were nonnative English speakers. Hence the study included responses by both native and nonnative English speaking teaching assistants. While NNS pronunciation and fluency are important factors in assessing TA performance, they were not within the scope of this study for two reasons. First, Tyler et al. (1988), in a study of 18 NNS TAs, showed that lack of coherence is a major problem in TA discourse regardless of NNS influences on pronunciation.

Second, TAs volunteered for the study on the condition their anonymity be protected. Transcriptions, therefore, were used instead of audiotapes. This procedure insured that undergraduate raters, some of whom were in classes taught by the subjects, would not recognize the TAs.

The study was conducted in an economics department at a major research university in northern California. The department was chosen for three reasons. First, the investigator had contacts among the TAs and, therefore, was in a position to ask for volunteers. Second, economics is a popular major. With over 400 undergraduate majors, the department is the largest in the university. In addition, many students from other departments enroll in economics courses. During fall, 1990, for example, total enrollment in all economics courses was over 1,700. Thirty TAs led sections of 25 students each. Most TAs conducted two discussions a week; some, however, conducted three sections. Hence, each TA had between 50 and 75 students. With thirty TAs sharing teaching responsibilities with eighteen regular faculty, their importance to undergraduate education was significant. The third reason for choosing this particular department was that all students, even those planning on non-teaching careers, must teach at least one term to satisfy the requirements for the Ph.D. Because the amount of teaching experience varied among the subjects, it was possible to gather data from inexperienced as well as experienced TAs.

Summary

The purpose of this study was to develop a characterization of what constitutes good answers to student-generated questions, i.e., to provide a basis for understanding what undergraduate students expect in their discussion and review sections: how much information do they want and how should it be presented? Specific research questions included:

1. How do TAs package, or chunk, information?
2. How are the packages linked to form a cohesive response?
3. What characteristics are common to the highly-rated responses? How do they differ from the lower-rated responses?

The answers to these questions provide guidance for those developing training programs for economics' TAs. Because the ability to answer questions effectively is necessary in any kind of teaching, the research findings are applicable to other disciplines.

Outline of Remaining Chapters

Chapter 2 discusses the relevant literature, in particular studies of TA performance and discourse analysis. Chapter 3 describes the method of data collection and analysis. Chapter 4 presents the analysis. Chapter 5 discusses other factors that may contribute to TA effectiveness: gender, first language, teaching experience, and length of time in the Ph.D. program. In Chapter 6 the results are summarized and areas for further research are also discussed.

Chapter 2

Literature Review

The purpose of this study was to develop a characterization of what constitutes good answers to student-initiated questions in an undergraduate economics course. The specific questions were: 1) what kind of information do TAs provide? and 2) how do they present it? The research pertinent to this study can be divided into two topic areas: teaching assistant performance and discourse analysis. The section on discourse analysis has three parts. The first provides an overview, the second examines units of information, and the third reviews cohesive devices.

Teaching Assistant Performance

Discussions with TAs and undergraduate comments on course evaluations indicate that the primary function the economics TA serves is to answer questions and clarify the professors' lectures. Often the questions involve the definition of technical terms or the explanation of mathematics used even in beginning courses.

Evidence from research on teaching assistants in other technical disciplines indicates that the ability to answer questions effectively is an essential component of successful TA performance. For example, Rounds (1987), in a study of mathematics TAs, suggested that teaching assistants must have "... the linguistic

resources to paraphrase material that students have not understood and the ability to respond to questions, which are often ill-framed and colloquially phrased" (p. 644). Furthermore, Hinofotis (1980), in a study of NNS TAs at the University of California, Los Angeles, concluded that "the ability to convey the technical information clearly, appropriately, and completely was the strongest, most stable, and clearly identifiable factor in successful TA performance" (p. 2).

Researchers who have studied teaching assistants have focused on NNS TA overall performance and NNS TA use of specific linguistic forms. For example, both Hinofotis and Bailey, in separate studies, have suggested general categories for performance evaluation. Hinofotis (1980), for example, emphasized clarity, appropriateness, and completeness as identifiable factors in successful performance. Hinofotis and Bailey (1980) described these factors when they developed the Oral Communication Rating Instrument at the University of California, Los Angeles. They suggested, for example, that the use of synonyms, paraphrases, and appropriate transitions are indicators of clarity; however, they neither examined the language of highly rated TAs nor illustrated degrees of clarity with examples.

While Hinofotis and Bailey concentrated on overall NNS TA performance, Tyler et al. (1988) analyzed specific language devices and noted several sources of communication difficulty in NNS TA discourse. For example, organizational devices (**and**, **but**, **so**) used to orient listeners to the relationship among ideas were absent in Chinese and Korean TA discourse. Douglas and Selinker (1989)

also investigated organizational devices in a study of one NS TA and one NNS TA. They examined how frequently the TAs used these devices. They did not, however, relate frequency of use to TA performance.

Performance guidelines for teaching assistants are found in manuals published by individual universities and in textbooks. The latter, however, are written primarily for the NNS TA audience. These references contain suggestions on how TAs can use questions to lead discussion sections. They offer, however, only the most general advice on responding to student questions. For example, Pica et al. (1989) suggest "when students ask questions in class, your responses should be brief, honest, and accurate" (p. 42). Byrd et al. (1989), on the other hand, provide a comprehensive discussion of question types and structures. In their text, they present sample answers to a variety of student questions (pp. 59-63).

In sum, researchers have studied overall NNS TA performance and NNS TA use of specific linguistic forms. This study, in contrast to previous work, examined TA performance on the discourse level. It focused on how TAs perform one of their most important functions, responding to student-initiated questions. Furthermore, this study included a larger number of subjects, 15 NNS TAs and 24 NS TAs. Finally, the study analyzed the information contained in the responses and how it was organized and, therefore, provides guidelines for responding to student questions.

Discourse Analysis

Overview. The term "discourse" refers to spoken or written text that can be distinguished from other types of text. For example, stories, sermons, and presidential addresses are units of discourse, or genres, that each have characteristics that distinguish them from one another (Ferguson, 1986; Traugott & Pratt, 1980). Crystal (1985) defines discourse as "a term used in linguistics to refer to a continuous stretch of (especially spoken) language larger than a sentence" (p. 96). Discourse units, then, contain more than one sentence. Halliday and Hasan, however, suggest that a discourse unit may contain a single word, e.g., "go," "danger," "exit." The condition is that the utterance "form(s) a unified whole" (1976, p. 1). Single words may constitute complete utterances, but they function more like isolated sentences than discourse. The assumption on which this study was based is that discourse, regardless of length, contains more than one sentence and exhibits certain textual characteristics that distinguish it from a random collection of sentences. Features that hold sentences together to form a discourse unit may include, among others, specific markers, word or phrase repetition, and paraphrases.

Although discourse generally refers to spoken language, it may also refer to written text. In the literature, a distinction is made between spoken and written discourse (Brown & Yule, 1983; Halliday, 1989; Stubbs, 1983). The discourse units in this study were spoken responses to spoken questions. They were transcribed for undergraduate students to read so that their ratings would

not be influenced by extraneous factors such as accent or gender. The practice of transcribing spoken texts into written form for analysis is common. Brown and Yule state that "in general the discourse analyst works with a tape-recording of an event, from which he makes a written transcription ... using the conventions of the written language" (1983, pp. 9, 11).

Besides being spoken or written, discourse may be planned or unplanned. Ochs (1979) defines planned discourse as "discourse that has been thought out and organized (designed) prior to its expression." Unplanned discourse, on the other hand, is "discourse that lacks forethought and organizational preparation" (p. 55). Ochs suggests that planning is a continuum rather than a dichotomy. The responses in this study were relatively unplanned answers to student questions. Characteristics of relatively unplanned discourse include, among others, repetition and word replacement. According to Ochs, these devices serve as pause fillers while the speaker plans the next utterance.

When this study was first conceived, the intention was to determine what the undergraduate students reacted to when they rated TA responses to questions. The purpose was not to make judgments on whether the responses were grammatically correct. Rather, the goal was to examine the types of information contained in the responses to identify recurring patterns. Conversation analysis (CA) provided the basic framework for analyzing the responses in this study. CA methods, although developed to study interactive discourse, may also be used to analyze monologues, that is, uninterrupted speech

by a single individual. Levinson (1983) describes CA as a procedure to "discover systematic properties" across discourse units (p. 287). Once CA researchers discover patterns, they form hypotheses and test them against new data.

Information Units. Spoken discourse does not contain graphic evidence of structural schemes in the same way as written discourse. Punctuation and paragraphs signal organization in written text. When those signals are missing, the reader generally has difficulty understanding the message the author is trying to convey. In spoken discourse, the organizational structure is not so apparent. Something, however, binds spoken discourse together so that the hearer can understand the message.

The notion of discourse structure presupposes an orderly arrangement of its constituent parts. Wylie (1989) addressed the problem of defining the parts contained in monologues by citing Grimes' concept of "packages of information" (p. 49). The three monologues in Wylie's research varied in length from ten minutes to half an hour. Each monologue was divided into packages that corresponded to topic sections. Next, the topic sections were subdivided into clauses. Wylie then analyzed the monologues on two levels: how the clauses were linked within the packages, or topic sections, and how the packages were linked together to bind the entire monologue.

The responses in this study were shorter monologues than the those in Wylie's work. They varied between 26 seconds and four minutes in length. Wylie's dissertation and this study also differ in the units of information. In

Wylie's work, the smallest unit was the clause, whereas in this study, the smallest unit was the package which generally contains more than one clause. The studies are similar in that both researchers conducted detailed analyses on some of the data to identify the cohesive devices used to link the information units.

The identification of topic sections, or packages, must be distinguished from discourse topic. The latter refers to what the entire passage is about (Brown & Yule, 1983; Van Dijk, 1977). The data in this study were direct answers to questions on specific subjects. Hence, the discourse topics were easily identified. The parts contained in the responses, however, were more difficult to recognize.

Two possible approaches to the task of identifying the packages are as follows. First, the analyst may attempt to match the actual responses to a preconceived notion of what a good response should contain. Byrd et al. (1989) suggest that "short explanations have the same basic structures as other types of academic communication in English - introduction, body, and conclusion" (p. 118). It is conceivable, then, that responses to questions have a "grammar" comprised of basic rules. Wylie expanded on this notion by suggesting that western-educated hearers have certain expectations as to what should be contained in explanatory discourse. These expectations, stemming from Greco-Roman tradition, are reinforced, for example, in writing instruction which emphasizes that a good explanatory paragraph contains a topic sentence, an elaboration, and a conclusion.

Second, the analyst may identify boundaries that separate one stretch of discourse from another. Brown and Yule indicate that discourse markers provide explicit guidelines to help isolate the information units. They also suggest that an "intuitive notion of topic" (p. 69) helps divide the discourse unit into packages. A topic shift, marked by a change in the subject, generally signals a new information unit.

The first approach is deductive, i.e., it assumes the responses should have certain information units in a specified order. Using this approach, the analyst examines the responses to determine if they meet the criteria. The second approach, followed in this study, is inductive. The analyst examines the data to identify patterns that occur with significant frequency.

The following example, from the corpus of TA responses, illustrates the inductive method for separating a discourse unit into packages of information.

This response answers the question, Are fixed costs in the short run sunk costs?

- (1) Fixed costs are costs which don't change when the quantity of output changes.
- (2) Sunk costs are costs for which an investment has been made in the past which is irreversible.
- (3) The two things are referring to slightly different things. Fixed costs are, uhm, essentially costs which are, uhm, must be paid irrespective of the level of output and therefore are unavoidable in the short run. Sunk costs on the other hand are, uhm, are costs which, ahm the, which because the money has been spent in the past are irrelevant to future decisions. Uhm,
- (4) so therefore yes in a, in a, it is true to say that in the short run fixed costs are sunk costs.

The first package is a definition of fixed costs. In the second package, the topic shifts to a definition of sunk costs. The topic shifts again, to a comparison of "the two things," in the third package. The fourth package, introduced by the marker, **so therefore**, is a direct answer to the question. Chapter 3 contains a more detailed discussion of this method.

Cohesion. Once the packages were identified, the responses were examined for linkages that bound them together to form a connected discourse. Two terms that denote the concept of connectedness are cohesion and coherence. De Beaugrande distinguishes between the two notions by defining cohesion as "the ways in which the components of the surface text, i.e., the actual words we hear or see, are mutually connected within a sequence" (p. 3). Cohesion, then, is a structural property of discourse. Coherence, on the other hand, refers to the concepts which underlie the surface text and whether they make sense. Sentence (1) below, for example, is cohesive but not coherent.

(1) *Mary made applesauce, so Tim's car is grey.

The two clauses are cohesive because they are connected with **so** on the surface. While the two independent clauses make sense, their relationship to each other does not. Hence, the sentence is not coherent.

The underlying semantic relationships, or coherence of texts, were not within the scope of this study. The assumption was that every TA knew the subject and was capable of providing coherent answers to the questions. Thus,

the responses that appeared to be incoherent most likely had problems in the surface text. The emphasis, then, was on the linguistic devices the teaching assistants used to mark cohesive relationships among the packages of information. Surface cohesive devices that appeared most frequently in the data were discourse markers and lexical items.

Discourse markers. Discourse markers are defined as single words or phrases that mark the relationship between utterances (Levinson, 1983; Stubbs, 1983; Schiffrin, 1987). Halliday and Hasan (1976) refer to these devices as conjunctions. Van Dijk (1977) uses the term connectives. Brown and Yule (1983) suggest that discourse markers "tag" the content within the discourse unit (p. 132). Hence, discourse markers are organizational cues and also indicators of what's coming. For example, when the marker **however** is used, the implication is that what will follow is different from the previous utterance.

Schiffrin, in an extensive analysis of discourse markers, distinguishes them from other grammatical categories as "syntactically detachable" from sentences (p. 328). The sentences in themselves are complete. The markers indicate how one sentence is related to the other and, therefore, contribute to the flow of discourse. For example,

- (2) He went to the store. I went to the library.
- (3) He went to the store, **and** I went to the library. (at the same time)
- (4) He went to the store, **but** I went to the library. (contrast)

Among the discourse markers most frequently discussed in the literature are **and**, **but**, **so**, **well**, and **now**.

And may serve a coordination or a conjunction function. When **and** coordinates two or more constituents, they may be rearranged without changing the meaning (He went to the store and I went to the library.). **And** serves as a conjunction to indicate additional information (He drove ninety miles an hour, and the police stopped him.) or to signal a topic shift or a change in participants (He went to the bookstore to buy a new ribbon, and we were able to print out our papers.). When **and** marks a conjunctive relationship, its constituent parts cannot be rearranged without changing the meaning.

But is used to introduce an idea that contrasts with what was said earlier (He went to the store, but I went to the library.). **But** can also signal a return to a topic following a diversion from that topic.

So has a wide range of uses. In the responses collected for this study, it has four functions. First, it introduces the result of a situation set up earlier (There is only one company in the small town, so the people don't have any where else to work.). Second, it signals a summary statement (So, in the first case the firms are cooperating and in the second case they are competing.). Third, **so** marks a return to a topic after a topic change (So, as I was saying ...). Finally, **so**, combined with "that" to form **so that**, serves a "holding" function (People can take only so much so that if you keep pushing, they'll riot.). This last example may be reworded as follows: given that people can take only so much,

they'll riot if you keep pushing.

The marker **well** usually appears at the beginning of a response. Stubbs (1983) suggests that it serves as a general introductory remark or as a signal that an indirect answer follows. Halliday and Hasan (1976) interpret **well** to mean "I acknowledge the question and am thinking about it" (p. 269). They suggest, then, that **well** serves as a pause filler.

The identification of **now** as either an adverb or as a marker is usually determined by the context. As an adverb, it may mark a new stage in the discourse (Now we're going to read the poem.). As a marker, **now** may serve as a signal that the audience should pay attention to the upcoming idea. **Now** may also mark a progression in a series of topics or signal a comparison (Sunk costs are Now, fixed costs are different.).

Chafe (1986) and Chaudron and Richards (1986) examined discourse features in academic lectures. Chafe noted that speakers use **you notice** and **now remember** as invitations to the audience to focus their attention. Academic speakers use **Right?** and **Ok?** as comprehension checks to make sure that the audience is following them (p. 30). Chaudron and Richards distinguished between micro markers (**and, but, so**) and macro markers (**why don't we start with ... ; ok, the next topic is ...**) in academic lectures. They found that the presence of macro markers led to better recall of the lecture, whereas the micro markers did not aid the listeners' retention. These findings are not surprising. As organizational devices, micro markers in a lengthy lecture are not as salient as

macro markers. They do, however, serve important cohesive functions in shorter discourse.

Lexical items. Halliday and Hasan (1976) provide a comprehensive treatment of cohesive devices that appear in surface structures. In addition to a taxonomy of discourse markers, they discuss personal pronoun and demonstrative pronoun reference, substitution (Mary has a birthday tomorrow. I have one too.), and ellipsis (Mary has a birthday tomorrow. I do too.), and lexical items.

Cohesive lexical items that appear in the data are repetition (fixed supply, fixed supply) and lexical replacement. Replaced items include synonyms (additional amount, extra rent; scare, few) and superordinates (labor, factor of production; monopoly, economic system). These lexical items function as connectors to bind sentences together and, therefore, create a discourse unit.

In this section of Chapter 2, I have set up a method for separating the responses into packages of information to respond to the first research question, How do TAs package, or chunk, information. I have begun to answer the second question, How are the packages linked, by describing cohesive devices present in the data, specifically discourse markers and repetition forms.

In the next chapter, I describe the method of data collection and analysis.

Chapter 3

Methodology

The purpose of this study was to develop a characterization of what constitutes good answers to student-generated questions, i.e., to provide a basis for understanding what undergraduate students expect in their discussion and review sessions. The data, then, consisted of actual questions posed by undergraduates, TA responses to those questions, and undergraduate ratings of the answers.

Data Collection

Eighty-five (85) people took part in the data collection: 59 graduate students volunteered to participate and 26 people rated the responses. The procedure involved four steps:

1. recording actual student questions asked during class;
2. having teaching assistants answer the questions;
3. transcribing the responses;
4. having undergraduate students read and rate the responses.

Record actual questions. The reason for using actual questions was to avoid imposing a preconceived notion of what they should contain and how they

should be framed. Actual discourse, often containing hesitations and incomplete phrases, is a better guide to the types of questions TAs face than a researcher's conception of classroom discourse.

I collected actual student questions by taping a review session for the final examination in a beginning economics course. The TA who gave me permission to tape the session did not lecture, but instead answered students' questions on course content. Because about fifty undergraduate students attended the two-hour review, I used a boom mike that was powerful enough to pick up sound from all parts of the room.

A senior graduate student and I listened to the tape to isolate six questions that could be answered without the aid of visual materials, e.g., a blackboard or graphs (Appendix 1). Because I was interested in the verbal responses the TAs provided, I discarded questions that required graphic answers. The same student also supplied maximum time periods in which each question could be satisfactorily answered. I then transferred the six questions to a master tape and included silent periods of two, three, or four minutes for each question.

TAs answer the questions. I secured permission from the Director of Graduate Studies in the department to conduct the study. I then sent letters to all students enrolled in the Ph.D. program and in residence that term. The letter asked for volunteers to respond to taped questions posed by undergraduates in a beginning economics course. The letter also stated that participants would not be identified by name. Furthermore, neither individual results nor information

regarding who participated would be shared with members of the department.

Besides the two who helped collect the questions, fifty-seven graduate students volunteered to participate. Some agreed to listen to the tape to ensure that the questions were intelligible and that they could be answered without the aid of visual materials. Others agreed to read a sample of the responses at a later date to rate them for accuracy. The remaining forty actually responded to the taped questions. (See Chapter 5 for a description of the subjects.)

The subjects listened and responded to the questions in a language laboratory, thus foregoing student-teacher interaction that is characteristic of actual classroom situations. This procedure, although not ideal, allowed for a large number of graduate students to answer identical questions under similar conditions. I scheduled two taping sessions, 15 minutes apart, to accommodate all the participants and supplied each subject with a tape to use in the cassette player at his/her station. After giving instructions (Appendix 2), I ran the master tape from the main console. The subjects could only control volume; hence, they could not listen to the questions more than once or rerecord their responses.

Transcribe the responses. During the next nine months, I transcribed the responses to four of the six questions. Because of technical problems in the language laboratory, not all subjects heard two questions. Unfortunately, one tape was blank because the equipment at that station was out of order. Thus, the data contained transcriptions of 156 responses, four questions for 39 subjects. The total amounted to approximately four hours of discourse.

I attempted to transcribe as faithfully as possible what was said. Consequently, ungrammatical forms, partial words, and incomplete sentences appear in the transcriptions. I began a new line in the transcription each time the speaker paused or took a breath and noted more lengthy pauses with (# second pause) in the text. The reason for separating each response in this manner was to create manageable units for analysis.

Rate the responses. I designed a guide for rating the responses using the holistic scoring guide provided by the Educational Testing Service for the Test of Written English as a basic framework. The guide contained a four-point scale (Appendix 3). Eight linguists pre-tested it by reading and rating the transcribed responses to one question. The four-point scale did not appear to provide sufficient distinctions among the categories. I therefore revised the guide for the undergraduate raters to include a six-point scale. Furthermore, I changed the rating categories to conform to those suggested by Hinofotis (Appendix 4). Although Hinofotis did not specifically define clarity, appropriateness, and completeness, the categories served as a useful outline to design the rating scale. Based on my experience as a teacher and an observer of classes conducted by TAs, I defined the categories as follows. Clarity included general understanding of the language and organization of the responses. Appropriateness referred to whether the examples and illustrations were within the scope of the students' knowledge. The scale for completeness was designed to determine how much information the students expected the answer to contain. (In Chapter 5, I

distinguish between the two guides and interpret the ratings provided by each group.)

Each response required two ratings to guarantee interrater reliability. Because there were 156 responses, a total of 312 evaluations were required. I decided that each rater could read about 20 responses to the same question. Hence, I recruited fifteen undergraduate students to read and rate the responses. I also recruited three additional students to serve as third readers at a later time to rate responses that differed by two or more points on the rating scale. Because I wanted a random sample of undergraduates, I recruited the 18 raters by asking several students majoring in economics to enlist their friends. I required the raters to have taken at least two economics courses to ensure that they had a basic understanding of the material.

After the raters gathered in the department lounge, I conducted a three-part training session. The undergraduates first heard a taped recording of a monologue. None had difficulty understanding the tape. Next, they read a transcription of the same monologue. Some had difficulty following the text during their first reading. After several readings, however, they were able to understand the content. Finally, they listened to the tape while reading the transcription. During the second part of the training session, the undergraduates read sample responses to rate them according to the guide. I then polled the group to determine if the raters were in general agreement and to establish interrater reliability. The third part of the training session consisted of a

discussion to clarify the guide. After the training session, each participant read and rated about 20 responses.

I recorded the ratings on a code sheet (Appendix 5). A total of 114 responses (73%) received scores within one point of each other, e.g., 6 and 6 or 6 and 5. The remaining 42 responses (27%) had scores that differed by two or more points and, therefore, were read by a third reader. If the third reader provided a score that matched either of the original two scores, the odd score was discarded. For example, 2 - 4 is a two-point split. If the third reader assigned a 4, the response was coded 4 - 4, and the 2 was discarded. If the third reader provided a score that was in between the original ratings, e.g., 3, resulting in 2 - 3 - 4, the response was coded 3 - 3. In a few cases where the two original raters gave scores of e.g., 1 and 6 and the third reader rated the same question as a 5, the final tally was 6 - 5. On the basis of these ratings, the 13 highly rated responses to each question were identified for analysis (total 52). The 13 lower rated responses to each question were also identified (total 52). The 13 middle responses to each question were eliminated from the study.

Data Analysis

The framework for dividing the responses into packages, or units of information, is discussed in Chapter 2. The basic assumption was that responses are "chunked" or "packaged" to make it easier for the speaker to transmit the information. Additionally, the hearer is able to process the information when it is

presented in chunks.

The method used to separate the responses into packages was as follows. First, the entire response was read to identify the discourse topic, i.e., what the response is about. Second, the response was read again to identify the units of information about the discourse topic. Third, the units of information, or packages, were labeled according to the function they serve, e.g., definition, comparison, example, summary.

Responses to two of the four questions are presented to illustrate the process. Each discussion begins with a highly-rated response and continues with a lower-rated one.

Question 1: Can You explain the concept of economic rent?

- The concept of economic rent is
when there is a return above
what would be necessary
for a player to enter the market.
- (5) So
that
the direct return that he gets is a rent.
So if you needed to earn \$10.00
to
- (10) come and work
and you actually received \$12.00 to go to work
your economic rent would be \$2.00.
(4.5 second pause)
Those
- (15) so the rent is the excess that you receive
from what you actually would have to receive for you to come
and do that.

The response contains two definitions of economic rent: 1) a return above what would be necessary for a player to enter the market, and 2) the direct return he gets. Hence, two sentences make up a package that is labeled "definition." The next part of the response is an example of economic rent. It comprises one sentence and is labeled "example." The last part of the response is one sentence that restates the key concept expressed in the first two packages, namely the excess that you receive. This package is labeled "restatement." The transcription is then reformatted as follows:

(1) definition	The concept of economic rent is when there is a return above what would be necessary for a player to enter the market. So that the direct return that he gets is a rent.
-------------------	--

So

(2) example	if you needed to earn \$10.00 to come and work and you actually received \$12.00 to go to work, your economic rent would be \$2.00.
----------------	---

(4.5 second pause)

Those

So

(3) restatement	the rent is the excess that you receive from what you actually would have to receive for you to come and do that.
--------------------	---

The first two packages are linked by so, indicating that what follows can be inferred from the previous statement. Packages 2 and 3 are also linked by so. In this case, however, so indicates that a concluding statement follows.

The above example exhibits a transparent organizational scheme. The TA first provides a definition of economic rent. Next, he supplies an illustration, or example. Finally, he concludes with a restatement of the key concepts mentioned in the first two packages.

The task of identifying the units of information in the lower-rated response, however, was more difficult. The following is a response to the same question, Can you explain the concept of economic rent?

- Ok ah economic rent ah
is a is a
concept where ahm
ahm
- (5) assume we have a competitive ah economy then the the profit we assume
in a perfect competition
profit ahm is ah ah ah is normal in other words is certain percentage
* of rent then this the profit will be above this ah
this ah normal level
- (10) and we call
the difference between the profit
this profit
and the ah normal profit as the rent.
(5 second pause)
- (15) In other words ah
ahm
this will in a per ah this is ah
is not in a in a perfectly
competitive ah situation.

The separation of package 1 from package 2 may be tentatively made at line 10, "and we call." The division between packages 2 and 3 is most likely at the 5 second pause, followed by the discourse marker, **in other words**. The analyzed version of this response is based on these tentative divisions.

Ok ah

(1) conceptual background economic rent, ah, is a, is a concept where, ahm, ahm, assume we have a competitive, ah, economy then the, the profit we assume in a perfect competition profit, ahm, is, ah, ah, ah, is normal in other words is certain percentage * of rent then this, the profit will be above this, ah, this ah, normal level

and

(2) definition we call the difference between the profit, this profit and the, ah, normal profit as the rent.

(5 second pause)

In other words

(3) (undetermined) ah, ahm, this will in a per-, ah, this is, ah, is not in a, in a perfectly competitive, ah, situation.

The package divisions in the above response are not as distinct as those in the highly-rated response to the question. The only clear statement in this response is in package 2, "we call the difference between this profit and the normal profit as rent." We would expect, then, to have definitions and/or examples of "this" (extra) profit and normal profit in the previous package. Rather than provide a comparison between the two concepts, the TA mentions the conditions for normal profit (perfect competition). In package 3, we would expect a summary, an example, or a statement about imperfect competition. Again, he does not provide a comparison to distinguish between perfect and imperfect competition. Rather, he merely states "this is not in a perfectly competitive situation."

The transparent organizational hierarchy in the first example illustrates effective packaging of information. The packages in the second example, however, are less apparent. Examples of transcriptions for another question further demonstrate the effectiveness of transparent discourse organization.

Question 6: If you're like a coal mining company, or something, and in a really small town and that's the only place where people work, why would you have to ... I mean you have a ... you're the one buyer of that labor market ... so why would you have to ... increase the ... the wage price ... why couldn't you just ... set it even lower because those people don't have anywhere to work anyway?

Well first of all
a situation where you're the only buyer
of labor or of any factor of production
is called a monopsony.

(5) Uhm

a monopsonist does not have complete freedom to pay
anything he wants in order to purchase labor or purchase capital
or to purchase land.

Uhm

(10) it's it's particularly easy to understand in the case of labor
because

you the supplier of labor
does actually have two alternative uses of his time he can either work
or he stay at home and enjoy leisure.

(15) And if the wage that you're being paid
is not sufficient to entice you to work

uhm yo you do have the alternative of staying at home and enjoying that
leisure.

(20) So the monopsonist has to pay a wage sufficient
to encourage people to at least supply their labor
in the amount that the producer
needs to use labor.

The TA begins this response with a description of monopsony conditions. She then continues by making a statement that wages cannot be lowered. She next provides an example of what people can do if wages are too low. Finally, she supplies a summary statement. The analyzed response appears as follows.

Well first of all

(1)
definition	a situation where you're the only buyer of labor or of any factor of production is called a monopsony.
(2)
set up	Uhm, a monopsonist does not have complete freedom to pay anything he wants in order to purchase labor or purchase capital or to purchase land.
(3)
reason	Uhm, it's, it's particularly easy to understand in the case of labor because you, the supplier of labor does actually have two alternative uses of his time he can either work or he stay at home and enjoy leisure. And if the wage that you're being paid is not sufficient to entice you to work uhm, yo- you do have the alternative of staying at home and enjoying that leisure.

So

(4)
summary	the monopsonist has to pay a wage sufficient to encourage people to at least supply their labor in the amount that the producer needs to use labor.

A lower-rated response to this question is more difficult to separate into packages of information.

- (25.5 second pause)
 Well I mean I mean I mean certainly in this case the ah th the coal mining firm is gonna have a certain amount of market power
 ahm ahm
- (5) in
 in in it's gonna have a certain amount of market power in the labor market
 so you wouldn't expect wh if there were you know hundreds if there were not hundreds
- (10) if if there were a number of different firms
 ahm competing for the sa labor pool
 and and it was a competitive market then the labor market ahm
 certainly y y you would expect a different result in fact you'd probably expect th th th that indeed wages would be lower in the situation
- (15) where there is only the single coal mining firm.
 However ahm
 they can't
 I mean they can't they can't be reduced I mean wages cannot be reduced indefinitely
- (20) ahm
 because ah
 (4 second pause)
 ah because
 (3 second pause)
- (25) well let's see
 well well because in general we of think of ah
 a worker's utility curve as being derived from ah both consumption and and leisure
 and
- (30) and and and ah
 and and in addition that there are also ah
 that that that even though there are
 well
 I'm sorry th this
- (35) I guess th this would really have to do with with with how you would set up with how you would set up the * saying that
 if I mean if you're gonna say yes the coal mining is the only thing that people can do
 and you know they they will not have they will not be able to consume
- (40) anything I mean that's I mean that that I mean that that other if if they don't work in the coal industry
 I mean that's that's probably gonna be
 a model with very little meaning.
 Ahm in normal situations we think of of workers having

- (45) a reservation wage they have other uses of
of their time they can sit home and and enjoy leisure
or they can or they can you know grow their own food if they want to
rather than rather than take wages from the company
um from the coal mining company
- (50) ahm I mean I mean yes certainly the wages
in
eh in in a monopsonist market are going to be lower than they would be
under a competitive market but they can't be reduced indefinitely because
at some point
- (55) at some point
we think that people are going to are going to stay home.
(9 second pause)
I mean that's all going to depend on how we model the the consumer
preference I mean the ah worker the worker preferences.

A tentative division of package 1 from package 2 occurs with **however**
(line 15). This discourse marker is a signal that the information that follows will
be different from the information contained in package 1. The separation
between packages 2 and 3 most likely occurs at line 43, "in normal situations we
think of, of workers having." A shift in topic furnishes the basis for suggesting a
break at this point in the discourse. The last sentence may be a separate
package. It suggests a summary and contains "model" from package 2 and
"worker preferences" from package 3.

(25.5 second pause)

Well
I mean, I mean, I mean

(1)
conceptual
background

certainly in this case the, ah, th-, the coal mining firm is gonna have a certain amount of market power, ahm, ahm, in, in, in, it's gonna have a certain amount of market power in the labor market. So you wouldn't expect wh- if there were you know hundreds, if there were not hundreds, if, if, there were a number of different firms, ahm, competing for the sa-labor pool and, and it was a competitive market then the labor market, ahm, certainly y- y- you would expect a different result in fact you'd probably expect th- th- th- that indeed wages would be lower in the situation where there is only the single coal mining firm.

However ahm

(2)
reason

they can't I mean they can't, they can't be reduced I mean wages cannot be reduced indefinitely, ahm, because, ah

(4 second pause)

ah, because

(3 second pause)

well let's see, well, well, because in general we of think of, ah, a worker's utility curve as being derived from, ah, both consumption and, and leisure and, and, and, and, ah, and, and, in addition that there are also, ah, that, that, that even though there are, well I'm sorry th-, this, I guess th-, this would really have to do with, with, with, how you would set up, with how you would set up the * saying that if I mean if you're gonna say yes the coal mining is the only thing that people can do and you know they, they will not have, they will not be able to consume anything I mean that's I mean that, that I mean that, that other if, if they don't work in the coal industry I mean that's, that's probably gonna be a model with very little meaning.

(3)
reason

Ahm, in normal situations we think of, of workers having a reservation wage, they have other uses of, of their time. They can sit home and and enjoy leisure or they can, or they can you know grow their own food if they want to rather than, rather than take wages from the company, um, from the coal mining company, ahm, I mean, I mean yes certainly the wages in, eh, in, in a monopsonist market are going to be lower than they would be under a competitive market but they can't be reduced indefinitely because at some point, at some point we think that people are going to are going to stay home.

(9 second pause)

I mean

(4)
summary

that's all going to depend on how we model the, the consumer preference I mean the, ah, worker, the worker preferences.

The above response, provided by a native English speaker, exhibits poor organization. It also contains hesitations, pauses, false starts, and replications (I mean, I mean). These characteristics most likely account for its low rating.

Reliability. Dovie Wylie, a lecturer in the Linguistics Department at Stanford University, conducted a reliability check by reading a sample of five responses to each of the four questions. She separated out 91 packages, whereas I had 77 for the same responses. The difference was that Wylie made two packages where I had counted one. For example,

Economic rent is basically, ah, a surplus which, ah, let's say, a particular factor of production earns over and above what is needed to keep it at that particular activity or at that particular industry.

Wylie separated this part of the response into two packages as follows:

- (1) Economic rent is basically, ah, a surplus
- (2) which, ah, let's say, a particular factor of production earns over and above what is needed to keep it at that particular activity or at that particular industry.

Another example suggests that Wylie separated the responses more on the clause level than on the package level.

The idea of a fixed cost is that for, for doing any production activity you might need, ahm, a particular amount of, ah, of a factor of production.

for example

if you were to set up a firm which, ahm, produced, ahm, shoes then you w-, the very least would need is a shoe machine.

Now

you would need that machine whether you, you are going to produce, ahm, a hundred shoes which is let's say is the maximum that the machine can produce in any fixed amount of time.

Wylie separated this part of the response into two packages by breaking it at *Now*. I on the other hand, consider the discussion of the shoe machine to be one package.

We agreed on the major package divisions. The discrepancies (15%), such as those noted above, appear within the major divisions. In the first example, Wylie thought that "economic rent" was one topic and "which," referring to surplus, was another and, therefore, represented two units of information. In my view, this segment of the response is one package, a definition of economic rent. In the second example, Wylie separated this part of the response at the discourse marker, *now*. Because the example continues after *now*, I did not divide this segment into two packages. My packages include all the information related to the particular topic. Wylie's divisions, on the other hand, represent separate comments on the same topic.

Summary

In this chapter, I outlined the procedures for data collection and analysis. I continued to answer the first research question, How do TAs package, or chunk, information, by illustrating how the responses were divided and labeled. In the next chapter, I present the analysis.

Chapter 4

Analysis

The purpose of this study was to develop a characterization of what constitutes good answers to student-generated questions, that is, to provide a basis for understanding what undergraduates expect in their discussion and review sessions. When I initially reviewed the highly-rated responses and compared them to the lower-rated ones, I noted that the highly-rated responses had transparent organizational patterns. The lower-rated responses, however, did not order information as clearly. The highly-rated responses also appeared to be more cohesive than the lower-rated ones. They were distinguished from the lower-rated responses by the presence of discourse markers and the repetition of key words and phrases. Neither group contained a large number of field-specific technical terms usually found in advanced courses. Moreover, ranking was unrelated to the number of examples in the responses or to their length.

On the basis of these observations, I formulated the following research questions:

1. How do TAs package, or chunk, information?
2. How are packages linked to form a cohesive response?
3. What characteristics are common to the highly-rated responses? How do they differ from the lower-rated responses?

This chapter is divided into two sections that correspond to the first two research questions. The third question is addressed in summary statements at the conclusion of each section.

1. How do TAs package, or chunk, information?

The data consisted of responses to two types of questions, that is, requests for definitions and requests for reasons. The first part of this section analyzes the responses to the three questions that call for a definition or clarification of terms. The specific questions were: 1) Can you explain the concept of economic rent?; 2) Are fixed costs in the short run sunk costs?; and 3) What is the difference between joint profit maximization and Cornout? The first question is a request for a definition of economic rent. The second question, while appears to ask for a simple yes or no response, needs a clarification of fixed costs in the short run and sunk costs to explain the answer. The third question requires a review of joint profit maximization and Cornout to illustrate the differences between the two concepts.

The analysis of each question includes a graph that illustrates the number of responses that contain particular packages of information. One bar represents the 13 highly-rated responses. The other bar represents the 13 lower-rated responses. The middle 13 responses to each question were eliminated from the study. These graphs answer the question, How many responses have, e.g., definitions? The graphs show that the lower-rated responses contain noticeably

fewer packages than the highly-rated responses. Three reasons account for these differences. First, some TAs did not respond to individual questions. Second, some TAs responded to a slightly different question. Examples of these responses are included in the discussion of Question 4. The packages in these responses did not conform to the categories of packages in the other responses. Hence, these answers were discarded. Third, some responses consisted of fragmentary utterances that were difficult to parse. Separating them into packages of information, therefore, was impossible.

Following the graphs, I supply examples of the package types. Next, I provide complete responses to demonstrate the salient differences between the two groups. These examples have discourse markers in bold type. The discussion of markers, however, is reserved for the second part of this chapter. Finally, I conclude each analysis by addressing the general question posed in this study, What constitutes good answers to this question?

Can You explain the concept of economic rent?

Figure 1 shows that the highly-rated responses to Question 1 have more information units than the lower-rated responses.

Figure 1. Package Types in Question 1

D1 Definition (what it is)
CB Conceptual Background
Ex Example
El Elaboration
S Summary
R Restatement
D2 Definition (what it does)

Responses to Question 1 contain two types of definition, labeled **D1** and **D2**. The difference is illustrated as follows:

- (1) Economic rent is the difference between what it costs a firm or an individual to supply something and the income that that thing can generate for the person. (D1)
- (2) Economic rent is when an asset earns return above the, ah, perfectly competitive price. (D2)

Example D1 has a superordinate noun, "difference," that specifies the class to which economic rent belongs. While it is not a formal dictionary definition, it states what economic rent is. Example D2, on the other hand, defines economic rent in functional terms, that is, economic rent is generated when an asset earns more than the competitive price. Rather than define economic rent, this explanation indicates how it is created.

Conceptual background, labeled **CB**, is the second largest category of packages in these responses. Two examples illustrate this package type:

- (3) The idea behind economic rent is that certain goods or products can generate income.
- (4) Economic rent is often confused by introductory economics classes. The problem is that what we normally mean, rent in the real world, in terms rent paid for accommodation is not the same as economic rent.

The category elaboration, labeled **E1**, contains additional information, or asides, that appear in the responses. In the following example, the TA offers

information about market prices. He neither defines economic rent nor relates the concept to market prices. This package, then, is not classified as definition or conceptual background.

- (5) In, ahm, real world, we, by rent we mean the how much you have to pay for your accommodation, your dorm room, whatever, whereas here obviously mean, going back to your introductory supply curve, you see the first unit is, eh, gonna be supplied to the market at a very low price, whereas in fact, the market clearing price is somewhat above that price.

Conclusion packages are labeled summary (S) or restatement (R). The basic difference is that a summary paraphrases parts of the response, whereas a restatement uses the same words or phrases that appear in the preceding packages. The 13 highly-rated responses contain only two summaries and one restatement. The lower-rated responses do not have either of these package types.

Definition and conceptual background are the package types that appear most frequently in the responses to Question 1. Examples are evident in five highly-rated responses. None appear in the lower-rated ones. The two responses that received 6 - 6 scores from the undergraduate raters illustrate ways of combining several package types.

20.1.1
conceptual
background

The idea behind economic rent is that certain goods or products can generate income.
Ah, the way this is done is that goods or products can be rented out.

Essentially now

20.1.2 what this means is that, for instance capital, like
elaboration a machine, can generate income for a company

and

20.1.3 the difference between the cost of maintaining this
definition machine and the income that it brings in is called
(D1) rent.

So essentially

20.1.4 economic rent is the difference between what it
definition costs a firm or an individual to supply something
(D1) and the income that that thing can generate for
 the person.

* * * * *

24.1.1 Economic rent is what you earn above what you're
definition being paid. So, it's sort of like a surplus that an
(D1) individual gets, uhm, from a particular, uhm
 activity that they're performing.

For example

24.1.2 The baseball player, uhm, is earning astronomical
example wages, uhm, which are way above what they should
 actually be earning, uhm, for the type of work that
 they're performing. So, that extra money that
 they're getting is a surplus to them, uhm

and

24.1.3 that's what is meant by the term economic rent.
summary

TA 20, a native speaking female, first offers a conceptual background for economic rent. She elaborates on the background by suggesting that a machine is something that can generate income. Next, she defines economic rent as the

difference between the cost of the machine and the amount it gets from rent. Finally, she gives a more general definition of economic rent. TA 24, also a native speaking female, approaches the question by first presenting a definition. She then provides the example of the baseball player to illustrate surplus wages. Finally, she concludes her response with a short sentence to indicate she is finished.

The TAs who gave the following responses do not package information as effectively as those in the above examples. Moreover, they do not include as much information. These responses were rated 3 - 2 and 2 - 1 respectively.

18.1.1
conceptual
background

The revenue from selling a product can be broken down into, ah, profit and cost

and

18.1.2
definition
D1

the rent would be the share that goes to a particular factor, ah, one of the items.

(14.5 second pause)

18.1.3
definition
D1

Sometimes economic rent is, ahm, described as super normal profit, profit more than just covering the cost of the goods supplied.

TA 18, a native speaking male, begins his response by explaining that sales revenue has two components, profit and cost. He next suggests that rent is the share that goes to one of those components, but he does not specify which one. After a 14.5 second pause, he offers a synonym for economic profit, super normal

profit. Because he does not clarify super normal profit, the definition of economic rent is not clear. Does economic rent refer to all profit or only to super normal profit? What is the difference between normal profit and super normal profit?

Like TA 18, TA 27 does not provide sufficient information.

27.1.1 definition (D1)	The concept of an economic rent is , ahm, the return earned by a capital asset or another asset, ahm, in the production function
------------------------------	--

so for example

27.1.2 elaboration	when you are, uhm, if you, ah, using land, land would be, would be what you pay actually for the land so you could think of it as being analogous to what, what you would normally think of as rent, ta, rent you would pay for a room would be what you pay for the use of that resource.
-----------------------	--

This TA, also a native speaking male, suggests that economic rent is similar to rent for land or a room. He does not offer the explanation that economic rent is the difference between cost and income. Furthermore, he does not introduce the idea of surplus or super normal profit to clarify the concept.

In sum, the information in the graph indicates that the undergraduate raters wanted a definition of economic rent. Twelve highly-rated responses had definition packages, that is, explanations of what economic rent is. One highly-rated response did not include a definition. Rather, it consisted of conceptual background and an example. These three package types constitute the largest

amount of information in these responses. The lower-rated responses, on the other hand, contain fewer definitions, less conceptual background, and no examples.

Are fixed costs in the short run sunk costs?

Figure 2 shows that the responses to Question 3 have eleven different package types. Both groups contain answers and comparisons. The highly-rated responses have more examples and reasons, whereas the lower-rated ones include more definitions (D1) and repetitions of the original question.

Figure 2. Package Types in Question 3

A Answer
 C Comparison
 Ex Example
 Re Reason
 El Elaboration
 D1 Definition (what it is)
 S Summary
 D2 Definition (what it does)
 R? Repetition of the question
 CB Conceptual Background
 R Restatement

Seven of these package types are described in the discussion of Question 1: definition 1 (what it is), definition 2 (what it does), elaboration, example, conceptual background, summary, and restatement. The other four package types are illustrated below.

Answers, labeled A, are one-sentence responses to the yes/no question. These package types appear only in the responses to Question 3. The answers vary according to the information contained in the packages that follow them. For example,

- (6) Ah, the answer is yes.
- (7) The answer is that they are not the same
- (8) It depends.

The first answer, (6), responds to the specific question, Are fixed costs in the short run sunk costs? This TA explains her answer by giving a reason and an example to illustrate the similarities of the two concepts. The second answer (7), responds to the question, Are fixed costs the same as sunk costs? This TA ignores the short run in his initial answer and later presents a comparison of fixed costs and fixed costs in the short run to clarify his response. The third answer, (8), sets up a comparison that will answer the question. This TA suggests that if you can sell the capital, you will recover the fixed cost. If you cannot sell it, however, you lose the money and the cost is sunk.

The comparison category of packages, labeled C, consists mostly of

definitions. These definitions, however, unlike the other definition categories, exhibit parallel structure. Two examples illustrate this package type.

- (9) If a, if a fixed cost can be resold through the market at a, at a wage or at a, at a, at a price, ah, similar to what was paid for it I don't know that it could be considered a sunk cost.

If the fixed cost is not, ah, marketable if it cannot be sold in the market in the short term then it can be considered a sunk cost.

- (10) We should go over what, ahm, fixed costs are. Fixed costs are those costs which cannot be changed in the short period of time whereas sunk costs are costs that are, uhm, there's, ah, sunk or they're spent and they cannot be changed over any period of time.

In the first example, (9), the TA presents functional definitions (D2) of the two concepts, that is, the cost is not sunk if the item can be sold and, alternatively, the cost is sunk if the item cannot be sold. In the second example, (10), the TA defines what the two costs are (D1) by differentiating the time periods.

Comparison packages are distinguished from definitions by the type of structure used to present the information. In the comparison packages above, the connection between the concepts is clearly marked. In the following definitions, however, the connections are not clearly marked.

- (11) Fixed costs are something that's constant no matter how much is produced.

A sunk cost is an amount you have to spend to start up an operation before you have produced anything.

- (12) Fixed costs first of all fixed cost is the cost that the firm must, eh, incur in order to start any level of production, is independent of the level of production.

The definition of sunk cost is rel-, is, ehm, referred to as, ehm, an expenditure that the firm makes once and for all and that cannot be recovered, eh, eh, after having made them.

Responses to Question 3 include repetitions of the actual question. These package types, labeled R?, do not appear in the responses to the other definition questions in this study. This package most likely serves to remind the TA that this short question contains three concepts: fixed costs, short run, and sunk costs. Only two of these packages appear in the highly-rated responses, whereas five appear in the lower-rated ones. Examples are:

- (13) The question, ahm, is in the short period of time are fixed costs the same as, ahm, sunk costs.
- (14) Ahm, the question is to ask, ah, whether the fixed costs in the short run is equivalent to sunk cost.

Reason, labeled Re, is the final package type found in the responses to Question 3. Like question repetitions and yes/no answers, these packages do not appear in the responses to the other definition questions. Each contain the

conjunction, because. For example:

- (15) Fixed costs are, ah, sunk in the short run because in the short run there's nothing you can have done about it.
- (16) Fixed costs in the short run are sunken costs because they're costs that we're unable to recover by closing down production.

The following table summarizes the package types that appear in the responses to Question 3.

Table 4.1. Summary of Package Types in Responses to Question 3

<u>Type</u>	<u>Number of Responses</u>	
	<u>High</u>	<u>Low</u>
Answer	8	7
Comparison	7	6
Example	5	2
Reason	5	1
Elaboration	4	4
d1 (what it is)	3	5
Summary	3	-0-
d2 (what it does)	2	-0-
Repeat question	2	5
Conceptual background	1	1
Restatement	1	-0-

The information in this table shows that both groups of responses contain answers and comparisons. Responses that include examples and reasons are rated higher than responses that have repetitions of the question.

None of the highly-rated responses received 6 - 6 scores from the undergraduate raters. Two responses, however, received 6 - 5 scores. The first, TA 15, includes an answer, an example, and a comparison. The second, TA 21, consists of an answer and a reason.

15.3.1 answer	Sunk costs and fixed costs are, are two quite quite different ideas.
15.3.2 example	The idea of a fixed cost is that for, for doing any production activity you might need, ahm, a particular amount of, ah, of a factor of production. For example, if you were to set up a firm which, ahm, produced, ahm, shoes then you w-, the very least would need is a shoe machine. Now you would need that machine whether you, you are going to produce one shoe or you're going to produce, ahm, a hundred shoes which is let's say is the maximum that the machine can produce in any fixed amount of time.
Now	
15.3.3 definition D2	that is different from a sunk cost which is the idea that in order to undertake any production at all you would have to put up a cost which you cannot recover.
15.3.4 comparison	That is to say, for example an, with a fixed cost of a machine you can sell that machine and still regain back that fixed cost. However, with a sunk cost, for example like, um, advertising in order to sell your shoe it would be, um, a sunk cost that you spent that you would not be able to regain.

This TA, a nonnative speaking male, answers the question by suggesting that fixed and sunk costs are different concepts. Unfortunately, he does not

address the specific question of fixed costs in the short run. He nevertheless received high ratings from the undergraduates most likely because he illustrated the concepts with clear examples. He provides the example of the shoe machine to illustrate fixed costs. He next supplies a functional definition of sunk costs. Although he does not give an example of sunk costs, he clarifies the difference between the two concepts in the comparison package.

TA 21 gives a very short response to Question 3.

21.3.1 answer	Actually they are both the same thing. Um, fixed costs are costs that cannot be changed in the short run.
------------------	---

And

21.3.2 reason	that's why they're sometimes referred to as sunk costs because no matter how much you produce those costs are, are money spent, they're gone and you can't get them back.
------------------	--

This TA, a native speaking female, addresses all parts of the question: fixed costs, short run, and sunk costs. While she does not supply an example or comparison, she gives a precise reason why fixed costs in the short run are sunk costs.

The lower-rated responses contain identifiable packages. The information within some of the packages, however, is unclear. The undergraduates rated these responses 2 - 2 and 2 - 1 respectively.

Well

37.3.1
repeat
question

the question is whether in the short run fixed costs should be regarded as, as, as sunk and we want to look at that.

and

37.3.2
definition
D1

re- remember what we mean when we say sunk cost something which is, which money which is already been, been invested and which can't be recovered or changed, something which is already which comes perhaps in the first stage.

37.3.3
elaboration

Ah, we build a factory and then you have, then you have some variable costs which are, are going to, ah, go, which are going to, to make something in the factory.

and

37.3.4
definition
D1

fixed costs or, eh, is what w- what, when we talk about fixed costs, fixed costs that's normally what we mean, something that, ri, no matter how much we, we, ah, we produce it's a, it's in a fixed amount, ri, the cost of the factory and whenever those fixed costs come up front then they're regarded as sunk costs.

37.3.5
elaboration

It's possible that there will be some fixed costs which come at the end, ah, where for example you have a factory which is located far from the final point of sale, ah, and you have to hi- a, charter a ship to take it to, to where you're gonna, you're gonna sell it and no matter how much you have to get the ship and you got unlimited amount of space in the ship and so that's gonna be a fixed cost which comes at the end and it's not gonna be in the short run really sunk in the way we normally think about sunk, ahm, ri, because th- you could always stop and say never mind I'm not gonna ship, ah

This TA, a native speaking male, begins by repeating the question. He then attempts to define sunk costs. By reformatting the definition, the ambiguities become apparent.

Re- remember what we mean when we say sunk cost is something
which is
which money
which is already been, been invested and
which can't be recovered or changed
something which is already
which comes perhaps in the first stage.

He then introduces the concept of variable costs in 37.3.3. Next, he defines fixed costs in 37.3.4. He does not, however, explain the relationship between these two costs. His discussion of fixed costs up front in 37.3.4 and fixed costs at the end in 37.3.5 does not answer the specific question, Are fixed costs in the short run sunk costs?

TA 32 also begins his response by repeating the question.

32.3.1	Question's whether short run fixed costs are the
repeat	same as sunk costs.
question	
(22.5 second pause)	

32.3.2	The answer is they are not the same because fixed
answer	costs are still costs that even in the short run
	that you choose to make in that particular time
	period. Sunk costs,

and bu-

32.3.3	the fixed costs in that period of time by increasing
comparison	the fixed costs you affect production whereas sunk
	costs you do not increase pro- do not contribute to
	the production at all in that particular time period.

This TA, also a native speaking male, attempts to explain fixed costs as "costs that you choose to make in that particular time period." He does not specify the relationship between fixed cost and time. Furthermore, he does not clarify the relationship between cost and production. He states that increased fixed costs affect production but sunk costs do not contribute to production without explaining the reasons for the difference.

In sum, the responses to Question 3 include eleven package types. Both groups have answers, comparisons, definitions (D1 and D2), and a few elaborations. The highly-rated responses are distinguished by the presence of examples, reasons, and some concluding statements. The lower-rated ones, on the other hand, include more repetitions of the question.

What is the difference between joint profit maximization and Cournot?

Figure 3 shows that the responses to Question 4 primarily consist of functional definitions and comparisons.

Figure 3. Package Types in Question 4

D2 Definition (what it does)
C Comparison
S Summary
R Restatement
Ex Example

Functional definitions (D2) and comparisons (C) constitute the majority of package types in the responses to Question 4. Functional definitions are described in the discussion of Question 1. Two examples illustrate their use in the responses to this question.

- (17) In the case of joint profit maximization the two firms are sharing their information and they act as they were one large firm.
- (18) In a Cornout equilibrium the firms are acting, uhm non-cooperatively towards each other and each is out to maximize his own profits given the actions of the other.

Neither definition contains a superordinate noun to define a class to which the terms belong, e.g., Cornout is an economic system. Hence, they are not categorized as D1, definitions that explain what the term is.

TA 20 uses D2 packages to respond to this question.

20.4.1
definition
D2

Under a joint profit maximization the process which the firms undergo is to in effect become one firm and jointly maximize the profits of the both firms.

20.4.2
definition
D2

A Cornout solution to the problem consi-, considers that each firm acts independently of the other firm when planning their production process. In the Cornout solution each firm takes the actions of the other firm as given when deciding on their profit maximization or on their production plan.

Thus

20.4.3
comparison	joint profit maximization implies some sort of cooperation between the two firms whereas in the Cornout solution each firm acts independently in planning their production process.
20.4.4
summary	Under the Cornout solution each firm will take the actions of the other firm as given and will not seek to influence or cooperate with the other firm.

This TA, a native speaking female, first defines each term. She then compares the two systems by stating that firms cooperate in one system but act independently in the other. Finally, she concludes with a summary statement.

Like TA 20, TA 11 offers definitions of Cornout and joint profit maximization. This TA, a nonnative speaking male, uses a parallel structure to mark the difference between the two concepts. Hence, this package is classified as a comparison.

Well

11.4.1
comparison	the main difference is that in a Cornout oligopoly, in the Cornout solution each firm is trying to maximize its profit by choosing a quantity given the other firm's quantity, ah, as fixed. Whereas in a joint profit maximization all firms are jointly together determining their quantity to be supplied so that they tw-, maximize the total profits of all firms not only the profit of each firm individually.

So

11.4.2
summary

in the first case we refer to the Cornout solution as being a non-cooperative solution because each firm is trying to maximize its own profit. Whereas the second one is a cooperative solution because all firms are trying to jointly maximize their profits.

The second package in this response is labeled as a summary rather than as a comparison because the TA uses the phrases, "in the first case" and "in the second one," to refer back to the previous package.

The above responses are two of the three that received 6 - 6 scores from the undergraduate raters. The following response, presented by a nonnative speaking male, is an example of a lower-rated one. The packages cannot be clearly identified because the TA alternates between joint profit maximization and Cornout without clearly marking the connection between the two concepts. Because he attempts to compare the characteristics of the two systems in 14.4.1 by repeating the term, quantities, this section is labeled as a comparison.

14.4.1
comparison

Joint profit maximization is the, we think the two firms is just the one firm and they try maximize the whole profit and divide it between their * or something like that.

And the Cornout case is that they chooses their quantities independently.

And in the joint maximizing cases they chooses the, the * quantities in, in that market and they divide it between their, the capacity or something like that. Once they of choose the monopoly profit which is the largest one they can obtain that market and then they divide it depending on the rules they agreed previously.

And the Cornout cases they chooses their quantities independently of the other pa- the other players' choices. In that cases since they cannot coordinate their, their actions so in that cases they produces more than the * quantities and the profit from the Cornout cases less than the, the monopoly profit.

So

14.4.2
summary

in that cases in the viewpoint of the firms they, they, if they can jointly maximize the profit that's the best one for the firms but since that is they cannot be sustained as equilibrium they * they play the Cornout cases they chooses their quantity independently.

The discourse marker, so, suggests that what follows is a summary conclusion. Hence, this response was separated into packages at this point.

The lower-rated group also included responses to slightly different questions. The following is part of a response in which the TA compares joint profit maximization, a form of monopoly, with monopoly. He does not mention Cornout, which is a non-monopoly type of system.

39.4.1

The situation where you have joint profit maximization you have more than one firm which are, which together are setting out to set the price by, ah, restricting supply in a market.

39.4.2

In the second situation with monopoly you have one single firm that is setting to restrict supply in order to maximize profit.

Although these are D2 package types, the response was discarded from the analysis because it does not answer the question, what is the difference between

joint profit maximization and Cornout?

Another TA responded to this question by describing Cornout and joint production rather than Cornout and joint profit maximization.

15.4.3 Production in, in a duopoly setting or, or Cornout competition is the idea that you have two competitors just two in the market, ah, both producing a similar product and you have competition between the two firms in producing that product which is different of course from joint production which is just one firm producing two products.

In sum, both the highly-rated responses and the lower-rated ones to Question 4 include functional definitions and comparisons. The difference between the groups is in the number of responses that addressed the actual question. Five of the 13 lower-rated responses were eliminated from the analysis because they were answers to different questions. In these cases, the TAs apparently did not understand the actual question.

The three questions analyzed so far in this section are requests for a definition or clarification of terms. The packages, or information units, contained in the responses to those questions are summarized below.

<u>Package Type</u>	<u>Description</u>	<u>Example</u>
Definition	what it is	Economic rent is the difference between what it costs a firm or an individual to supply something and the income that that thing can generate for the person.
Definition	what it does	Economic rent is when an asset earns a return above the perfectly competitive price.
Conceptual Background	overview	The idea behind economic rent is that certain goods or products can generate income.
Elaboration	additional information	In real world, by rent we mean how much you have to pay for your accommodation, your dorm room.
Example	illustration	The baseball player is earning astronomical wages which are way above what they should actually be earning for the type of work they're performing. That extra money that they're getting is a surplus to them.
Repeat Question		The question is in the short period of time are fixed costs the same as sunk costs.
Answer		The answer is yes.

<u>Package Type</u>	<u>Description</u>	<u>Example</u>
Reason	explanation of cause	Fixed costs in the short run are sunken costs because they're costs that we're unable to recover by closing down production.
Comparison	relationship of terms to each other clearly marked	Joint profit maximization implies some sort of cooperation between the two firms whereas in the Cornout solution each firm acts independently in planning their production process.
Restatement	conclusion: repetition of previous information	
Summary	conclusion: paraphrase of previous information.	

Responses to questions asking for a straight definition were highly rated when they contained a definition, conceptual background, and an example.

Responses to questions asking for a difference between terms, e.g., fixed costs vs. sunk costs, Cornout vs. joint profit maximization, consisted of comparisons as well as definitions. The highly-rated responses were distinguished by the presence of examples, reasons, and some concluding statements.

The fourth question in this study is not a request for a definition or clarification of terms. Rather, it is a request for reasons.

Question 6. If you're like a coal mining company, or something, and in a really small town and that's the only place where people work, why would you have to . . . I mean you have a . . . you're the one buyer of that labor market . . . so why would you have to . . . increase the . . . the wage price . . . why couldn't you just . . . set it even lower because those people don't have anywhere to work anyway.

Unlike the three questions analyzed earlier, this one contains incomplete phrases and hesitations. The actual question, Why can't a single employer pay the lowest wage possible when there is no other place for the people to work?, may be unclear to the TA. TAs, then, might be expected to repeat the question. The following graph, however, indicates that only one highly-rated response contained a R? package type. Although three lower-rated responses had these package types, the number is less than those found in the answers to Question 3.

Figure 4. Package Types in Question 6

Re	Reason
S	Summary
CB	Conceptual Background
SU	Set Up
R?	Repetition of the Question
D1	Definition (what it is)
E1	Elaboration
R	Restatement

Responses to Question 6 have a package type that did not appear in the responses to the definition questions. This type, labeled set up (SU), is an announcement of how the TA plans to answer the question. Because this package does not always appear at the beginning of the response, it is not labeled as an introduction. Examples of set up package types are:

- (19) Uhm, a monopolist does not have complete freedom to pay anything he wants in order to purchase labor or purchase capital or to purchase land.
- (20) There's still two factors that are hol- that are preventing a firms from unilaterally determining the wage.

The majority of package types in both the highly-rated and lower-rated responses to Question 6 are set up, reason, conceptual background, and summary. The two responses that received 6 - 6 scores from the undergraduate raters illustrate similar package configurations.

16.6.1 set up	There're a number of reasons why the labor, the, the wage that even a monopsonist or the only hirer in town of labor can't drive the wage all the way to, to zero or someplace close to it.
------------------	---

First of all

16.6.2 reason	they've got to pay a wage high enough, ah, so the workers, ah, continue to exist. But probably more relevant than that, ah, unless you're assuming this is, this is a, an isolated island that people can't leave people could choose to, ah, to migrate from this town t- elsewhere and if wages are terrible enough they just might well do that.
------------------	---

So I mean

16.6.3
conceptual
background

I think the thrust of your question is right that, ah, one buyer of labor in town does have some, some power, some market power, remember we discussed that in class, over the wage that, ah, that they pay to, ah, to workers. They're not competing with anyone else to, ah, hire labor, so in fact they can, ah, push the wage below what it would have been if with the same number of workers there were a whole bunch of different firms buying their labor.

But

16.6.4
set up

at the same time they can't drive it arbitrarily low because people have, have alternatives.

In effect

16.6.5
reason

what's going on is that even if there is only one buyer of labor in town this buyer of labor is still competing with buyers of labor in other towns because the, the sellers of labor or the workers do have a choice that they can, they can leave the town.

So

16.6.6
summary

there's sort of a, a tempered version of competition here. There aren't, ah, locally competing buyers of labor but as long as people can leave the, there's some market forces here, there's some reason why this buyer of labor has to, ah, has to keep his wages high enough so that people won't simply leave town.

This TA, a native speaking male, begins by stating that there are a number of reasons why the monopsonist cannot set the wage close to zero. He then

presents two reasons: 1) workers need high enough wages to exist and 2) workers can choose to migrate if wages are too low. Next, he provides the conceptual background that the monopsonist, in theory, does have the power to offer low wages because there are no other firms competing for the workers. He counters the argument with a second set up package, "they can't drive it arbitrarily low because people have alternatives." He then returns to the discussion of migration. Finally, in the summary, the TA suggests that the monopsonist is in fact competing with firms in other towns and that the workers may simply leave if the wages are not high enough.

TA 8 also presents a combination of set up, reason, and summary.

Well

8.6.1
set up

to use your example, if you're in a small coal mining town and the only industry is coal mining and you are the proprietor of the coal mine there are other things to consider in addition to, ah, how low you can set the wages.

8.6.2
reason

Individuals make their decision on supplying labor, ahm, based on a number of factors. Wages are certainly one factor but if wages are not high enough then they will look at their options. Other options include, ahm, perhaps starting their own business, ah, perhaps leaving the area.

So

8.6.3
restatement

you cannot, you as the proprietor of the coal mine cannot only look at, ahm, how low can you push the wages.

But

8.6.4 you have to look at how low can you push
set up the wages subject to getting the number of
 workers that you want.

So for instance

8.6.5 if your wages are too low people will no
reason longer have incentive to, to stay there.
 Granted there are some, ah, reasons why
 they would resist moving for instance, ah,
 family in the area or a sense of family
 history being associated with the area
 but if they have no prospect of earning
 a living then they will leave the area.

Ah, additionally

 if the wage is too low they can say well
 it's not worth my time to work for such
 low wages instead I will go out and start
 my own business perhaps being, ah, farming
 or, ah, starting up a competing, ahm, some
 sort of competing business.

So

8.6.6 you are, they, the pro- proprietor even if
summary he has captured labor market is not able, ah,
 just to drive down the wage, ahm, as far as
 he or she would like.

 This TA, a nonnative speaking male, provides two reasons in the first part
of the response: workers can start their own business or leave town. He
concludes this part by restating phrases contained in the set up, "you as the
proprietor of the coal mine cannot only look at how low you can set the wages."
In the second part of the response, the TA expands on the two options he

introduced earlier and concludes with a summary statement.

Both TAs structured their responses in a similar manner.

TA 16

set up

reason

conceptual background

set up

reason

summary

TA 8

set up

reason

restatement

set up

reason(s)

summary

In general, the lower-rated responses contain less information and are not as clearly ordered as the highly-rated responses. TA 22, for example, supplies only one reason. The undergraduates gave this answer a 3 - 3 rating.

22.6.1

set up

Uhm, even if you're the only source of labor, ah, of, uhm, the only, uhm, firm that buys labor in a small town it may not be profitable for you to lower the w- the wage. There may be a certain wage at which your profits are maximized that may be higher than a wage that y- you know, you think you can get away with, with paying.

22.6.2

reason

The lower the wage you pay the, uhm, less people you get, I mean you face a number sloping, uhm, supply curve for labor and so the lower the wage you pay the less number of people you get.

So

22.6.3

restatement

the wage you pay affects the number of people you get and then that's why you might not, uhm, that's why you might not pay a lower wage.

This TA, a native speaking female, suggests that paying a low wage will yield an insufficient number of workers. She repeats the notion in the reason package and restates it again in the concluding statement. She explains the reason is that the single employer faces a "number sloping supply curve," but she does not offer other explanations, such as people will leave town or start their own business.

TA 5 supplies a more concrete reason, that people will go elsewhere.

Well

5.6.1 reason to a degree that is possible and its certainly done but, ah, if you do that and * measure than, ah, of course the people will change jobs and go elsewhere, we don't have slavery anymore.

So

5.6.2 conceptual background that's a, that depends on why we call the degree of market power that is, ah, the degree of, ah, ah, in which agents have a power to impose, ah, either price or quantity and in this case the employer has an amount of market fl- power that he certainly exercise against the the miners but that's not total right.

(20.5 second pause)

Now

5.6.3 definition D1 maybe a good thing to do were to explain what a monopsonist is. Monopsonist is a, ah, an agent who has a, a, a market power and he is in the side of the buyer. While a monopolist is the one who has the market power who is in the side of, ah, the, ah, the seller and, ah, to be rigorous, ah, mono would means that it, that it was just one buyer and just one seller for monopolist, right.

After presenting one reason, this TA, a nonnative speaking male, attempts to explain that a single employer has a degree of power over the workers. He closes this package by saying "that's not (a) total right." Rather than explain that statement, he concludes the response by defining a monopsonist (single buyer) and a monopolist (single seller) without returning to the notion of the power that these firms have. This TA most likely received the 2 - 2 rating because he provided a limited amount of information. In addition, he added definitions at the end of the response in what appears to be an afterthought.

In sum, the majority of package types contained in both the highly-rated and lower-rated responses to Question 6 are set up, reason, conceptual background, and summary. The difference between the two groups is that all of the highly-rated responses have at least one reason, e.g., people will leave the town or start their own business if wages are too low. Nearly half of the lower-rated responses, on the other hand, contain only conceptual background, e.g., the idea is that the supply of labor is inelastic in a town where there is only one buyer of labor.

Summary. The purpose of this study was to develop a characterization of what constitutes a good answer to student-initiated questions. I analyzed the information units contained in the responses and identified twelve package types. I then compared the highly-rated responses with the lower-rated ones to illustrate the differences between the two groups. The following patterns are apparent.

First, the responses to the three definition questions consist of one or more of the following package types: definition, conceptual background, direct answer, and comparison. The highly-rated responses contain more information units, specifically, examples, reasons, and concluding statements. Second, both the highly-rated and lower-rated responses to the question that asked for reasons have similar package types. The difference between these groups, as noted above, is that all the highly-rated responses include at least one reason, whereas nearly half the lower-rated ones did not.

This discussion of package types has focused on the differences between groups of responses. The next question, then, is Are individual responses that have similar package types rated differently? The answer is yes. When I initially reviewed the data, I noted that the highly-rated responses appeared to be more cohesive than the lower-rated ones. They seemed to be distinguished from the lower-rated responses by the presence of discourse markers and the repetition of key words and phrases. To confirm this intuition, I analyzed two responses to a definition question that have similar package types to identify the cohesive devices the TAs used to link their information units. I then analyzed two responses to the reason question. The results, presented in the next section, suggest that other factors besides markers and repetitions may account for the differences between the highly-rated and lower-rated responses. Among these are lexical choice, hesitations, and false starts.

2. How are packages linked to form a cohesive response?

The highly-rated response is analyzed first, followed by the lower-rated one. The complete transcription is presented at the beginning of each discussion so that the reader may easily refer to it. In the discussion, discourse markers are in bold type to distinguish them from other cohesive devices.

Question 4. What is the difference between joint profit maximization and Cornout?

Both responses contain functional definitions and a comparison.

- If two firms get together and decide to jointly maximize their profits then they are acting in collaboration and in a sense acting as one firm one decision unit
- (5) and therefore the combined firms which form this one firm can earn the monopoly profit for that one firm which they can then divide among themselves say half each or some other
- (10) form of uhm splitting the profit. In a Cornout equilibrium the firms are acting uhm non-cooperatively towards each other
- (15) and each is out to maximize his own profits given the actions of the other. In general the profit that will be gained from the Cornout equilibrium wobe wobe less than the joint profit maximization. The key is that
- (20) the firms in the Cornout equilibrium are acting nun non-cooperatively whereas in joint profit maximization the firms must be acting cooperatively.

This response, presented by a native speaking male, consists of three

packages: definition of joint profit maximization (lines 1-11), definition of Cornout (lines 12-16), and comparison (lines 17-22). The first definition is longer than the second, probably because the TA is in the first stage of planning his response. He repeats and replaces lexical items in this package, a strategy characteristic of relatively unplanned discourse. He defines joint profit maximization as two firms get together (line 1), acting in collaboration (line 3), acting as one firm (line 3), one decision unit (line 4), the combined firms (lines 5 and 6), which form this one firm (line 7), monopoly (line 7), and that one firm (line 8).

In the second definition, the TA defines Cornout as "the firms are acting, uhm, non-cooperatively." He links the two definitions by repeating the word acting (line 12) and by presenting an antonym for collaboration, non-cooperatively (line 14). He emphasizes the notion of non-cooperation with each other (line 14), and each is out to maximize his own profits (line 16).

The comparison package consists of two statements. He begins the first with **in general** (line 17), a signal that he is going to highlight the important information. He then compares the profit gained under the two systems. Profit is an exact repetition of the words in lines (1), (7), (11), and (16). By returning to the notion of profit, the TA has linked the two definitions in the comparison. He begins the second statement in this package with the key is that (line 19). This phrase indicates that a statement synthesizing the previous information will follow. He uses a parallel construction to differentiate between the two systems

(lines 20-22), Cornout firms are acting non-cooperatively, whereas joint profit maximization firms are acting cooperatively. By repeating the word acting, he again links the two definitions in the comparison. Non-cooperatively (line 20) refers back to the previous package (line 14). The antonym, cooperatively (line 22), clarifies the distinction between the two systems. The insertion of **whereas** between the two phrases emphasizes the contrast.

The TA links the packages of information primarily by repeating words and replacing phrases with synonyms. He uses discourse markers on three occasions, once to link packages and twice to connect information within the package. **In general** links the definition packages to the comparison package and signals that important information will follow. **Therefore** (line 5) marks a causal relationship between parts of the lengthy definition of joint profit maximization, "the two firms ... are ... acting as one firm, **therefore** ... this one firm can earn the monopoly profit." **Whereas** marks the contrast between the two systems within the comparison package.

Unlike the previous response, the lower-rated one contains hesitations [ah, ahm], false starts [nim - monopolist (line 1), monopoly's maxi - monopolist maximization (line 9)], and replications [there there ... two two (line 15), they are not they don't have they don't share (line 17)].

- Ah in the case of a nim monopolist there's only one agent trying to maximize profit.
In the case of joint maximization you are talking about usually two agents trying to maximize the total profit that they are going to earn together.
- (5) Ahm
joint maximization
is a step beyond
ahm monopoly's maxi a monopolist maximization problem
- (10) because one still ahm
would like to know how the two agents are gonna split the profits that they are going to earn together.
Ahm in a Cornout situation
ahm
- (15) there there usually are two two agents again trying
to ah maximize their own profit individually
therefore they are not they don't have they don't share one individual maximization problem
in this case they're maximizing profits
- (20) ahm
taking into account what the other agent is doing at the same time.
(4.5 second pause)
Therefore
the other
- (25) the other agent's
decision variables enter into his profit in into one of the individual's profit maximization equation
however he is not
trying to benefit
- (30) the other agent at all.

This TA, a native speaking female, first presents a comparison (lines 1-5) and then defines joint profit maximization (lines 6-12) and Cornout (lines 13-30). In the comparison package, she uses a parallel construction to distinguish between the two systems, in the case of a monopolist (line 1) and in the case of joint profit maximization (line 3). She repeats the phrase agent trying to maximize profit (line 1 and lines 4-5) to clarify the difference. The problem here

is that she uses a field-specific term, agent, to refer to a firm.

This TA continues to use technical terminology that undergraduate students in a beginning economics course would not be expected to know. For example, in the next package, she defines joint profit maximization as "a step beyond a monopolist maximization problem" (lines 8-9). She defines neither a monopolist maximization problem nor what is meant by "a step beyond (it)." In the final package, she presents a different phrase, "individual's profit maximization equation" (lines 26-27). She does not, however, connect "equation" with "problem." Finally, towards the end of this package, she introduces a new term, "decision variables" (line 26), but does not specify what they are or provide examples to illustrate them.

Most likely this TA received low scores from the undergraduate raters because she used field-specific, technical terms in her response. Her choice of lexical items coupled with the accumulation of hesitations, false starts, and replications diminishes the effectiveness of any cohesive devices she used.

Question 6. If you're like a coal mining company, or something, and in a really small town and that's the only place where people work, why would you have to . . . I mean you have a . . . you're the one buyer of that labor market . . . so why would you have to . . . increase the . . . the wage price . . . why couldn't you just . . . set it even lower because those people don't have anywhere to work anyway.

Both the highly-rated and lower-rated responses contain reasons and a concluding statement.

- Well what we have to remember here is that the workers can move so that if wages fall below a certain level people are
- (5) gonna move out of town to a place where they can earn a higher wage ah you're right in thinking that being the only employer in town there aren't gonna be any other competitors
- (10) ahm eh within a close range but you know people are pretty mobile in fact and we are gonna see some
- (15) mobility or transfer of labor ahm and that is going to definitely influence the wage so that we might imagine that the lowest point at which the wage could be driven down to would be
- (20) ahm the wage at perhaps the nearest town minus some transfer cost so that you know if it's a minor difference people wouldn't be willing to move but if it's a major difference then people would move into the at least the
- (25) next nearest town if not further than that in order to earn a higher wage so there definitely is a bottom level beyond which the mining company is not gonna be able to push the wage.

This TA, a native speaking female, begins her response by reminding the audience "that people can move." She links the small packages of information in her response by repeating move in lines (5), (23), and (24) and presenting the notion of move as mobile (line 12) and mobility and transfer of labor (line 15). She repeats transfer when describing the lowest point the wage can be driven down to as the wage minus some transfer cost (lines 20-22). She then uses a parallel construction to connect mobility and cost: "if it's a minor difference people wouldn't ... move; if it's a major difference ... people would move" (lines 23-24).

This TA also uses a variety of discourse markers in her response. **Well** is most likely a general introductory remark. This marker appears in many of the responses to Question 6. The majority are followed by a pause probably indicating that the TA acknowledges the question and is thinking about the answer. Because she does not pause after **well**, it seems reasonable to suggest that it functions here as a hesitation much like "ah" or "uhm."

The marker **so** has two functions in this response. First, **so** (line 27) signals that what follows is a summary statement. Second, "so" coupled with "that," to form **so that**, serves as a signal, "hold what was just said for future reference." **So that** appears in lines (2), (16), and (21). The following example illustrates its use. "The workers can move, **so that** if wages fall below a certain level people are gonna move out of town" (lines 1-5) is actually given that the workers can move people are gonna move out of town if wages fall below a

certain level.

But introduces an idea that contrasts with a previous utterance. This TA uses it twice, lines (10) and (24). In the first instance, she indicates that the only employer in town does not have any competitors, **but ... people are pretty mobile**" (lines 9-12) and, therefore, can move to another place. She uses **but** again in the parallel structure, "if it's a minor difference ... **but** if it's a major difference ..." (lines 23-24).

And functions both as a connective and as a conjunctive in this response. In line (13) it joins "people are pretty mobile in fact" and "we are gonna see some mobility or transfer of labor." These phrases may be reversed without changing the information, so **and** functions as a connective here. **And** also appears in line (16), "**and** that (mobility) is going to definitely influence the wage." In this case, **and** serves as a conjunction signaling that additional information follows.

You know generally serves one of two functions. It can be an invitation to the listener to pay attention or it can fill a pause and, therefore, function like "ah" or "uhm." This TA uses **you know** twice in her response, lines (12) and (23). I could not ascertain its function by reading the transcription, so I listened to the tape. In neither case did she stress **you know**. Moreover, they both follow pauses. It seems reasonable, then, to interpret **you know** here as pause fillers rather than as markers.

This TA uses non-technical vocabulary to elaborate upon a single reason, that people are mobile. She maintains the unity of focus by identifying the main

idea, mobility, and then repeating the term and supplying synonyms for it. She also links the packages of information by using discourse markers, **and**, **but**, **so**.

Unlike the previous response, the lower-rated one contains an accumulation of pauses, hesitations, false starts, and word deletions [if that wage you offer too low (lines 7-9)].

- Because ahm
I think there are several possibilities first you
even though you are the only company there b
but
(5) the laborers and those people they still can
probably work for themself
I mean if you offer to
that wage you offer too
low then they wi
(10) would just
probably they will just prefer to
ah work at home
you know
or
(15) work
in their farms or that
and also the o
ah
the other possibility's that if there are other
(20) ahm
ah
the other possibility is that
if you want to increase you
your supply then
(25) because you are facing a
a
labor supply curve that is ahm
elastic so you
definitely if you want to increase your own
(30) the production of your own products then need to
ah bid up the wage in order to to in order to attract more

- labor to come to work for your company
 even though you're the only buyer
 but
 (35) because the labor the elasticity
 the labor supply curve is las
 elastic is because ahm
 la ah the labor
 or the people the workers they have other opportunity to work
 (40) except your own except your company.

This TA, a nonnative speaking female, uses incorrect words, e.g., themselves (line 6) and in their farms (line 16). She also uses discourse markers inappropriately. For example, in lines (3-6), "even though you are the only company there **but** laborers and those people still can work for themselves," she uses "even though" and **but** to introduce subordinate clauses. There is, however, no main clause. The idea might be better expressed as "even though you are the only company there, the laborers ... " or as "you are the only company there, **but** the laborers"

The TA also makes an assumption that was not part of the question, that the labor supply is elastic. Elastic is a term used to describe a situation in which a small change in the wage results in a large change in the number of people willing to work for the firm. The labor supply is expected to be inelastic in a single employer town. The reason is that if the firm makes a small adjustment in the wage, the number of people willing to work will not change much because there is no other place for them to go. The TA, then, needs to explain why the labor supply is elastic rather than inelastic. She does not sufficiently expand on the notion that workers may have other options to working for the firm to explain

why the labor supply could be elastic.

In sum, the highly-rated responses analyzed here contain non-technical vocabulary, repetitions of and synonyms for key words and phrases, and a variety of discourse markers. The lower-rated responses, on the other hand, are characterized by hesitations, pauses, false starts, replications, field-specific, technical terminology, deletions, incorrect words, and inappropriate uses of discourse markers. This list, although lengthy, may not include all the possible reasons the undergraduate raters gave different scores to responses containing similar package types. These features, however, account for the major differences in the ratings.

Chapter 5

Participants

In the previous chapter, I discussed the types of information the TAs provided and the linguistic devices they used to respond to student-initiated questions. In this chapter, I examine additional factors that may contribute to TA effectiveness.

The individuals who took part in the study were all graduate students enrolled in an economics Ph.D. program at a major research university. They either have served, or will serve in the future, as teaching assistants in a discipline that includes mathematics and theoretical concepts. The group of 39 included ten native English speaking women, 14 native English speaking men, and 15 nonnative English speakers (13 men, 2 women). Numbers indicating year in the program and number of terms they had served as a teaching assistant prior to the taping are noted in the charts (Appendices 6 and 7).

It was not the intent of this study to make generalizations about the TA population in this department. Rather, the purpose was to distinguish between the successful and unsuccessful responses to student-initiated questions. To that end, the undergraduate raters read transcriptions of the responses that the TAs provided. Transcriptions not only protected the anonymity of the participants, but also eliminated gender and pronunciation as factors in those ratings.

Linguists' Ratings

As indicated in Chapter 3, I pre-tested the scoring guide by having eight linguists read and rate the transcribed responses to one question. I included the transcribed response of the TA who conducted the review session. Hence, the number of responses totaled 40. The four-point scale (Appendix 3) was an "appropriateness" rating. I defined an appropriate response as one that 1) a novice could understand, 2) highlighted the main point, and 3) provided elaboration that was within the students' general knowledge. I described as inappropriate one that contained too much detail or not enough information.

The results of the linguists' ratings, based on this scale, yielded some interesting results.

Table 5.1. Analysis of Ratings by Linguists for Question 3

November 7, 1989

Top 10	<u>NS/NNS</u>	<u>Gender</u>	<u>Yr. in Prog.</u>	<u>TA Exp?</u>
	NS	F	1	no
	NNS	M	1	no
	NS	F	3	yes
	NS	M	2	no
	NS	F	1	no
	NS	F	1	no
	NS	F	1	no
	NS	F	1	no
	NS	M	4	yes
	NS	F	5	yes

Bottom 10	<u>NS/NNS</u>	<u>Gender</u>	<u>Yr. in Prog.</u>	<u>TA Exp?</u>
	NNS	M	4	yes
	NS	F	5	yes
	NS	M	5	yes
	NS	M	1	no
	NNS	M	3	yes
	NNS	M	3	yes
	NNS	M	3	no
	NS	M	3	yes
	NS	M	4	yes
	NS	M	4	yes

Results for the entire sample break down as follows:

Table 5.2. Ratings for Question 3 by Student Characteristics

	Totals by characteristic	Approp. Ans. (scores 3 & 4)	Non-approp. Ans. (scores 1 & 2)
Teaching Experience	19 (47.5%)	3 (15.8%)	16 (84.2%)
No Teaching Experience	21 (52.5%)	7 (33.3%)	14 (66.7%)
Years 1 & 2 in Program	20 (50%)	7 (35%)	13 (65%)
Years 3+ in Program	20 (50%)	3 (15%)	17 (85%)
Native English Speakers	25 (62.5%)	9 (36%)	16 (64%)
Non Native Eng. Speakers	15 (37.5%)	1 (6.7%)	14 (93.3%)
Men (NS and NNS)	28 (70%)	3 (10.7%)	25 (89.3%)
Women (NS and NNS)	12 (30%)	7 (58.3%)	5 (41.7%)
Native Eng. Sp. Men	15 (60%)	2 (13.3%)	13 (86.7%)
Native Eng. Sp. Women	10 (40%)	7 (70%)	3 (30%)
Totals: Entire Data Set	40 (100%)	10 (25%)	30 (75%)

The figures in Table 5.2 suggest that teaching experience and years of study in the program were not helpful in this task. The numbers do indicate that nonnative speakers fared worse than their native speaker counterparts. The most striking difference, however, is between the performance of the men and the women. This difference is not attributable to the preponderance of men among the low scoring nonnative speaker group. Rather, the results are even more favorable to the women when only native speakers are considered than they are in the sample group as a whole. Native speaking men comprised 37.5% of the total (15/40), but 50% (5/10) of the bottom 10 scores and only 20% of the top 10 scores. Native speaking women, on the other hand, comprised 25% of the total. They achieved 7 of the top 10 scores. Only one is represented in the bottom group.

A multiple regression analysis was performed using the ratings as the dependent variable. The independent variables were gender, first language, years in the program, and teaching experience. Gender, which accounted for about 8% of the variance, was the only significant variable ($P < .05$). This preliminary result, however, was not confirmed by the undergraduate ratings.

Undergraduate Ratings

The four-point scale the linguists used did not sufficiently distinguish among the categories. I therefore, revised the guide for the undergraduate raters to include a six-point scale (Appendix 4). I also changed the categories to

include not only appropriateness but also clarity, organization, and completeness.

I define these terms in Chapter 3.

The results from the undergraduate ratings are as follows:

Table 5.3. Analysis of Ratings by Undergraduates for All Questions

April 5, 1990

Top 10	<u>NS/NNS</u>	<u>Gender</u>	<u>Yr. in Prog.</u>	<u>TA Exp?</u>
	NS	F	1	no
	NS	F	1	no
	NS	F	3	yes
	NS	M	3	yes
	NNS	M	4	yes
	NS	M	2	no
	NS	F	5	yes
	NS	F	1	no
	NS	M	5	yes
	NNS	M	6	yes

Bottom 10	<u>NS/NNS</u>	<u>Gender</u>	<u>Yr. in Prog.</u>	<u>TA Exp?</u>
	NNS	F	1	no
	NS	M	1	no
	NNS	M	5	yes
	NS	F	1	no
	NS	M	2	no
	NS	F	5	yes
	NNS	M	3	yes
	NS	M	1	no
	NNS	M	2	no
	NNS	M	3	no

Results for the entire sample break down as follows:

Table 5.4. Ratings for All Questions by Student Characteristics

	Totals by characteristic	Approp. Ans. (scores 32+)	Non-approp. Ans. (scores below 32)
Teaching Experience	17 (43.6%)	10 (58.8%)	7 (41.2%)
No Teaching Experience	22 (56.4%)	7 (31.8%)	15 (68.2%)
Years 1 & 2 in Program	20 (51.3%)	7 (35%)	13 (65%)
Years 3+ in Program	19 (48.7%)	10 (52.6%)	9 (47.4%)
Native English Speakers	24 (61.5%)	14 (58.3%)	10 (41.7%)
Non Native Eng. Speakers	15 (38.5%)	3 (20%)	12 (80%)
Men (NS and NNS)	27 (69.2%)	10 (37%)	17 (63%)
Women (NS and NNS)	12 (30.8%)	7 (58.3%)	5 (41.7%)
Native Eng. Sp. Men	14 (58.3%)	7 (50%)	7 (50%)
Native Eng. Sp. Women	10 (41.7%)	7 (70%)	3 (30%)
Totals: Entire Data Set	39 (100%)	17 (43.6%)	22 (56.4%)

The figures in Table 5.4 suggest that teaching experience may be helpful in this task. Years in the program do not have an adverse affect as the linguists' ratings of a single question had implied. The undergraduates rated the native English speaking men much higher than the linguists had. The TA who conducted the review session was eliminated from these ratings because he answered the questions before an undergraduate audience and, therefore, performed a different task from the other TAs in the study. Even though this one NS male was not included in the second round of ratings, the number who supplied appropriate answers increased from two (13.3%) to seven (50%).

Ratings by both groups indicate that nonnative speakers fared worse than their native speaker counterparts. Another multiple regression analysis was performed using these ratings as the dependent variable. The same independent variables were used, i.e., gender, first language, years in the program, and teaching experience. First language, which accounted for about 10% of the variance, was the only significant variable. This result suggests that although the undergraduate students read transcriptions, i.e., rated the responses without hearing the NNS accents, they were still influenced by nonnative language use. The chart below does show that nonnative English speakers provided only 28.8% of the successful responses. It also shows, however, that native English speakers supplied nearly half of the lower-rated responses.

Table 5.5. NS and NNS Teaching Assistants

	<u>% of Pop</u>	<u>High</u>	<u>Low</u>
Native Speaking	61.5%	37 (71.2%)	25 (48.1%)
Nonnative Speaking	38.5%	15 (28.8%)	27 (51.9%)

This finding indicates that the language features discussed in Chapter 4, e.g., false starts, hesitations, pauses, reiterations, are not confined to the nonnative English speaking group. Rather, these characteristics also appear in the native English speaking TA responses.

Summary

The purpose of this chapter was to examine four variables, i.e., gender, first language, teaching experience, and length of time in the Ph.D. program, to determine if they accounted for the differences among the responses. The linguists read the responses to one question and rated them using a four-point scale. The undergraduates, on the other hand, read the responses to all four questions and rated them using a six-point scale. The results of the two ratings, then, are not comparable. Furthermore, the two groups had different backgrounds and, therefore, approached the rating task differently. The linguists were familiar with transcribed texts. In addition, they were probably more tolerant of nonnative English discourse. The undergraduates, however, were more knowledgeable about the material in the responses and, therefore, had a better idea of what constitutes good answers.

Statistical tests on the linguists' ratings showed that gender was a significant variable. Gender accounted for only 8% of the variation among the responses, thus leaving 92% unaccounted for. The significant variable in the undergraduate ratings was first language, accounting for 10% of the variation. The remaining 90% may be attributed to individual differences or other variables that were not considered.

Although these findings reveal little information regarding the TA population in this study, they do suggest questions for additional research. I discuss these in Chapter 6.

Chapter 6

Conclusion

Teaching assistants perform a number of roles, e.g., leading discussion sections, tutoring students, and grading exams and papers. TAs may also lecture on material not covered by the faculty member in charge of the course. The major portion of the TA's time, however, is spent clarifying the lectures by answering student questions in discussion sections, during office hours, and after exams. Research on teaching assistants has indicated that the ability to fulfill this function successfully is essential to effective TA performance (Hinofotis, 1980; Rounds, 1987).

Although the ability to respond to student-generated questions is recognized as an important component of TA effectiveness, previous research has not explicitly examined this issue. Rather, researchers have focused on overall TA performance (Bailey et al., 1984; Hinofotis & Bailey, 1980) or TA use of specific linguistic forms (Douglas & Selinker, 1989; Tyler et al., 1988). Moreover, researchers have concentrated on nonnative English speaking teaching assistants. This study, based on more than 150 responses to questions in economics, examined TA performance at the discourse level. Thirty-nine native and nonnative English speaking TAs at a major research university responded orally to four questions posed by undergraduates in a beginning course. To preserve

the focus on discourse and avoid the distraction of variable pronunciation, the answers were transcribed and subsequently rated by undergraduate students. The best and worst rated answers were grouped for comparison. Both groups of highly-rated and lower-rated responses were then analyzed to examine the types of information they contain and the cohesive devices used to link the units of information.

The results show that effective packaging of information, appropriate use of discourse markers, and the inclusion of repetition forms, e.g., synonyms, are the key components of successful answers. While both the highly-rated and lower-rated responses to questions asking for a definition of terms contained definitions, conceptual background information, and comparisons with other terms, the highly-rated ones had more information units, specifically examples, reasons, and concluding statements. Both groups of responses to the question asking for reasons consisted of set ups (mini-introductions), reasons, conceptual background information, and concluding statements. The essential difference between the two groups was that all the highly-rated responses included at least one reason whereas nearly half the lower-rated ones did not.

The cohesive devices most frequently used to link the information units in the highly-rated responses were discourse markers (**and, so, well, but, now**) and repetitions of and synonyms for key words and phrases. The lower-rated responses had fewer of these devices. Moreover, the lower-rated responses were characterized by a combination of hesitations, pauses, false starts, and technical,

field-specific vocabulary that an undergraduate audience would not be expected to know.

The responses exhibited considerable variability in the ordering of packages and no particular sequence dominated in either the highly-rated or lower-rated groups. Furthermore, the length of the response was unrelated to rating. Both groups included responses ranging from as short as 26 seconds to nearly four minutes. These findings suggest that specific content is more important than the order in which it is presented. The findings also suggest that students value responses, regardless of length, when they contain the needed information.

Performance

The study also revealed that while native English speaking TAs provided 71.2% of the successful answers, they also supplied nearly half (48.1%) of the unsuccessful answers. This finding indicates that the difficulties in packaging information are not unique to nonnative English speakers. In fact, many native English speaking TAs did not package information effectively. Moreover, many NS TAs, like their NNS TA counterparts in the lower group, used fewer cohesive devices than the TAs in the higher group.

Pedagogical Implications

The results of this study demonstrate that training programs should contain simulated discussion sections and office hours to provide TAs with practice in answering student questions. Moreover, training might also incorporate sample responses for TAs to rate and discuss, field-specific questions for TAs to answer, and exercises to examine responses for the presence of specific units of information, e.g., conceptual background, concluding statements. These exercises would alert TAs, regardless of field, to the types of information that undergraduates expect and how they should be presented. Finally, TA training programs, widely available for NNS TAs, need to include native English speaking teaching assistants as well.

Directions for Further Research

The participants in this study included ten native English speaking women, 14 native English speaking men, and 15 nonnative speakers (13 men, 2 women). In addition to the linguistic features of the highly-rated and lower-rated responses, the study explored other factors that may contribute to TA effectiveness, i.e., gender, first language, teaching experience, and length of time in the Ph.D. program. While gender was a significant variable in the linguists' ratings, this finding was not confirmed by the undergraduate raters. Two observations, however, suggest that female native English speakers performed slightly better in this task than their male counterparts.

First, the chart below shows that while both groups presented an equivalent number of the highly-rated responses, the female NS TAs supplied fewer of the lower-rated answers.

Table 6.1. Native English Speaking Teaching Assistants

	<u>% of NS Pop</u>	<u>High</u>	<u>Low</u>
Women	41.7%	18 (48.6%)	8 (32%)
Men	58.3%	19 (51.4%)	17 (68%)

Second, in the high group, four female NS TAs and only one male NS TA supplied responses rated 6 - 6 (6 - 5 for Question #3). NNS TAs provided the remaining four 6 - 6 responses. Because the raters read transcribed responses, the differences are unrelated to verbal cues such as accent or tone.

A comparative examination of NS male and NS female responses in both the high and low groups may reveal gender differences. For example, in the highly-rated group of responses, do the women use more discourse markers than the men? What types of markers do the women use? How do they differ from those used by the men? This investigation of discourse features may explain the relative success of the female native English speaking TAs.

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Appendix 1

Transcription of Questions

- Question #1: Can you explain the concept of economic rent?
- Question #2: (TA) It's an economic rent, something you aren't doing that just gives us profit.
- (S) So, how does that relate . . . relate to economic rent that workers gain by joining unions? Like in the last . . . that was the thing.
- Question #3: Are fixed costs in the short run sunk costs?
- Question #4: (TA) . . . a difference between a joint profit maximization and a monopoly or something like that.
- (S) What is the difference between joint profit maximization and Cournot?
- Question #5: (TA) Bill, you had a question.
- (S) Yeah, I was gonna ask just what you said if they . . . do . . . on the firm have different costs and they collude, which . . . uh . . . costs will . . . will they use if both firms are in collusion?
- Question #6: If you're like a coal mining company, or something, and in a really small town and that's the only place where people work, why would you have to . . . I mean you have a . . . you're the one buyer of that labor market . . . so why would you have to . . . increase the . . . the wage price . . . why couldn't you just . . . set it even lower because those people don't have anywhere to work anyway.

Appendix 2

Ann Robinson's Research Project

Instruction Sheet

On this tape you will hear six (6) questions from Economics 51. These are actual questions posed by students in a review session. Please answer these questions as you would if you were a TA in a beginning economics course. Keep in mind the students are freshmen studying for a final exam.

You will hear each question only once. You will be asked to paraphrase the question. Then you will be asked to answer the question. You will have plenty of time to answer before you hear the next question.

Remember, you are a teaching assistant. The students are freshmen. This is only their second economics course. Here is an example. Listen carefully.

Appendix 3

Scoring Guide for Determining Appropriateness of Responses

Audience: Lower division students who have had only one other economics course.

Appropriate

Response: One that a novice/non-expert can understand. An inappropriate response would include material that only senior economics majors or graduate students can understand. An inappropriate response can also be defined as one that contains too much detail or not enough information.

An appropriate response highlights the main point and provides elaboration of that point. Elaboration may be in the form of examples, definitions, reasons. Any explanation of the main point should be within the students' general knowledge.

4 = Excellent response.

- Effectively answers the question for the audience.
- A response in this category highlights the main point and contains sufficient and appropriate details or examples.

3 = Good response.

- Addresses some parts of the question better than others.
- A response in this category contains some appropriate details or examples.

2 = Barely adequate response.

- Addresses the topic adequately, though not completely or addresses the topic at excessive length.

1 = Inadequate response.

- Addresses the topic, but does not contain appropriate details.

Appendix 4

Rating Guide

- Audience:** Lower division university students who have had only one other economics course, i.e. a non-expert.
- Organized:** Is the main point highlighted and are the supporting details logically ordered?
- Clear:** After "reading around the ums and ahs," can you understand the answer?
- Appropriate:** Are the examples and illustrations familiar to you?
- Complete:** Is the response good enough for you to use on a test?

6 = Excellent response.

- Highlights the main point and has all the details in logical order.
- Fully understandable.
- Contains sufficient and appropriate details or examples.
- Completely covers the topic, but not at excessive length.

5 = Good response.

- Logically ordered.
- Very nearly fully understandable.
- Contains some appropriate details or examples.
- Answers some parts of the question better than others.

4 = Adequate response.

- Some logical order.
- Message gets through without serious breakdown.
- Contains a few appropriate details. May also include some irrelevant information.
- Answers question enough to give an general idea.

3 = Marginally adequate response.

- Little logical order.
- Message is often confusing.
- Contains very few appropriate details. May also include considerable irrelevant information.
- The answer is there, but is hard to find, i.e. buried.

2 = Unacceptable response.

- No discernable logical order.
- Message is difficult or impossible to understand.
- Contains no appropriate details. Any details are irrelevant.
- Does not answer the question or only economists could grasp material.

1 = No response or Does not address the question.

Appendix 5

Undergraduate Rating Scores

Key

1R First reader score.
 2R Second reader score.
 3R Third reader score
 Fin Final score after 3rd reading.

Subject Number	<u>Question 1</u>			<u>Question 3</u>			<u>Question 4</u>			<u>Question 6</u>		
	<u>1R</u>	<u>2R</u>	<u>3R</u> <u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u> <u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u> <u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u> <u>Fin</u>
1	6	5		3	4		1	1		4	5	
2	4	4		2	2		4	5		2	3	
3	5	3	5 5-5	4	3		5	4		4	4	
4	5	4		1	2		2	5 5 5-5		4	4	
5	1	1		2	1		1	1		2	5 2 2-2	
6	6	4 4 4-4		1	4 1 1-1		6	6		4	5	
7	6	2 2 2-2		3	1 3 3-3		1	3 3 3-3		4	2 3 3-3	
8	3	3		3	2		4	5		6	6	
9	1	1		5	5		5	5		4	2 2 2-2	

<u>Subject Number</u>	<u>Question 1</u>			<u>Question 3</u>			<u>Question 4</u>			<u>Question 6</u>		
	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>
10	1	1			2	3			4	6	4	4-4
11	5	3	4	4-4	4	5			6	6		
12	2	3			2	2			2	3		
13	2	2			1	1			2	1		
14	3	2			5	3	3	3-3	3	4		
15	3	2			6	5			1	2		
16	4	4			5	4			5	6		
17	4	2	3	3-3	2	2			1	3	2	2-2
18	3	2			3	2			6	5		
19	1	1			2	2			2	2		
20	6	6			6	4	5	5-5	6	6		
21	4	6	5	5-5	5	6			5	6		
22	1	2			4	3			2	5	5	5-5
23	4	5			5	4			5	4		
24	6	6			4	3			5	4		

Subject Number	<u>Question 1</u>			<u>Question 3</u>			<u>Question 4</u>			<u>Question 6</u>		
	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>	<u>1R</u>	<u>2R</u>	<u>3R</u>	<u>Fin</u>
25	2	5	2	2-2	5	4			5	6		
26	1	1			1	1			4	6	5	5-5
27	1	2			2	2			6	3	3	3-3
28	3	2			5	3	5	5-5	3	5	4	4-4
29	3	4			4	4			3	5	6	5-6
30	5	4			3	3			4	4		
31	4	4			4	4			4	4		
32	5	5			1	2			4	5		
33	5	4			4	6	1	4-6	4	6	3	3-4
34	3	6	3	3-3	2	2			1	1		
35	6	4	5	5-5	5	4			5	6		
36	3	3			2	2			5	4		
37	6	4	6	6-6	2	2			5	6		
38	5	5			2	4	3	3-3	5	6		
39	6	4	6	6-6	3	3			3	4		

Appendix 6

Subject Profiles by Year in Ph.D. Program

<u>Number</u>	<u>Gender</u>	<u>NS/NNS</u>	<u>Prog. Yr.</u>	<u>TA Terms</u>
10	f	nns	1	0
20	f	ns	1	0
21	f	ns	1	0
22	f	ns	1	0
23	f	ns	1	0
30	f	ns	1	0
34	f	ns	1	0
1	m	nns	1	0
15	m	nns	1	0
17	m	ns	1	0
19	m	ns	1	0
25	m	ns	1	0
36	m	ns	1	0
5	m	nns	2	0
8	m	nns	2	0
9	m	nns	2	0
27	m	ns	2	0
28	m	ns	2	0
38	m	ns	2	0
29	m	ns	2	2
33	f	ns	3	0
2	m	nns	3	0
13	m	nns	3	0
6	m	nns	3	1
16	m	ns	3	1
32	m	ns	3	2
35	f	ns	3	3
12	m	nns	3	3
4	m	nns	3	4

<u>Number</u>	<u>Gender</u>	<u>NS/NNS</u>	<u>Prog. Yr.</u>	<u>TA Terms</u>
7	f	nns	4	1
11	m	nns	4	1
18	m	ns	4	1
37	m	ns	4	6
24	f	ns	5	1
26	f	ns	5	1
39	m	ns	5	1
14	m	nns	5	4
31	m	ns	5	4
3	m	nns	6	14

Appendix 7

Subject Profiles by Ranking

Highest Possible Score: 48

<u>Ranking & Score</u>	<u>Gender</u>	<u>NS/NNS</u>	<u>Prog. Yr.</u>	<u>TA Terms</u>	<u>Subject Number</u>
(1) 43	f	ns	1	0	20
(2) 43	f	ns	1	0	21
(3) 41	f	ns	3	3	35
(4) 40	m	ns	3	1	16
(5) 39	m	nns	4	1	11
(6) 38	m	ns	2	0	38
(7) 37	f	ns	5	1	24
(8) 34	f	ns	1	0	23
(9) 34	m	ns	5	1	39
(10) 34	m	nns	6	14	3
(11) 33	m	ns	4	6	37
(12) 33	f	ns	3	0	33
(13) 33	m	ns	2	2	29
(14) 33	f	ns	1	0	30
(15) 32	m	ns	3	2	32
(16) 32	m	nns	2	0	8
(17) 32	m	ns	5	4	31
(18) 31	m	ns	2	0	28
(19) 31	m	nns	3	1	6
(20) 30	m	ns	1	0	25
(21) 30	m	nns	3	4	4
(22) 29	m	nns	1	0	1
(23) 29	m	nns	1	0	15
(24) 29	m	ns	4	1	18
(25) 27	f	ns	1	0	22
(26) 26	m	nns	2	0	9
(27) 26	m	nns	3	0	2
(28) 26	m	ns	1	0	36
(29) 22	f	nns	4	1	7
(30) 22	f	nns	1	0	10

<u>Ranking & Score</u>	<u>Gender</u>	<u>NS/NNS</u>	<u>Prog. Yr.</u>	<u>TA Terms</u>	<u>Subject Number</u>
(31) 22	m	ns	1	0	17
(32) 22	m	nns	5	4	14
(33) 20	f	ns	1	0	34
(34) 19	m	ns	2	0	27
(35) 17	f	ns	5	1	26
(36) 17	m	nns	3	3	12
(37) 15	m	ns	1	0	19
(38) 11	m	nns	2	0	5
(39) 11	m	nns	3	0	13