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A DISCOURSE EXPLANATION OF THE GRAMMAR OF RELATIVE CLAUSES IN ENGLISH CONVERSATION

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In the process of communicating, conversationalists constantly make decisions about their interlocutors' state of knowledge, and on the basis of these decisions make lexical, grammatical, and intonational choices about how to manage the 'flow' of information. This paper focuses on how such decision-making affects choices in relative clause constructions in American English conversations. On the basis of a quantitative analysis of a corpus of natural conversations, we show that the structural choices in relative clause constructions are best explained as symptoms of interactants' attention to information flow.*

INTRODUCTION

1. The study of grammar in the last decade or so has seen an increasing number of analyses which show that discourse-level explanations can account for a number of previously unexplained grammatical facts. Chief among these explanations is that of INFORMATION FLOW (discussed by Chafe 1976, 1987, Du Bois 1987, Givón 1979, 1983, 1984, and Prince 1981). Information flow refers to the interactionally determined choices that speakers make which determine intonational, grammatical, and lexical choices. We will be concerned with several aspects of information flow, including information status, grounding, definiteness, and function of the relative clause.

In this paper we will show how these choices affect the grammar of relative clauses in American English conversation.¹ In particular, we will describe some remarkable skewings in the distribution of syntactic types of relative clauses that English speakers use in conversation, and propose explanations for these skewings in terms of information flow.

THE DATA BASE

2. This study examines headed relative clauses.² Our relative clauses were culled from transcripts of naturally-occurring conversations, recorded and tran-

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¹ Other studies of English relative clauses in spoken English have included Bernardo 1979, which considers relative clauses in Pear Story narratives, and Prideaux & Baker 1986, which discusses the processing strategies involved in the use of relative clauses in experimentally elicited data. Lehman 1977, Beaman 1982, Haan 1984, and Lattey & Moeck 1990 all focus on a comparison of relative clauses in written and spoken English. With the exception of Lehman (1977), who relates stress to relative clause position and function, we know of no previous work that considers the information flow principles at work in the use of relative clauses in ordinary conversation.

² We made no distinction between restrictive and nonrestrictive relative clauses. The rationale for this decision was that, on intonational grounds, we found no clear cases of nonrestrictive relative

scribed by a variety of people, in different parts of the U.S. over a span of approximately 20 years. All of the participants in these conversations are native speakers of American English, as far as this can be determined. Many have had at least some college education.³ The data base includes both telephone and face-to-face conversations; many involve just two participants, but there are several with more than two. Altogether we collected 414 relative clauses. It is the various syntactic and distributional characteristics of these 414 clauses that we explore here.

DISTRIBUTION ACROSS GRAMMATICAL ROLES

3. In this section we examine the interaction between the grammatical roles associated with the relative clauses and their contexts of use.

The relative clauses were categorized according to the grammatical role of the HEAD NP within the main clause⁴ and of the coreferent within the relative clause, referred to as NP_{REL}, whether or not it is explicitly expressed. Thirty-two relative clauses were not situated in a main clause and so are not considered in this section, since their Heads have no grammatical role in any main clause; an example is the one marked with the arrow in 1:⁵

- (1) B: I don't think I'm gonna look at this 'cause I'm gonna look like
 such a pi:g
 A: Look at what.
 → B: *The video-tape* [that's now running].

Head NP roles were S(ubject), O(bject), Prepositional Phrase Object (PPO) Predicate Nominal (PN), and Existential (EX). NP_{REL} roles were S(ubject), O(bject), and Prepositional Phrase Object (PPO).

The term 'X-relative' is taken, as in most discussions of the syntax of relative clauses, to refer to the role of the NP_{REL}; thus 'Subject-relative', for example, refers to a relative clause in which the NP_{REL} is the subject of the relative clause. Taking the phrase 'A-B' to represent 'a relative clause in which the Head NP has the role A and the NP_{REL} has the role B', we provide examples of each combination. In each example, the head NP is given in italics and the relative clause is given in brackets.

- (2) S-S: *the blond kid* [that's been setting the fires] is on the 3rd
 floor
 S-O: *This man* [who I have for linguistics] is really too much.

clauses in our conversational data, and several cases which were indeterminate; it therefore seemed appropriate to refrain from making the distinction for this project.

³ The transcripts were graciously provided by Emanuel Schegloff, John Du Bois, and students from a seminar on discourse analysis given in Spring 1988 at the University of Colorado.

⁴ The term HEAD NP refers to the Head Noun plus any determiners, but not including the relative clause.

⁵ The transcription used in our examples is adapted from Sacks et al. 1974 and Du Bois et al. 1988. In these examples, where they occur, periods indicate terminal intonation contours, and commas indicate continuing intonation contours. In the interest of making our examples readable, we have not attempted to indicate here those features from the transcripts which we do not consider critical for the presentation of our argument.

S-PPO:	—
O-S:	I know <i>somebody</i> [who has her now]
O-O:	if you give them <i>the dimensions</i> [you want]
O-PPO:	you know <i>the place</i> [where she lives]
PPO-S:	live much longer than <i>people</i> [who are onto alcohol]
PPO-O:	all the reading is from <i>this one book</i> so far [that I haven't got!]
PPO-PPO:	we just got one at <i>the school</i> [where I tutor]
PN-S:	it's <i>the only place</i> [that carries the book]
PN-O:	you're <i>the best son</i> [I have]
PN-PPO:	a hassock is <i>an item</i> [that you could sit on or put your feet on]
Ex-S:	there's <i>something really sad</i> [that happens]
Ex-O:	there was <i>something</i> [we needed]
Ex-PPO:	there's <i>three courses</i> already [that I'm not going to do well in]

While there are many interesting facts about the distribution of relative clauses in our data base, we have chosen to focus our attention on certain statistically significant patterns, namely those for which we believe that a discourse explanation is revealing. Again, taking the phrase 'A-B' to represent 'a relative clause in which the Head NP has the role A and the NP_{REL} has the role B', we will concentrate on the following phenomena as distributional facts to be explained: (1) the preponderance of S-O, for nonhuman referents; (2) the tendency for O-O not to occur, for nonhuman referents; (3) the preponderance of Ex-S; and (4) the tendency for Ex-O not to occur.⁶

Before discussing the distribution of relative clause types, we will introduce the information-flow factors that play a role in explaining the recurring combinations of Head NP and NP_{REL}. These factors are both cognitive and interactional, being constituted in terms of both the speaker's model of the hearer and the interaction between the speaker and the hearer. In the remainder of this section we introduce, define, and exemplify those information flow concepts which we will be referring to in the explanations for the relative clause patterns we have found.

3.1. INFORMATION STATUS OF NP. The first factor that helps to explain the way grammatical roles are distributed in relative clauses is the information status of the NP containing the relative clause. To explore this dimension of the problem we have used the following (not mutually exclusive) categories:

- (3) • **NEW:** A referent introduced into the discourse, presumed not to be in the hearer's focal consciousness (Chafe 1980, 1987).

⁶ Throughout this paper, the NP_{REL} role 'Subject' is broken down into 'A' (subject of a transitive verb) and 'S' (subject of an intransitive verb), following the notation proposed by Comrie 1978 and Dixon 1979. This distinction will prove to be useful as we examine the distributional patterns exhibited in the data. From here on, then, the term 'Subject' will refer to the grammatical role 'Subject', including 'A' and 'S', while 'S' will refer exclusively to the subject of an intransitive verb and 'A' will refer to the subject of a transitive verb.

- GIVEN: A referent presumed to be in the hearer's focal consciousness (Chafe 1980, 1987).
- IDENTIFIABLE: The hearer is presumed to be able to identify the referent (Du Bois 1980), by situation, prior discourse, or prior knowledge.

(Because the terms 'Given' and 'New', unlike 'Identifiable', commonly have other uses in expository English, we will capitalize these two terms when they are used as information-flow terms.)

3.2. GROUNDING. The second factor involved in the distribution of types of relative clauses in our data has to do with the fact that, in effective communication, referents are presented so as to be RELEVANT for listeners at the point where they are introduced. NPs whose relevance is not clear from prior mention or situation need to be made relevant. As we will show presently, GROUNDING is the primary way in which speakers make an NP relevant. To ground a noun phrase is to locate its referent in conversational space by relating it to a referent whose relevance is clear, that is, to a Given referent in the immediate context.

Our data show that all NPs containing relative clauses are grounded, that is, their referents are made relevant to the ongoing conversation by being explicitly related to Given referents in the discourse. We will see that relative clauses both provide one kind of grounding and interact strongly with other grounding devices to produce the distribution of relative clause types that we will be explaining.

We have isolated three central kinds of grounding. The first is what Prince has called ANCHORING (1981:236): 'A discourse entity [= 'referent' in the terminology of this paper] is Anchored if the NP representing it is LINKED, by means of another NP, or "Anchor", properly contained in it, to some other discourse entity.' An example of an NP which is anchored by an 'NP properly contained in it', namely in its relative clause, is given at the arrow in 4:

- (4) (talking about upkeep on houses)
 But uh – the original price of it, eh – you can't even (inaud.) the original price,
 just that little screen porch alone is five hundred dollars,
 → the air condish– *the uh heater thing* [we put in] I think was a hundred uh five six hundred dollars,

Here *we* is the Given referent by virtue of the speaker's role as conversation participant, and the relative clause anchors the NP *the heater thing*, i.e. makes it relevant by relating it to this Given referent. Du Bois (1980:223) has called what we are referring to as an anchored relative clause a 'file-establishing' relative clause.

NPs can also be grounded by means of what we will call MAIN-CLAUSE GROUNDING. Here the relative clause provides no grounding; that is, it does not relate its Head NP to any Given discourse referent. Instead, the main clause situates the NP in question (typically an object) by relating it to a Given referent (typically the subject of that main clause) together with a semantically neutral main verb expressing possession, such as *have* or *has got* (Givón 1979). In this

way, the Head NP is grounded by virtue of being associated with a Given referent in the same main clause, as opposed to being grounded by virtue of its relative clause. In 5 the NP being grounded is the object *a spring* and the Given referent that grounds it is the main-clause subject *he*:

(5) he's got—*a spring* [that comes, way up],

The third kind of grounding is what we will call PROPOSITION-LINKING, whereby an entity is linked to Given referents by means of frames invoked in earlier discourse. An example of proposition-linking is:

(6) The mother's sister is a real bigot. Y'know and she hates *anyone* [who isn't a Catholic].

In this example, the entire NP *anyone who isn't a Catholic* is grounded by its link (through the frame invoked by *bigot*) to the preceding proposition characterizing the mother's sister as a bigot.

What these grounding devices do, then, is to make NPs relevant at the point in the conversation at which they are introduced. Exactly what syntactic strategy is used to ground a referent depends of course on other factors.

In general, grounding is essentially a background task, as opposed to asserting. That is, a grounding clause does not assert in the usual sense of that term, but merely locates the referent in conversational space. For example, compare the two utterances in 7 and 8. In 7 the relative clause is clearly used to ground the referent and does not make an assertion. But the relative clause in 8 does not ground the referent in the ways we have mentioned; rather, it makes an assertion (see Lambrecht 1989 for a similar point).

(7) *This man* [who I have for linguistics] is really too much.

(8) There's *a woman* in my class [who's a nurse]

Grounding will be seen to play a prominent role in explaining the relative clause distribution we will be discussing.

3.3. HUMANNESS. The third factor that influences the particular distribution of types of relative clauses in our data is humanness. We will see that the humanness both of the referent of the NP_{REL} and of the other NPs in the relative clause is relevant in explaining this distribution.

3.4. DEFINITENESS. The fourth factor is definiteness. For this study we considered as definite any noun phrase occurring with a definite article or demonstrative, as well as nouns with possessives (see Du Bois 1980). As we will see in §4, definite Heads tend not to occur with S-relatives.

3.5. FUNCTION OF THE RELATIVE CLAUSE. Another major factor involved in the use of relative clauses in our data is the functional role of the relative clause. For the purposes of this study, we found it useful to distinguish two functional types of relative clauses. In the first type the relative clause provides a characterization or description of a New Head NP referent, not previously known to the hearer, as in 9:

(9) There's *a woman* in my class [who's a nurse]

In the second type the relative clause helps to identify a Given Head NP referent, previously known to the hearer:

(10) and then *the one* [that's bigoted], she's married to this guy

3.6. GRAMMATICAL ROLE OF THE HEAD NP AND OF THE NP_{REL}. The sixth and final factor we will examine is the one in terms of which the generalizations themselves are stated, the grammatical role of the Head NP in the main clause and of the NP_{REL} in the relative clause.

With this background, let us turn to the distribution of grammatical roles of the Head NP and the NP_{REL}. By exploring the factors underlying this distribution, we hope to shed light on the general nature of relative clauses, and on the relationship between information management and grammar.

PATTERNS IN THE DISTRIBUTION OF RELATIVE CLAUSE TYPES

4.1. THE DIFFERENCE BETWEEN S-O AND O-S FOR NONHUMAN HEADS. The first finding we will discuss is the fact that, for the subclass of nonhuman referents, Subject and Object Heads pattern very differently with respect to the types of relative clauses they occur with: Subject Heads strongly tend to occur with Object-relatives, while for Object Heads there is no tendency to occur with Object-relatives. Table 1 summarizes the distribution of grammatical roles for Head NP and NP_{REL} when the referent is nonhuman.

NP _{REL} HEAD NP	SUBJECT				TOTAL
	A	S	O	OTHER	
S	1 (3%)	4 (10%)	30 (77%)	4	39
O	12 (11%)	40 (36%)	51 (46%)	8	111
PPO	2 (4%)	11 (22%)	32 (64%)	5	50
PN	5 (9%)	8 (35%)	34 (63%)	9	56
Ex	3 (23%)	5 (38%)	4 (31%)	1	13
TOTAL	23 (9%)	68 (25%)	151 (56%)	27	269

TABLE 1. Distribution of grammatical roles for Head NP and NP_{REL} for nonhuman referents.

4.1.1. NONHUMAN SUBJECT HEADS TEND TO OCCUR WITH OBJECT-RELATIVES. Let us consider the Subject Heads first. As Table 1 shows, fully 77% of the relatives with nonhuman Subject Heads are Object-relatives. Statistically, there is a significant preponderance of Object-relatives of Subject Heads ($z = 2.65$, $p < 0.05$), as well as a significant nonpreponderance of Subject-relatives (only 13%) ($z = 2.81$, $p < 0.05$).⁷ That is, for Subject Heads, Object-relatives greatly outnumber Subject-relatives, by a ratio of 4:1. In other words, utterances like 11 are much more common than utterances like 12:

- (11) Subject-Object: probably *the only thing* [you'll see] is like the table
 (12) Subject-Subject: *the store* [that sells it] is not responsible⁸

⁷ For most of our statistical calculations we have used the Fisher Exact Probability Test, which yields a z-score (normal distribution) as its result. In certain instances we have used the chi-square test.

⁸ While it is true that 'stores' are managed by people, the NP *the store* has been coded as a nonhuman NP, since we judge that its referent is not being taken by the speaker as human. Indirect

Some other examples illustrating the tendency for Subject Heads to occur with Object-relatives are given in 13–17.

- (13) *the only damage* [I think I could claim around here] is a Ptomaine poisoning 'n upset stomach
 (14) *the car* [that she borrowed] had a low tire
 (15) Well see what *the problem* [I have] is my skin is oily
 (16) *the uh heater thing* [we put in] I think was a hundred uh five six hundred dollars,
 (17) but *the things* [I had] were really nice because they came from the society debs there in Pasadena

Why do nonhuman Subject Heads tend to occur with Object-relatives? We will show that the answer to this question lies in the principles of information flow in conversation that motivate grammatical choices.

To explain the tendency for nonhuman Subject Heads to occur with Object-relatives, we appeal to the factor of grounding. Recall that to ground a noun phrase is to locate its referent in conversational space, to make its referent relevant for the hearer by relating it to a Given referent already established in the prior discourse. Grounding a noun phrase is a way of warranting its introduction at the point where it is mentioned.

The preponderance of Object-relatives with nonhuman Subject Heads can be viewed from a real-time processing perspective. That is, if we 'hear' these utterances word by word, as they are produced for an actively involved recipient/hearer, we can see how the need for grounding interacts with the grammatical role in the main clause. Because of the early position of the Subject-Head NP with respect to the verb in the utterance, its referent is generally not grounded when we get to the relative clause. It will thus be a major task of the relative clause in an utterance with a Subject Head to provide this grounding, and the most common way this happens in our data is for the relative clause to anchor the Head NP. This anchoring is generally done by relative clauses that identify a referent (see §3.5 above for a discussion of the functions of relative clauses).

To see how this works, let us consider an example. Ex. 15 is a clear instance of the type of relative clause we are considering here, namely one with a definite nonhuman Subject-Head NP and an Object-relative. Here is 15 again, this time in its context:

- (15')(talking about fuzz balls)
 M: Well I just decided I'm allergic to them {cats}, and I just don't want them in my bed, period.
 → T: Well see what *the problem* [I have] is my skin is oily and that lint just flies into my face

In the utterance at the arrow, *the problem* is the Subject-Head NP, which is not grounded at the time it is heard. The relative clause, *I have*, is an Object-relative; the NPREL in the object role is unexpressed, as is typical.

evidence for this is the oddity of the human relative pronoun in this instance: '?the store *who* sells it is not responsible'.

Now, the explanation for the fact that such relative clauses, i.e. those with nonhuman Subject Heads and Object-relatives, are preponderant in the data can be constructed from three central facts about human discourse.

First, recall that anchoring makes a Head NP relevant for the hearer by explicitly relating it to a Given discourse referent. In 15 the anchoring is provided by *I*—the Head NP is made relevant for the hearer by being related to the Given referent *I*. This illustrates an earlier finding, that anchoring is nearly always done with a pronoun, since pronouns are the primary way to refer to Given referents (Fox 1987).

Second, these pronouns generally have human referents. This is partly because, as is well known, we humans generally talk about other humans. But it is also because the Subject Heads we are considering here are nonhuman, and it turns out that, in conversational discourse, the major way that nonhuman referents are made relevant is in terms of the humans who own them, use them, and manipulate them (see, e.g., Du Bois 1980:269–70).

Third, it is well established (see Givón 1979, 1983, Du Bois 1987) that most references to humans, especially pronominal references, appear as grammatical subjects in conversation.

So there are clear cognitive and interactional pressures at work to favor constructions in which nonhuman Subject Heads have relative clauses with pronominal subjects.

From this it follows that such a relative clause will be an Object-relative. The reasoning is that, if relative clauses generally contain both (1) a human pronominal reference in order to anchor the Head and (2) a nonhuman NP_{REL} coreferential with the Head, then relative clauses will most commonly have a pronominal subject and an NP_{REL} object. This is shown in 18:

(18) *Head* [RC: PRO-subject verb (NP_{REL})]

So we see that Object-relatives will be the most common mechanism for anchoring referents. Given the discourse facts of information flow, then, it is reasonable that Object-relatives are more common than Subject-relatives in the anchoring role called for with nonhuman Subject-Head NPs.

The explanation we have constructed consists of two parts. First, because English full-NP subjects tend to occur clause-initially, and are thus typically ungrounded when they are uttered, the necessary grounding must be provided by the relative clause. Second, the most effective grounding technique turns out to be a clause which can provide anchoring, that is, a clause in which the Given referent to which the Head NP is related is mentioned with a human subject pronoun and the coreferential NP_{REL} is an object, i.e. an Object-relative. This explanation provides an account for the large number of nonhuman Subject Heads with Object-relatives in our data.

4.1.2. NONHUMAN OBJECT HEADS DO NOT TEND TO OCCUR WITH OBJECT-RELATIVES. We have just seen that at least three communicative factors create a situation which favors Object-relatives over Subject-relatives for Subject Heads (for nonhuman referents). As Table 1 shows, a quite different pattern emerges for nonhuman Object Heads. When compared with the nonhuman

Heads in the whole data set, they tend to occur with Subject-relatives much more than with Object-relatives ($z = 4.05$, $p < 0.0004$). Another way of stating this is to note that, for nonhuman Object Heads, there is a nearly equal percentage of S-relatives and Object-relatives: As Table 1 shows, there are 40 S-relatives and 51 Object-relatives, out of a total of 111 relative clauses with Object Heads. This is especially striking in view of the fact that, in general, for nonhuman Heads, Object-relatives outnumber other relatives by a factor of 5:1, as can also be seen in Table 1.

To understand this relative tendency against nonhuman Object Heads occurring with Object-relatives, we again have to examine the interactional pressures which are involved.

Here are some examples of nonhuman Object Heads with S-relatives:

- (19) they're selling *these candies* now [that explode when you chew on them]
 (20) he's got—a *spring* [that comes, way up],
 (21) I don't like *the pants* [that come down narrow and then bell out]
 (22) they had *one* [that was a real cheapo thing]
 (23) we get *reports* [that go to every department]
 (24) Hey I got *something* [that's wild]

To begin, we note that, unlike nonhuman Subject Heads, 85% of which were definite, only 28% of the nonhuman Object Heads are definite. This difference in definiteness reflects a different interpretive picture for Object-Head utterances than for Subject-Head utterances. In fact, if we look at an Object-Head utterance in real time, as a recipient/hearer would hear it, we see that very different cognitive and interactional pressures are at work for Object-Head utterances than for Subject-Head utterances.

In an Object-Headed relative clause, by the time we hear the Object-Head NP we have already heard the main-clause subject—most likely a pronoun—and the verb, so we are likely to already have the grounding we need to relate the Object-Head NP to the context. This is what we referred to in §3.1 as main-clause grounding; the way it works is shown in 20, where the Object Head is grounded by the reference to *he*, already established in prior talk.

If the Head NP of an Object-Head relative is typically already grounded, then, by the time the relative clause is produced, there is no discourse need to have the relative clause serve a grounding function, inasmuch as that function has already been taken care of by the main clause by the time the Head NP is heard. Since there is no communicative need to ground a referent more than once, we find, therefore, that the relative clause in this case is not used for grounding, but is used to achieve other kinds of ends. As it happens, the most common function, as can be seen from Table 2, is a characterizing function:

	CHARACTERIZATION	IDENTIFICATION	OTHER	TOTAL
OBJECT HEAD	58 (46%)	31 (25%)	36	125
OTHERS	29 (11%)	110 (43%)	118	257
TOTAL	87 (23%)	141 (37%)	154	382

TABLE 2. Relative clause function for Object Heads.

the Head NP is grounded in the main clause by the Given main-clause subject pronoun, and the relative clause serves to characterize the Head NP, as can be seen in examples 19–24 above.

That is, given the distribution of definiteness and newness, the information flow in nonhuman Object-Head utterances tends to be organized in such a way that the main clause provides the grounding and the relative clause provides the New information (see also Du Bois 1980). This organization of course conforms to the general pattern in English (Givón 1979) whereby New, asserted information tends to come at the end of an utterance.

Interestingly, some previous research might lead us NOT to expect the New information in an utterance to occur in a 'subordinate clause'⁹ (cf. Givón's 1979 claim that assertions [New information] are accomplished with main clauses rather than non-main clauses). In particular, relative clauses have been generally assumed to provide 'background' information (Givón 1979).

However, evidence in favor of our claim that it is the relative clauses in these cases, rather than the main clauses, which are providing the New information comes from the fact that 43% of these main clauses exhibit the semantically bleached transitive verb *have* or *have got*, a significantly higher rate than in transitive main clauses outside of relative-clause utterances. That is, 43% of the Object Heads in our data are of the form of 20 and 22–24, where the main clause contains a subject pronoun and *have* or *have got* which ground the object but do not in themselves present any assertion; it is then up to the relative clause to do that asserting work. We see, then, that certain relative clauses can easily serve to convey assertions. In fact, given the relatively high percentage of Object Heads with Object-relatives in our corpus, it would seem that asserting is a major function of this particular type of 'subordinate' clause, at least in English.

With nonhuman Object Heads there is thus a basic pressure towards relative clauses that function as characterizing assertions. And the form that these characterizing relatives take is generally that of a Subject-relative, that is, a relative clause in which the NP_{REL} is the subject of a predication. In contrast to this preponderance of relatives performing characterizing functions for Object Heads ($z = 7.52$, $p < 0.0004$), identifying clauses, which typically perform anchoring functions and which tend to be Object-relatives, tend not to be found ($z = 3.33$, $p < 0.0008$), as shown in Table 2.

So far we've seen, then, how different the discourse pressures are for non-human Subject-Head and Object-Head relative-clause utterances. We have said that with Object Heads the relative clause tends to convey New information; in fact, it tends to play a characterizing role, as in 19–24, rather than the anchoring role we saw earlier with Subject Heads. But we haven't yet answered the question of why characterizations should favor Subject-relatives, especially S-relatives. The answer is straightforward: characterizations are typically

⁹ See Matthiessen & Thompson 1989 for a discussion of the difficulty with the term 'subordinate' and the different discourse functions of 'embedded' and 'hypotactic' types of subordinate clauses, as distinguished by Halliday 1985. For a discussion of the nature of the 'subordinate/coordinate' continuum, see Lehmann 1989.

predicates (usually intransitive) that name habitual attributes or properties or describe features of their subjects. For example, if we were to characterize our friend Susanna, we might do it by invoking any of the following predicates:

- (25) she teaches at the University of Colorado,
 is a linguist,
 works on Indonesian,
 goes to LSA meetings,
 is an Austronesianist,
 sleeps late on weekends,
 likes to dance,
 etc.

It follows, then, that the NP_{REL} in a characterizing clause tends to be the SUBJECT in a clause. And this of course means that characterizing relative clauses are Subject-relatives. This is schematized in 26:

- (26) Subject Verb *Object Head* [RC: (NP_{REL}) characterization]

With Object Heads there is therefore a tendency in ordinary conversation towards relatives that function as characterizations. And the form that these characterizing relatives take is generally that of an S-relative, that is, a relative clause in which the NP_{REL} is the subject of a (typically intransitive) predicate.

We thus have two interrelated discourse pressures favoring Subject-relatives with Object Heads. First, the late position of the Object-Head relative clause in the utterance creates a pressure against Object-relatives, since the anchoring will already have been done in the main clause, so that the anchoring provided by the 'Subject-pronoun-in-Object-relative' pattern is not appropriate. Second, the strong presence of characterizing clauses creates a pressure for Subject-relatives, since intransitive predicates are favored for expressing characterizations.

So we have seen once again that a communicative account can make sense of a previously unexplained pattern in the distribution of relative-clause grammatical types.

4.2. EXISTENTIAL-HEAD RELATIVE CLAUSES. There are two issues to be discussed with respect to Existential-Head relatives: first, the preponderance of S-relatives over Object-relatives with Existential Heads, and second, the function of relative clauses to introduce non-Identifiable referents into the conversation.

4.2.1. THE PREPONDERANCE OF EX-S OVER EX-O. Existential-Head relatives present interesting problems for some of the hypotheses given earlier. Table 3 shows the distribution of Subject Heads, Object Heads, and Existential Heads

NP _{REL} HEAD NP	SUBJECT				TOTAL
	A	S	O	OTHER	
S	10 (15%)	18 (26%)	34 (50%)	6 (9%)	68 (100%)
O	22 (15%)	60 (41%)	54 (37%)	9 (6%)	145 (100%)
EX	7 (28%)	13 (52%)	4 (16%)	1 (4%)	25 (100%)

TABLE 3. Distribution of grammatical roles for all Head NP and NP_{REL}.

in the data base. Note that there is a higher percentage of S-relatives with Ex-Heads than with other Head NPs, while the percentage of Object-relatives is much lower. These figures are significant ($z = 2.45$, $p < 0.01$). In this section we discuss why Existential-Head utterances favor S-relatives over Object-relatives.¹⁰

All but one of the Existential Heads are New and indefinite. This fact by itself predicts that S-relatives will be more prevalent here than with other constructions: indefinite Heads occur with S-relatives 58% of the time (123/211), while definite Heads occur with S-relatives only 38% of the time (77/203).

So at first blush it seems quite reasonable that Object-relatives tend not to occur with Ex Heads. But when we look at Ex-Head utterances from a real-time perspective, the distribution seems a bit counterintuitive. Consider, for example, the utterance at the arrow in the following excerpt:

- (27) G: Oh my Go:d that's a, topnotch society over there,
 .
 .
 .
 C: I know Dou:g and he isn't,
 G: No: they-
 → G: there's twins that- *twins* [that live over there], they're younger
 (yuh) – (prolly) twenty-three twenty-four years old,
 (1.2)
 G: Round C's age 'n,
 (1.3)
 G: They work over at the pla:nt.
 G: The khh, the wu- the one:: twin's wife come right 'n the plant
 one night 'n wanna know who in the hell the girl was that her
 husband was spending the night with every night after work.

If we hear this utterance word by word, when we get to the Head phrase, *twins*, we do not know how it is related to what the participants have been saying; it is not yet grounded. In our discussion of Subject-Head relatives (§4.1.1), we took this same situation to be part of the motivation for Object-relatives. But here, for Existential Heads, there is no tendency to occur with Object-relatives; in fact, there is a tendency for these heads NOT to occur with Object-relatives. In this example we can uncover the multiplicity of strategies for achieving grounding.

As we saw earlier, all Head NPs must be grounded. The strategies for grounding used with nonhuman Subject-Head utterances were a product of the overwhelming prominence of relative clauses serving an anchoring function and the lack of New referents, both of which tend to produce Object-relatives. So the fact that Subject Heads are not grounded before the relative clause occurs, together with these other facts, leads to the result that Subject Heads are often grounded by means of anchoring in Object-relatives.

¹⁰ In fact, Existential-Head utterances favor Subject-relatives over Object-relatives in general, as shown in Table 3 ($z = 3.06$), but this skewing arises out of the preference for S-relatives, so for this discussion we will concentrate on S-relatives.

The situation for Existential-Head utterances is quite different. As it turns out, in Existential-Head utterances grounding is often accomplished with main-clause grounding by means of a locative expression or by proposition-linking, rather than with anchoring, as in an Object-relative. Let's consider each of these in turn.

Ex. 28 is an instance in which the grounding necessary to make the Head referent relevant is provided by a locative, *there*:

(28) *there were two people* THERE [who were constantly on stage]

Ex. 29 shows how an Existential Head can be grounded by proposition-linking:

(29) B: Y'know I've been reading about very old people lately,
(0.4)

A: Yea//h?

B: Like they had an article in the Rolling Stone with this guy who's supposed to be a hundred and thirty. The oldest American. He's a black guy who lives in Florida and they interviewed him, ...

B: and one thing they said in the article that was really intriguing
→ was, in the United States at this point, there are over a *hundred thousand people* [who are over a hundred years old]

Here the relative clause *who are over 100 years old* grounds the Existential Head by means of proposition-linking: the referent is made relevant by the link between the relative clause and the earlier proposition *I've been reading about very old people lately*.

Now, why should Existential Heads tend to be grounded by locative expressions or by proposition-linking, rather than by Object-relatives with pronominal subjects, as was the case for nonhuman Subject Heads? The reason, we believe, lies in the fact that these Existential-Head NPs are indefinite and human. Non-human referents that need to be grounded, as we saw in §4.1 above, are typically grounded by relating them to the humans who own them, use them, and manipulate them. These humans are typically Given and typically realized as pronominal subjects. This is why the favored grounding strategy for nonhumans is an Object-relative in which the relevant human is represented by a subject pronoun within that relative, as we saw above in §4.1.1.

Human referents that need grounding, on the other hand, do not need to be related to (other) humans to be grounded. Instead, our data show that they tend to be grounded by being related to their own activities, that is, to earlier predicates, as with a locative or by proposition-linking, as illustrated in 28 and 29. And this produces S-relatives rather than Object-relatives, since no other NP in the clause is needed to accomplish the grounding.

So far, then, in considering the preponderance of S-relatives with Existential Heads, we have suggested that, once again, a consideration of the interactive and cognitive principles regarding ways in which speakers utilize grammatical resources to manage information flow can explain the grammatical preponderance of certain types of co-occurrences revealed by the data.

In the next section we turn to another interesting point about Existential-Head relative clauses.

4.2.2. NONIDENTIFIABLE HUMAN REFERENTS. An interesting secondary issue is raised by the figures for Existential-Head utterances. It is reasonable to assume that the NP after BE in an existential clause is the subject of that clause, since it can always trigger auxiliary agreement. An intriguing fact about Existential-Head relatives is that these existential constructions seem to provide speakers with a mechanism for introducing New, nonidentifiable referents in the subject slot, which would otherwise violate the 'Given A Constraint' (which captures the discourse generalization that the agent of a transitive clause strongly tends to be 'Given' information; Du Bois 1987).¹¹ For example, consider 30:

(30) I think the- there used to be *a place up in Toledo* [that'd make them for you]

To express the message of 30 in SVO form, as in 31, would require that the nonidentifiable NP *a place up in Toledo* be in the 'A' slot in a transitive clause, and thus violate the Given A Constraint:

(31) I think A PLACE UP IN TOLEDO would make them for you

But why would a language provide such a mechanism as the existential subject slot for avoiding violating the Given A Constraint, given that there is another slot for introducing New referents, namely the object slot? That is, why do speakers choose to formulate their New Head referents as Existential Heads when they could formulate them as Object Heads?

In order to answer this question about subjects of existentials, we need to digress briefly to consider subject and object roles in general. What we will see is that the facts we have uncovered about Heads of relative clauses confirm the behavior of grammatical subject and object roles for English discourse in general. It is clear from studies of information flow independent of relative clauses that subject and object roles are used for quite different kinds of information in English. The subject slot tends to be associated with definite, identifiable, specific human referents, while the object slot tends to be associated with nonidentifiable, nonhuman, nonspecific referents (Givón 1979, 1983, 1984, Du Bois 1987). But a New, nonidentifiable human referent fits neither role: its humanness makes it a less than prototypical object, while its nonidentifiability and its newness make it a less than prototypical subject. We should thus not expect a single strategy, say the object slot, to be used for a class of referents that are not an ideal match.

In fact we might expect, and indeed we find, that speakers choose the subject or the object slot to formulate referents AS BEING identifiable/specific or non-identifiable/nonspecific, respectively, even when their grammatical markings may indicate otherwise. We can see this process at work with nonidentifiable human referents.

To illustrate this point, let's consider the nonidentifiable human referents in

¹¹ Lambrecht 1989 makes a similar point in suggesting that certain constructions in French, particularly the 'presentational cleft', are used to allow speakers to avoid both introducing and talking about a referent in the same clause, which would violate the 'preferred clause' pattern for French.

our corpus in the object slot and in the existential subject slot. The 16 nouns of this type in Object-Head role fall without exception into two types: relational terms, such as *brother* and *friend*; and nonspecific formulations such as *somebody* and *anybody*, as well as common nouns used nonspecifically. Examples are given below:

(32) and she hates *anyone* [who isn't a Catholic]

(33) and they have *a son* [who's 24 or 25]

(34) Someday I'll find *someone* [that wears a six and a half]

The 10 nonidentifiable human nouns in Existential-Head slot, however, are of an entirely different sort. They are all specific; that is, one does not find nonspecific humans mentioned in existential constructions. Furthermore, the nouns are all nonrelational terms such as *woman*, *boy*, *kid* (in the sense of young person), *people*, and *girl*:

(35) but there's *a woman* in my class [who's a nurse]

(36) there was *a boy* [that played the trombone] that he kind of knew

(37) there were *two people* there [who were constantly on stage]

The two constructions, Object Heads and Existential Heads, are thus used for two different kinds of nonidentifiable human referents. Object Heads are relational or nonspecific terms, while Existential Heads are specific. Is it possible to make sense out of which type of nonidentifiable human referent is associated with each construction? That is, is it possible to relate the nature of each grammatical role with the kind of nonidentifiable human referent that comes to fill it?

We would like to suggest here that the answer is yes, and that the prototypical associations of each grammatical role are used to formulate the relevant aspects of each type of Head referent. We know, for example, that subject role is associated not just with definiteness but with specificity; that is, most human referents in the subject slot are both definite and specific (Givón, 1979). It is therefore reasonable for the (existential) subject slot to be used to formulate a referent as specific, even if it is not formulated as definite. These referents are introduced in order to be discussed further; they are themselves of interest. By contrast, the object role is more closely associated with nonspecific referents, so it is reasonable to find human referents formulated as nonspecific in object slot. In general, these referents are not themselves discourse-deployable; they are usually grounded by proposition-linking, and it is often another referent in the relative clause that is deployed in the surrounding discourse.

In other words, human nonidentifiable Heads behave more like human nouns when in subject slot, and more like nonhuman referents than like the prototypical human referents when in object slot. We have thus provided an answer to the question raised above about why Existential-Head relatives function as a way to introduce New nonidentifiable human Heads in the subject slot when the object slot is available: New nonidentifiable Heads will be introduced in the (existential) subject slot WHEN THEY ARE FORMULATED AS IF THEY WERE SUBJECTS—that is, when they are like subjects in being specific and germane to the discourse. By contrast, New nonidentifiable Heads will be introduced in

the object slot WHEN THEY ARE FORMULATED AS IF THEY WERE OBJECTS—that is, when they are nonspecific and not discourse-deployable.

The one class of referents that may still seem puzzling is the group of relational terms, which tend to be found in Object-Head constructions, though these referents are specific and might therefore be expected to pattern with the other specific human referents, namely in a subject-of-existential slot. Because they are formulated as relational rather than as independent, however, they must be introduced in a relational construction. But the existential construction is not relational, since in the main clause there is no referent other than the Head NP. So this construction is not available to relationally-formulated referents, since their relational status must be specific for the hearer before the relational term is actually produced.

These findings on nonidentifiable human referents suggest two theoretical points. First, a class of referents that does not match any category prototypically will be distributed over more than one of the categories.¹² Second, the items distributed to each category will be formulated according to their similarity to the prototypical member of that category at that point in the discourse. We have thus seen that certain aspects of the behavior of the Heads of relative clauses in English follow from more general principles regarding the discourse roles of English subjects and objects.

4.2.3. SUMMARY. In this section we have examined Existential-Head relative clauses in some depth. In §4.2.1 we proposed an explanation for why Existential Heads tend to occur with S-relatives: because they tend to be ungrounded when they are heard, but human, they are typically grounded, not by Object-relatives (as with Subject Heads), but by main-clause grounding (with locatives) and proposition-linking. And these two types of grounding produce relative clauses in which the NP_{REL} is the subject of an intransitive clause—in other words, S-relatives. In §4.2.2 we noted that the Existential Heads provide a way for speakers to avoid violating the Given A Constraint, by allowing them to formulate nonidentifiable referents as subjects of existentials rather than as subjects of transitive clauses. We further proposed that the Existential-Head slot is preferred by speakers for these nonidentifiable human Head NPs which are subject-like—that is, specific and discourse-deployable—while the Object-Head slot is preferred for those nonidentifiable human Head NPs which are object-like, that is, nonspecific and non-discourse-deployable.

4.3. NPs MODIFIED BY TWO RELATIVE CLAUSES. In some of the utterances in our corpus, the Head NP was modified by two relative clauses instead of one. This fact raised the following questions: given a sequence of two relative clauses, do they pattern in a consistent way with respect to types, and are they sequenced in some orderly fashion? That is, can the order of the two relative clauses be predicted from the discourse facts we have uncovered so far?

The answer to these questions is a resounding YES. Every case we found of

¹² See Thompson 1988 for precisely the same point with respect to the category 'adjective'.

a two-relative-clause utterance follows a clear pattern, which can be stated as in 38:

- (38) The preferred relative-clause type for the particular Head NP will be ordered first in the pair, followed by the nonpreferred relative-clause type.

We will consider a relative-clause type 'preferred' for a given Head NP if it is the statistically prominent type for that kind of Head NP (taking into account all the factors we have discussed—its role in the main clause, whether the referent is human or not, what information status the Head NP has, etc.). For example, as discussed in §4.1.1, a nonhuman Head in the subject slot in the main clause has as its preferred relative-clause type an Object-relative. We should thus expect a Head NP of this type in a two-relative-clause structure to have first an Object-relative and then some other (nonspecified) kind of relative clause. An example of this follows:

- (39) and *one thing* [they said in the article] [that was really intriguing] was, in the United States at this point, there are over a hundred thousand people who are over a hundred years old

In this example the two-relative-clause structure is organized with an Object-relative first, followed by a Subject-relative. Given the properties of the nonhuman Subject Head, as discussed in §4.1.1, the Object-relative is the preferred relative-clause type, so it precedes the other relative clause.

Turning to Existential Heads, we recall from §4.2 that Ex-Heads in general tend to occur with S-relatives. Now in exx. 40–41 we find Existential Heads in which the Head NPs are followed immediately not by S-relatives but by Object-relatives, which are then followed by S-relatives.

- (40) There was *something* [we needed] [which was really obscure]
 (41) He claims that there's *a kind of stuff* [you make] [that has a pear in it]

But these two examples are not counterexamples to the expectation of S-relatives first, because these Ex-Heads are New and nonhuman, and we know that New, nonhuman Heads that are anchored exhibit Object-relatives 69% of the time.

The next two examples of two-relative-clause utterances show a different kind of Head NP. In these cases the Head NPs describe identifiable referents rather than nonidentifiable referents; both referents are nonhuman. But the Head NPs cannot be categorized according to their role in the main clause, because they are both in 'try-markers' (Schegloff & Sacks 1973) and thus have no associated main clause. Still, as identifiable nonhuman Heads, again according to the discussion in §4.1, we would expect them to occur with Object-relatives, and indeed Object-relatives do occur as the first relative clause in each case:

- (42) Well *this little, this other little atomic clock* [that I have] [that used to be in the front bathroom]?
 (43) Cause *the one* [I got in my office] [that we got for free] y'know it like loses five seconds a day

The last instance of a two-relative-clause construction shows a human referent in an Existential Head utterance. We saw earlier that this configuration strongly tends to occur with S-relatives, and, as predicted, the Head NP in 44 is followed immediately by an S-relative:

(44) there was *a boy* [that played the trombone] [that he kind of knew]

It should be pointed out here that all of these two-relative-clause examples could be handled with a simpler version of the preference organization hypothesis—namely, a nonhuman Head NP tends to occur with an Object-relative, while a human Head NP tends to occur with an S-relative. This version would clearly be in keeping with the findings of this study, since Object-relatives strongly tend to occur with nonhuman Head NPs ($x^2 = 45.97$, $p < 0.0001$), and S-relatives strongly tend not to occur with human Head NPs ($x^2 = 67.35$, $p < 0.0001$). Nonetheless, we would like to suggest that a narrower domain for preference makes more specific predictions and is therefore more interesting. For example, the original version of the preference organization hypothesis in 38, which takes into account the role in the main clause, the information status of the Head NP, and humanness, predicts that even a nonhuman Head NP will tend to occur with an S-relative if it is the object of the main clause, inasmuch as nonhuman Object Heads show a preponderance of S-relatives, compared to other nonhuman Head NPs (see Table 1). Although we have not found a two-relative-clause utterance of this kind on which to test the prediction, we feel that this level of prediction will prove useful for future work on relative clauses.

In this section we have seen that, when a Head NP occurs with two relative clauses, the initial one is the preferred relative-clause type for that Head NP, considering its role in the main clause, its humanness, and its information status. This fact provides unexpected and striking support for our claim that the relative-clause patterns in our corpus are regular and explainable in terms of the communicative situations in which speakers track participants and formulate referents.

CONCLUSION

5. We embarked on this investigation with the goal of providing an explanation of the grammatical patterns of Head NPs and their relative clauses in their conversational contexts. We have provided evidence that the grammatical resources for relative clauses are exploited in the formulation of reference according to a wide range of interactive and cognitive factors inherent in the communication situation.

We have shown that the information-flow patterns characteristic of English discourse can explain why nonhuman Subject Heads tend to occur with Object-relatives, whereas nonhuman Object Heads show no such tendency. We have also shown that Existential-Head relative clauses tend to be S-relatives, since the grounding for the human Existential Heads is typically either main-clause grounding or proposition-linking, and the relative clause generally does not serve an anchoring function. We noted that Existential-Head relatives allow speakers to avoid violations of Preferred Argument Structure and provide evi-

dence that speakers formulate referents as Existential Heads when they are more subject-like and as Object Heads when they are more object-like.

Finally, we have shown that the initial relative clause in every instance of a Head NP with two relative clauses is the preferred type for that type of Head NP when it takes just one relative clause. This finding provides strong additional evidence in favor of the hypothesis that communicative factors are a major determinant of the tendency towards certain combinations of Head NP and NP_{REL} that our data exhibit.

The evidence we have provided strongly supports a position which views grammar (i.e. morphosyntax) not as autonomous or as independent from issues of pragmatics, semantics, and interaction, but rather as necessarily including the entire interactional dimension of the communicative situation in which conversationalists constitute the people and things they want to talk about.

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