

University of Massachusetts Occasional Papers in Linguistics

Volume 4 *Studies presented to Emmon Bach by his students*

Article 13

1979

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Recommended Citation

Rosenbaum, Harvey (1979) "Relative Clause Structures in Informal Conversation," *University of Massachusetts Occasional Papers in Linguistics: Vol. 4*, Article 13.

Available at: <https://scholarworks.umass.edu/umop/vol4/iss1/13>

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Relative Clause Structures in Informal Conversation*

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Based on their investigation of 50 languages, Keenan and Comrie (1972, 1977) have proposed the Accessibility Hierarchy (AH) as a universal constraint on permissible relativization strategies for any natural language:¹

- (1) Keenan-Comrie Accessibility Hierarchy ($x > y = x$ more accessible than y)

Subject > Direct Obj. > Indirect Obj. > Oblique >
 Genitive > Obj. of Comparison

Subject: the boy who likes Mary
 Direct Object: the boy who Mary likes
 Indirect Object: the boy who Mary gave the book to
 Oblique: the chest that the boy put the money in
 Genitive: the boy whose hat Mary took
 Object of Comparison: the boy that Mary is taller than

They also hypothesized that this hierarchy corresponds to a psychological hierarchy reflecting the ease of comprehension of these relative clause structures. That is, the lower the position on the hierarchy (i.e., farther away from the subject position) the harder it is to understand relative clauses formed on that position.

Given that the AH reflects increased processing difficulty, Keenan (1975) further hypothesized that the distribution of relativization in the natural production of relative clauses would conform to the AH, subject relativization being the most frequent, then direct object relativization, etc. That is, the easier structures would be utilized more frequently than harder structures. Keenan presented evidence in support of this hypothesis based on the analysis of written discourse and Faber (1977) has presented supporting evidence from the Ford-Carter Debates. However, in this paper, I will provide evidence drawn from the informal conversation of college students that the distribution of relativization in subject and direct object positions is not based on the AH nor a constraint involving processing difficulty, but is a function of several specific syntactic and lexical variables.

Turning first to the analysis in Keenan (1975), Table 1 shows that the distribution of the 2,238 relativized constituents in Keenan's corpus was consistent with the AH.

Sub.	Dir. Obj.	Oblique	Genitive	Obj. of Comp.	No. of Rel. Clauses
46%	24%	15%	5%	0%	2238

Oblique = Indirect Object and Oblique
Temporals and locatives not included

Table 1. Total Distribution of relativized constituents (Keenan 1975)

As Keenan points out, this relativization distribution might merely reflect the overall distribution of NP categories in the corpus. However, further analysis by type of text source provides some support for the AH. The four sources are the European newspapers the Sun and the Daily Mirror, George Orwell's *Animal Farm*, Virginia Woolf's *To The Lighthouse* and articles by the philosopher P. F. Strawson. When these sources are compared in terms of syntactically simpler text (Sun-Mirror and Orwell) to more complex text (Woolf and Strawson) we find in Table 2 a decreasing use of subject relativization and a shift toward the lower end of the AH.

	Sub.	Dir. Obj.	Oblique	Genitive	No. of Rel. Clauses
Orwell and Sun-Mirror	58%	19%	7%	2%	765
Woolf and Strawson	40%	26%	20%	5%	1473

Table 2. Distribution of relativized constituents by simple source (Sun-Mirror, Orwell) and complex source (Woolf, Strawson) (Keenan, 1975)

Keenan hypothesized that writers who used more complex sentence structures would also make greater use of the more difficult or less accessible end of the AH.

Faber analyzed the first and second Ford-Carter Debates and found a relativization distribution consistent with the AH as shown in Table 3.

		Sub.	Dir. Obj.	Oblique	Genitive	No. of Rel. Clauses
Ford	I	47%+	37%+	17%-	0%-	90
	II	57%+	26%+	17%-	0%-	58
Carter	I	76%+	10%-	5%-	3%-	110
	II	67%+	27%+	6%-	0%-	81

Table 3. Distribution of relativized constituents (Faber, 1977)

Even more important, Faber analyzed the total second debate corpus for the percentage of occurrence of the various grammatical relations. She then compared the percent of occurrence of each position or category of relativized constituent against its overall occurrence in the second debate. In seven out of eight instances the percent of subject and object relativization was higher than the percent of all subjects and objects in the second debate. This is indicated by the plus (+) in Table 3. The percent of oblique and genitive relativization was lower than the percent of these cases in the total corpus as indicated by the minus (-) in Table 3. Thus, Faber provided further support for the claim that the relativization distribution does not directly reflect the overall distribution of NP categories in the corpus.

The new data I wish to present here comes from the informal conversation of college students, collected by Carterette and Jones (1974) for a phonological study. Students from a psychology class were recorded in informal small groups resulting in a total of about three hours of continuous talk. The analysis given in Table 4 of the 110 relativized constituents in the corpus indicates a distribution with a lower percent of subject relativization and higher percent of direct object relativization than one would expect given the results of the Keenan and Faber studies.

Sub.	Dir. Obj.	Other	No. of Rel. Clauses
45/41%	46/42%	19/17%	110

Other = Ind. Object + Oblique + Genitive

Table 4. Distribution of relativized constituents (based on data from Carterette and Jones, 1974)

As you can see from the typical corpus examples in (2) the low percentage of subject relativization does not reflect the use of complex syntax:

(2) Examples of informal conversation of college students

Student X: And I think that I don't know I need to grow up. So I think its a good idea. I have some friends that are up there right now and they like it pretty well. And I have an uncle who went there.

Student Z: That's the one I would enjoy the most. If I get it. I think Junior High too because they're so kids are so mixed up.

Further analysis revealed that there were two properties of the head of the relative clause that had a significant effect on the relativization distribution: one was whether the head was human or not human, the other was whether the head was lexically a noun or a category which I will call pro-form. The analysis in terms of the feature +Human (given in Table 5) revealed that only about 1/4 (26%) of the relative clauses have Human heads. These +Human relative clauses have a very strong tendency toward subject relativization. On the other hand, the relative clauses with -Human heads have a strong tendency toward object relativization.

Head of Rel. Clause	Sub.	Dir. Obj.	Other	No. of Rel. Clauses
+Human	24/83%	3/10%	2/7%	29/(26%)
-Human	21/26%	43/53%	17/21%	81/(74%)

$$\chi^2 (df = 2) = 28.01, p < .001$$

Table 5. Distribution of relativized constituents by +Human relative clause heads

Now considering only the relative clauses which have nouns for heads (e.g., friends, uncle, words, engine), Table 6 shows that within this category the +Human distinction differentially affects the distribution of relativization: +Human nouns have a strong tendency toward subject relativization, -Human nouns evenly distribute across subject and object relativization.

Head of Rel. Clause	Sub.	Dir. Obj.	Other	No. of Rel. Clauses
+Human	21/84%	2/8%	2/8%	25/(40%)
-Human	13/35%	13/35%	11/30%	37/(60%)
	34/55%	15/24%	13/21%	62

$$\chi^2 (df = 2) = 14.39, p < .001$$

Table 6. Distribution of relativized constituents by +Human for relative clauses with noun heads

The category of pro-form relative clause heads consists of general pronominal forms like 'everything,' 'all,' 'the one,' and 'what' which seems to be a replacement for the phrase 'the thing which':

(3) Examples of pro-form relative clause heads

everything that most people would want
 anything you want to mix me
 something that is razor sharp
 all they have
 the one I would enjoy the most
 you plug what you know (into the formula)
 by feeling what your feeling

As shown in Table 7, pro-form heads are predominantly -Human. Moreover, these -Human heads are strongly associated with direct object relativization.

Head of Rel. Clause	Sub.	Dir. Obj.	Other	No. of Rel. Clauses
+ Human Pro-form	3/75%	1/25%	0	4/(8%)
- Human Pro-form	8/18%	30/68%	6/14%	44/(92%)
	11/23%	31/65%	6/12%	48

Table 7. Distribution of relativized constituents by +Human for relative clauses with Pro-form heads

Comparing the noun -Human heads with the pro-form -Human heads we find in Table 8 that the pro-form heads have a stronger tendency toward object relativization than the noun heads.

Head of Rel. Clause	Sub.	Dir. Obj.	Other	No. of Rel. Clauses
Noun -Human	13/35%	13/35%	11/30%	37
Pro-form -Human	8/18%	30/68%	6/14%	44

$$\chi^2 (df = 2) = 8.88, p < .02$$

Table 8. Distribution of relativized constituents by Noun/Pro-form for -Human relative clause heads

Thus it seems that the determination of which NP will be relativized on is strongly influenced by the relative clause head. The unexpectedly high percentage of direct object relativization in these student conversations seems to be caused by the fact that 40% of the relative clause heads are -Human pro-forms. This percentage of -Human pro-form heads is probably much higher than the percentage of -Human pro-form heads in the Keenan and Faber texts.

Because of the small number of relative clauses in the Carterette and Jones corpus, we will briefly consider a study by Randolph Quirk (1957) of relative clauses in the speech of university educated British speakers. The data consisted of impromptu conversation, part surreptitiously recorded under informal conditions, part recorded for broadcasting. Quirk's main purpose in analyzing the nearly 1,300 relative clauses in the corpus was to study the system governing the selection of relative pronouns. As part of the analysis he also provided extensive information on a number of other features including the syntactic category of the noun relativized on and whether the head noun was personal or non-personal (i.e., human or not human).

As shown in Table 9 the distribution of relativized constituents in Quirk's corpus is consistent with the AH.

Sub.	Dir. Obj.	Oblique	No. of Rel. Clauses
51%	32%	17%	1289

Table 9. Distribution of relativized constituents (based on data from Quirk, 1957)

Notice that in Table 10, similar to the Carterette and Jones data, only about 1/4 of the relative clauses have +Human heads. Also the distribution for the +Human heads is similar to that found in Table 5 with a strong tendency toward subject relativization (which Quirk pointed out in a footnote).

Head of Rel. Clause	Sub.	Dir. Obj.	Oblique	No. of Rel. Clauses
+Human	80%	12%	8%	309/(24%)
-Human	41%	38%	21%	980/(76%)

Table 10. Distribution of relativized constituents by +Human head of relative clause

However, the -Human heads do not show a tendency for direct object relativization.

The difference in relativization distribution between the Carterette and Jones and Quirk data for -Human heads may be in part due to the effect of the non-restrictive relative clauses in Quirk's data. Quirk found 173 non-restrictive relative clauses in his corpus. As one would expect, those with +Human heads strongly favored subject relativization (i.e., 26 out of 31 or 84% took subject relativization). However, the non-restrictive relative clauses with -Human heads also strongly favor subject relativization as shown in Table 11.

Rel. Clause Type	Sub.	Dir. Obj.	Oblique	No. of Rel. Clauses
Non-restrictive (-Human)	72%	16%	12%	140 ²

Table 11. Distribution of relativized constituents in non-restrictive relative clauses with -Human relative clause heads

When we limit our consideration to restrictive relative clauses with -Human heads we find a slight preference for direct object relativization as indicated in Table 12.

Rel. Clause Type	Sub.	Dir. Obj.	Oblique	No. of Rel. Clauses
Restrictive (-Human)	36%	42%	22%	840/(86%)

Table 12. Distribution of relativized constituents in restrictive relative clauses with -Human relative clause heads

Quirk's data supports three of the generalizations drawn from the Carterette and Jones corpus: (1) only 1/4 of the relative clause heads are +Human (2) +Human relative clause heads usually take subject relativization, (3) -Human relative clause heads with restrictive relative clauses do not tend toward subject relativization. Without additional information it cannot be determined if Quirk's corpus also supports the -Human, noun/pro-form distinction found in the Carterette and Jones data.

In summing up I would like to make the following points. First, the analysis presented here suggests that the distribution of relativization on subject and direct object position can be accounted for by syntactic and lexical features associated with the head noun and the relative clause. Relative clauses with +Human heads will strongly favor subject relativization. Restrictive relative clauses with -Human heads do not favor subject relativization. Relative clauses with -Human pro-form heads

²Two of the non-restrictive relative clauses with -Human heads are not included here because they were produced as fragments without indication of the category of the relativized constituent.

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