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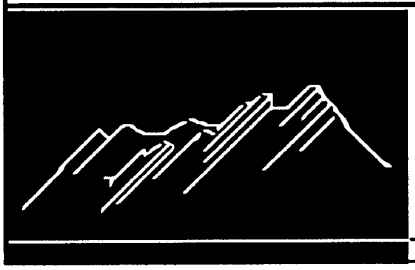

Technical Report

University of Colorado, Boulder

The Influence of Feedback on Two Versions of a Text: III

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The Influence of Feedback on Two Versions of a Text: III

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Based on a paper given at the 1993 annual meeting of the Psychonomic Society, Washington, D.C.

Abstract

Subjects were presented with either of two 25-sentence versions of a fictitious town. One version (route) described the town as a driver might encounter it, while the other (survey) received a geographic description. Sentences were printed one to a card, and read aloud. Feedback included: (1) limited access to a map, (2) limited opportunity to review previously read sentences, or (3) presentation of entire text after processing. memorial representation was assessed by either propositional recall or inferential reasoning. In this study subjects also reviewed the text prior to either the propositional recall or inferential memory task. Recall for the survey version was enhanced, but there was no reliable effect on inferential reasoning. Although not statistically significant, the text by feedback interactions showed both complementary and supplementary effects.

Almost a decade ago we began to look into the specific contributions of instructional assistance, particularly feedback, to text comprehension (Langer & Keenan, 1984). Feedback is generally defined as assistance subsequent to a response, although obviously help can be provided prior to a response. Examples of the latter include text cueing (Lorch & Chen, 1986), behavioral objectives (Anderson & Faust, 1973) or advance organizers (Ausubel, 1960). What probably is a more critical issue in our work is the general assumption among practitioners and researchers in education that any assistance is better than no assistance (Berliner & Rosenshine, 1977).

However, our research in text comprehension would argue for some rather severe constraints on this almost axiomatic assumption. There are just too many variables to assume a blanket endorsement for assistance. For example, the processing of text appears to be a function of both text characteristics and prior knowledge of the individual reader (Frederiksen, 1977). Among the text properties investigated have been structure (Thorndyke, 1977), referential coherence (Kintsch, 1974), and argument overlap (Kintsch & van Dijk, 1978). Given this rather broad interactive state of affairs, appropriate help does not seem to be simply a matter of just doing something.

Still, our initial research did follow prevailing beliefs and assumed constructive effects for feedback on comprehension, using the reconstruction of scrambled text as our experimental paradigm. We chose sentence order because we believed that the development of an appropriate canonical text order was a process amenable to instructional assistance (Langer, Keenan, & Culler, 1987). Our inability to replicate experimental findings was due in part on our failure to recognize that we had two somewhat related problems: (1) how the text was being processed, which is based on text and learner characteristics, and (2) differences in the particular level of comprehension under analysis. We should add that in general these issues have not been adequately addressed, especially in educational research in reading.

Some recent work has enabled us to attack these two issues more systematically. Kintsch's (1988) construction-integration paradigm of text processing seemed to fit in with our prior work on text reconstruction, while a model of qualitatively differing levels of memorial representations (Kintsch, Welch, Schmalhofer, & Zimny, 1990) presented us with a strategy for addressing more adequately the issue of levels of comprehension outcomes.

Kintsch's (1988) thesis was that the initial text propositions are formed directly from the text but then are subsequently modified by both prior reader knowledge and the developing text base. Comprehension may be assessed at such levels as surface representation of verbatim text, semantic meaning defined in terms of propositional recall, and a situation representation assessed by inferential reasoning. Situation memory represents more of a mental model based on prior knowledge and does not seem to be tied directly to the text as are surface and semantic memory. These levels interact simultaneously in text processing (Kintsch et al, 1990).

In recent years our research has been based around an original series of experiments by Perrig and Kintsch (1985). In their work there were two descriptions of a mythical town called Baldwin. One version was presented as a set of sequential instructions for driving through the town, while the other was in the context of a spatial or geographic description. As a consequence our research underwent a number of transformations: (1) we abandoned the scrambled text paradigm, and (2) utilized distinctively different types of feedback in order to investigate a more complex model of comprehension.

We modified somewhat the original description of the town, and so we renamed our village Mapleton. Similar to the Perrig and Kintsch research there are two versions, each 25 sentences long. Again, one is a spatial or geographic description (survey version) while the other is a sequential presentation which guides the driver through the town (route version).

As in all our previous experiments, the stories are typed one sentence to a card and read aloud, in order to control the reading process. The feedback provided was either an opportunity to (1) view a map of Mapleton, (2) review previously read text, or (3) read the complete text in paragraph form at the end of processing.

The new line of research began to uncover some differential effects for feedback on comprehension, particularly for situation memory. Our data showed both supplementary and complementary effects for feedback (Langer, Keenan, & Cumbo, 1992; Langer, Keenan, and Bergman, 1993). Obviously while initial findings regarding situation memory and feedback are clearly preliminary, nonetheless this model provided us with a starting point for the design of this next study. In the study prior to this one, after processing the text one sentence at a time, regardless of the assistance provided, all subjects were allowed to read the entire text. Situation memory was enhanced (Langer, Keenan, & Bergman, 1993). We really could not tell if this additional reading was responsible for the situation memory effect or that a single reading did not adequately contribute to semantic memory.

In the present study, complete text readings were not only provided after processing for all feedback conditions, as in the previous study, but also before assessment of either the semantic or situation memory. Moreover, since an issue might be the order in which comprehension was assessed, we dropped surface memory as another index of text comprehension, and counterbalanced for order of the semantic and situation memory tasks. By providing the additional text reading before assessment, we were attempting to get a more sensitive effect on two different memory representations as well as determine if there was a cumulative effect.

Method

Subjects were 42 General Psychology students at the University of Colorado. Texts for both versions (route and survey) were printed one sentence to a card. Three feedback conditions were provided: (1) in the map condition, subjects after reading a sentence, were allowed to look at a schematic map of Mapleton for up to 10 seconds.

They could make five such requests totalling, 50 seconds; (2) in the sentence condition subjects after reading a sentence could study a sentence they had just read for an additional 10 seconds. They could make up to five such requests, for a total of 50 seconds; (3) in the text condition, after reading the 25 cards without any assistance, the complete text was made available, which they could study for 50 seconds. Then all groups were given the complete version of the text used during processing. There was a delay of one minute between processing and the additional text reading to diminish short-term memory effects. During this delay subjects were given further instructions.

The subjects were then divided into a semantic-situation or a situation-semantic order of assessment. After subjects completed either the semantic or situation part of the comprehension assessment, they read the entire text again before completing the other half. Hence, half the subjects read the text before the situation assessment, and half before the semantic memory task. Again there was a one minute pause with instructions to diminish the effects of short-term memory. This yielded a 12 group procedure design: two text versions (route/survey) x three feedback conditions (map/sentence/text/x 2 orders of comprehension (semantic-situation/situation-semantic).

To assess semantic representation, the subjects were asked to write down what they remembered regardless of order. The recall protocol was scored for both number of propositions and order of report.

Situation memory has been assessed in terms of inferential reasoning (Langer, Keenan, & Bergman, 1992). All subjects were presented with a 32-card deck. Two of the items were practice items. The 30 remaining items consisted of original sentences from both versions as well as new sentences. The latter were paraphrases written in either the route or survey style, and could be either true or false. Subjects read each sentence aloud, and determined whether the sentence was true or false. It follows that an original sentence from either version is by definition true, but paraphrases could be either true or false.

The route version has 25 sentences, 489 words, and 215 atomic propositions (see Appendices A and C). The survey version has 25 sentences, 497 words, and 225 atomic propositions (see Appendices B and D). The passages are comparable not only in terms of word length and number of propositions, but the order in which features of the town and terrain appear is identical for both.

Results

Results are reported for both situational and semantic memories. Semantic memory was most affected by our procedures, with both main and interaction effects. To repeat, situation memory was measured by the correct number of inferences made. Subjects were given 30 statements, consisting of original sentences from both versions, which are by definition true, plus paraphrases, written in either route or survey language, which could either be true or false. ANOVA yielded no significant effects for version, feedback, or order of testing. However, the data for semantic memory yielded a somewhat different picture.

Insert Table 1 about here

For semantic memory the recall protocols were scored for number of propositions. Scoring is lenient in the sense that the material recalled can approximate the original content but does not have to be identical. The first main effect was for version $F(1,41)=9.10$ ($p<.005$). The mean number of propositions recalled was 30.95 for the route version and 40.65 for survey.

Second, a main effect for order was also obtained $F(1,41)=18.72$ ($p=<.001$). When testing for situation memory preceeded semantic, the mean number of propositions recalled was 45.38, but when semantic preceeded situation, the mean number of propositions recalled was 30.22. It should be remembered that in the former case, the reading of the text preceeded the recall protocols.

There was a statistically significant interaction between order and version ($F1,41)=5.42$, $p<.03$). When situation memory was assessed first, the recall means for the

route and survey versions were 34.60 and 53.56 respectively. When semantic memory was assessed first, which meant the text was read before the situation memory task,the route and survey recall means were 26.89 and 32.36, respectively. While both versions dropped, the loss for the survey version was much greater.

The feedback-text version interactions are also of interest to us. Although statistically non-significant, the trends were in line with what we have previously observed. For inferential reasoning, that is, situation memory, the data are given in Figure 1.

Insert Figure 1 about here

For both the route and survey versions, map and sentence feedback seem to serve in a complementary capacity. That is, map feedback is better for the survey version, while sentence review is better for the route version. Reading the entire text after processing without feedback seems to show a little greater effect for the route version.

For recall, the feedback version interaction picture is somewhat different.

Insert Figure 2 about here

Here are three feedback conditions seen to enhance about equally well within each version, but there is a superior effect in the survey text version.

Discussion

In the past we have remarked somewhat facetiously about the ability of our college subjects to recall text without giving indication of any processing in depth. This surface memory representation at the expense of situation memory, or even semantic memory, may explain why programmed instruction succeeded so well at reproduction of text at the expense of knowledge which could be applied elsewhere. In short, limited assistance or less complete text may have a significant role to play in the kinds of learning culminating in a mental model which mjay require more complex conceptual processes.

In this study we increased our efforts to determine the relationship between text and feedback. In the previous study recall for the route version proved to be only marginally superior to the survey version (Langer, Keenan, & Bergman, 1992). However, in this study the survey version recall was significantly superior. It should be noted that in absolute values the propositional recall mean for the survey version was not markedly different from the previous study (40.65 vs. 39.29). What we did get was a big drop for the route version as compared to the previous study (30.95 vs. 44.20) (Langer, Keenan, & Bergman, 1992). There is no simple explanation available to us.

In this study the additional reading assisted semantic memory when the text was presented prior to completion of the recall protocols. Situation memory was not assisted by a second reading. Moreover, the order by version interaction suggests that the survey version was more text dependent insofar as recall was concerned. This may suggest either a cumulative assistance effect for the survey version in terms of recall, or with only one reading situation memory becomes critical for a memorial representation of the text.

The feedback by version interactions also were consistent with previous trends. For recall all three feedback conditions seemed to have an equal impact within each version. For situation memory, however, both supplementary and complementary effects were assistance observed. Map feedback aided the survey version while sentence feedback assisted the route. The text condition seemed to assist route processing better, suggesting a supplementary contribution.

The further we go it seems, the more complex the assistance issue becomes as an instructional problem. Clearly our results are sensitive to both the timing and amount of feedback as well as text content. The use of a fictional town obviously constraines the contributions of prior knowledge other than in a very general sense. However, it is equally apparent that by assisting one type of memory we may be doing so at the expense of another. To borrow from Lewis Carroll, it all gets more and more curious.

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Table 1: ANOVA for Propositional Recall

Source	SS	DF	MS	F	Sig
Main Effects	3776.44	4	944.11	6.42	.001
Version (VRS)	1338.73	1	1338.73	9.10	.005
Feeback (FBK)	515.14	2	257.57	1.75	.191
Order (ORD)	2753.24	1	2753.24	18.72	.0001
2-Way Interactions	1027.41	5	205.48	1.40	.25
VRS X FBK	183.74	2	91.87	.63	.54
VRS X ORD	796.79	1	796.79	5.42	.03
FBK X ORD	305.25	2	152.63	1.04	.37
3-Way Interactions	158.56	2	79.28	.54	.59
VRS X FBK X ORD	158.56	2	79.28	.54	.59
Explained	4962.41	11	451.73	3.07	.01
Residence	4411.71	30	147.06		
Total	9374.12	41	228.64		

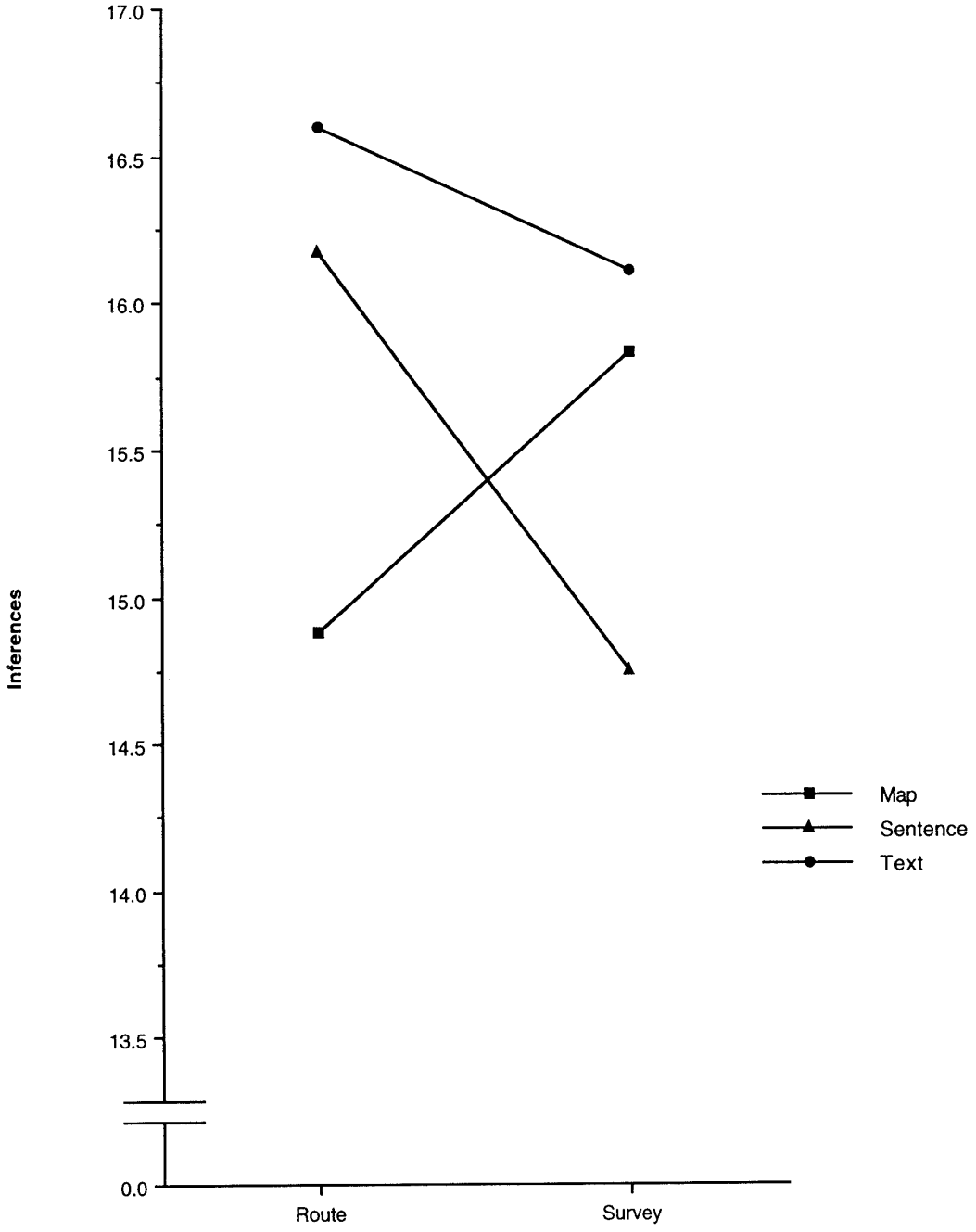

Figure 1. Inferential reasoning by feedback type and text version

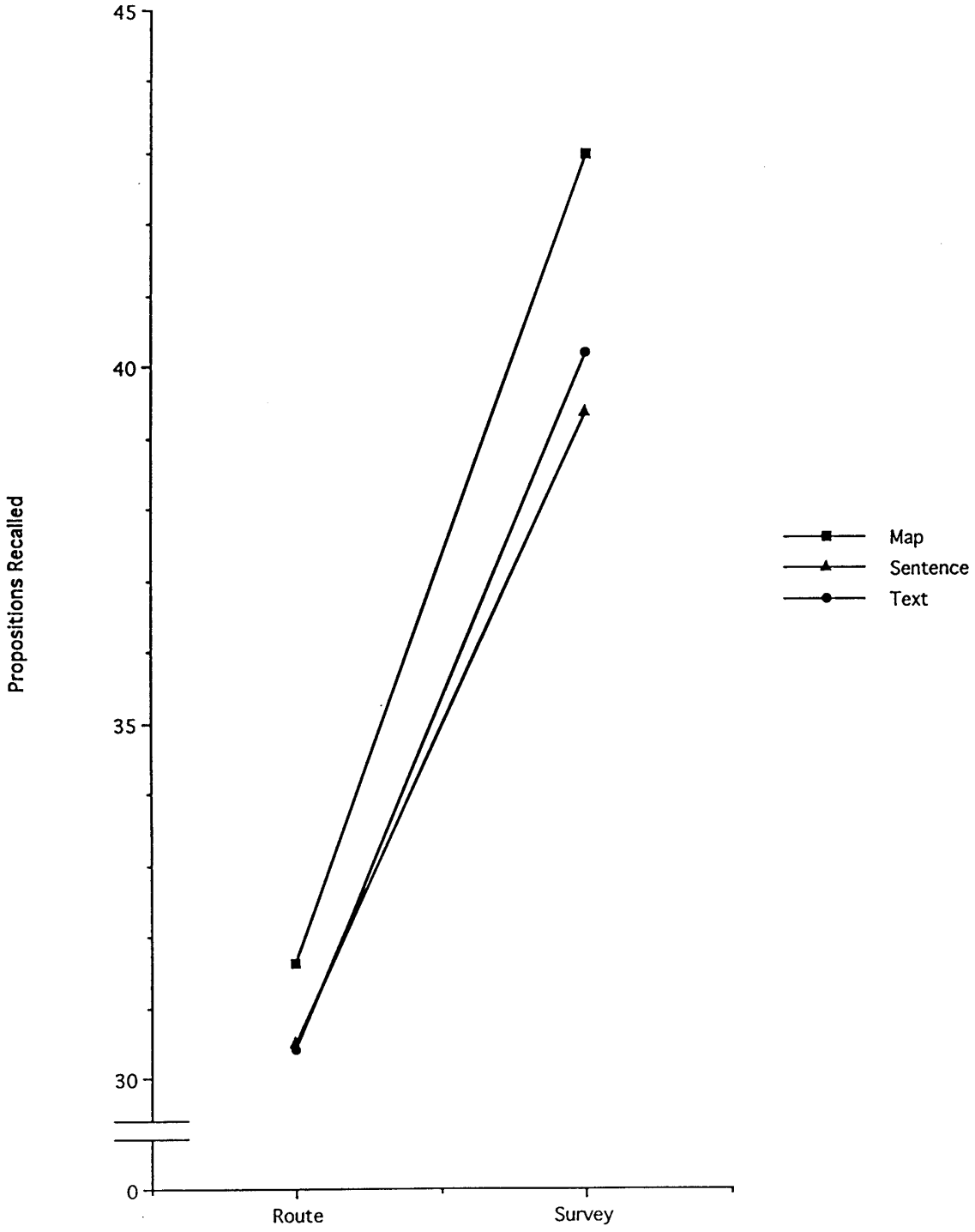

Figure 2. Recall by feedback type and test version

APPENDIX A

NEW MAPLETON: BY SENTENCE
Temporal (route) Version

1. Let me tell you about a town called Mapleton where I spent a week on vacation last year.

2. As you drive east toward Biggcity you cross Deer Creek and that is where you will find this little town.

3. The highway runs along the base of the hills before you get to the creek with pasture on the uphill side of the road.

4. On the right side are flat fields of corn and beans, and white barns with red roofs.

5. As the road swings left to go up the valley Mapleton can be seen on the other side of the creek, with wooded hills behind it.

6. Before you get to the bridge there are some small homes along the roadside and then you pass the highschool on your right.

7. Just past the highschool is a small gas station with the shop in the back.

8. At the bridge is an old general store where the young people hang out after school.

9. If you look upstream from the bridge to where the creek runs out of the hills, the Mapleton Inn is just visible on the far side.

10. I could fish up the stream from the Inn or hike in the woods behind it, or just lie around the pool and turn brown.

11. The Inn is old but kept in top condition, and the meals were superb.

12. Crossing the bridge you will see the Canyon Road that goes up to the Inn and disappears behind a bluff.

13. On the town side of the bridge the highway turns back down the creek with the town on your left.

14. There is a light at Main Street where you turn left to go into town.

15. A small business section extends about four blocks along both sides of the street with the newer shops farther from the creek.

16. Mapleton Park is on the left side of the street in the second block and on nice days oldtimers sit on benches watching the traffic.

17. The gray stone building on Main Street is Town Hall with the library upstairs and Police Department in back.

18. The tallest building in town is Holy Savior Lutheran Church which shows its steeple between Town Hall and the creek.

19. Just south across from Holy Savior is St. Catherines Church, a small but solid red brick building.

20. On the hill behind Town Hall are the older homes, white frame houses shaded by big old silver maples.

21. Newer homes are across town and down toward the highway where it leaves the creek.

22. Main Street turns into a country road out of town and meets the highway again after a few miles.

23. I drove to the end of town once but there is nothing to see except corn fields.

24. If you just stay on the highway it goes down the valley past the town and turns away from the creek.

25. It is too bad that so many drivers pass through town without enjoying the leisure Mapleton offers.

APPENDIX B

NEW MAPLETON: BY SENTENCE
Spatial (survey) Version

1. Let me tell you about a town called Mapleton where I spent a week on vacation last year.

2. As you drive east toward Biggcity you cross Deer Creek and that is where you will find this little town.

3. The highway runs along the south side of the hills west of the creek, with pasture on the hills to the north.

4. On the south side are flat fields of corn and beans, and white barns with red roofs.

5. At the creek the road swings north to go up the valley where Mapleton can be seen on the east side of the creek, with wooded hills behind it.

6. At the west end of town are some small homes along the roadside and closer to the creek is the school.

7. Just past the highschool is a small gas station with the shop in the back.

8. At the bridge is an old general store where the young people hang out after school.

9. If you look upstream from the bridge to where the creek runs south out of the hills, the Mapleton Inn is just visible on the east side.

10. I could fish the stream north from the Inn or hike in the woods behind it, or just lie around the pool and turn brown.

11. The Inn is old but kept in top condition, and the meals were superb.

12. East of the bridge is the Canyon Road that goes north to the Inn and disappears behind a bluff.

13. On the east side of the bridge the highway turns back south along the creek with the town further east.

14. There is a light at Main Street where you turn east to go into town.

15. A small business section extends east about four blocks along both sides of the street with the newer shops farther from the creek.

16. Mapleton Park is on the north side of the street in the second block east and on nice days oldtimers sit on benches watching the traffic.

17.The gray stone building on Main Street is Town Hall with the

library upstairs and Police Department in back.

18. The tallest building in town is Holy Savior Lutheran Church which shows its steeple west of Town Hall toward the creek.

19. Just south across from Holy Savior is St. Catherine's Church, a small but solid red brick building.

20. On the hill north of Town Hall are the older homes, white frame houses shaded by big old silver maples.

21. Newer homes are south of Main down toward the highway where it turns east from the creek.

22. Main Street turns into a country road east of town and and then goes south to meet the highway again.

23. I drove out east once but there is nothing to see except corn fields.

24. The highway turns south to go back down the valley past the town and turns away from the creek toward the city to the east.

25. It is too bad that so many drivers pass through town without enjoying the leisure Mapleton offers.

APPENDIX C

NEW MAPLETON: PROPOSITIONS

Rev. 5-91; 11-06-91; 10-91; 15-11-91; 21-11-91; 05-92.

Conventions:

Propositions (first column, with numbers))

1. Use original text words and order as much as is possible.
2. "Molecular", as short as possible for unambiguous recall decision.
3. Numbered within sentences e.g. 0210 = proposition 10, sentence 2.

Predicates (second column)

1. Verbs, modifiers, connectives, and some prepositions.
2. Some are two-word, hyphenated, e.g. verb-conjunction.
3. Brackets indicate [implicit predicate].

Arguments (third column)

1. Arguments are nouns, pronouns, other propositions, etc., separated by commas, e.g. "(loves) George, bananas".
2. Brackets indicate [implicit argument] from within the same sentence.
3. Slash indicates proposition, usually by /predicate/ only.

Temporal (route) Version

0101	tell-about	me, you, town
0102	called	[town], Mapleton
0103	spend	I, week
0104	where	/spend/,[Mapleton]
0105	on	/spend/,vacation
0106	[when]	/spend/, /last/
0107	last	year
0201	as	/drive/, /cross/
0202	drive	you
0203	east	/drive/
0204	toward	/drive/, Biggcity
0205	cross	you, Creek
0206	Deer	[Creek]
0207	and	/cross/, /find/
0208	find	you, town
0209	little	[town]
0210	this	[town]
0301	runs-along	highway, base
0302	of	[base], hills
0303	on	/runs-along/, side
0304	this	[side]
0305	of	[side], creek
0306	with	/runs-along/, pasture
0307	on	[pasture], side
0308	uphill	[side]
0309	of	[side], road

0401	on	side
0402	right	[side]
0403	are	fields, /on/
0404	flat	[fields]
0405	of	[fields], /and/
0406	and	corn, beans
0407	and	[fields], barns
0408	white	[barns]
0409	with	[barns], roofs
0410	red	[roofs]
0501	as	/swings/, /can-be-seen/
0502	swings	road, left
0503	to-go-up	/swings/, valley
0504	can-be-seen	Mapleton
0505	on	/can-be-seen/, side
0506	other	[side]
0507	of	[side], creek
0508	with	[Mapleton], hills
0509	wooded	[hills]
0510	behind	[hills], it [Mapleton]
0601	before	/get/
0602	get	you, /to/
0603	to	bridge
0604	are	homes
0605	some	[homes]
0606	small	[homes]
0607	along	/are/, roadside
0608	and	/get/, /pass/
0609	pass	you, highschool
0610	then	/pass/
0611	on-right	[highschool]
0701	is	station
0702	small	[station]
0703	gas	[station]
0704	just-past	/is/, highschool
0705	with	/is station/, shop
0706	in-back	[shop]
0801	at	bridge
0802	is	store, /at/
0803	old	/store/
0804	general	/store/
0805	where	/is/, /hang out/
0806	hang-out	people
0807	young	[people]
0808	after	/hang out/, school
0901	if	/look/, /is/

0902	look	you
0903	up	/look/, stream
0904	from	/up/, bridge
0905	to	/look/, /where/
0906	where	/runs/
0907	runs-out-of	creek, hills
0908	is	Mapleton Inn, visible
0909	on	/is/, side
0910	far	side
1001	could-fish	I
1002	up	/could fish/, stream
1003	from	/up/, Inn
1004	or	/could-fish/, /(could)-hike/
1005	[could] hike	[I]
1006	in	/hike/, woods
1007	behind	[woods], it [Inn]
1008	or	/or/, /lie-around/
1009	lie-around	[I], pool
1010	and	/lie-around/, /turn/
1011	turn	brown
1101	is	Inn, old
1102	but	/is/, /[is]-kept/
1103	[is]-kept	[Inn]
1104	in	/[is]-kept/, condition
1105	top	[condition]
1106	and	/[is]-kept/, /were/
1107	were	meals, superb
1201	crossing	you, bridge
1202	will-see	[you], Canyon Road
1203	goes	[Canyon Road], /up-to/
1204	up-to	/goes/, Inn
1205	and	/goes/, /disappears/
1206	disappears	[Canyon Road]
1207	behind	/disappears/, bluff
1301	turns-back	highway
1302	on	/turns-back/, side
1303	town	side
1304	of	[side], bridge
1305	down	/turns-back/, creek
1306	with	[/turns-back/, /on-left/]
1307	on-left	town
1401	is	light
1402	at	/is/, Main Street
1403	where	/is/, /turn/
1404	turn	you, left
1405	to (purpose)	/turn/, /go-into/
1406	go-into	[you], town
1501	extends	business section
1502	small	[business section]

1503	about-four	/extends/, blocks
1504	along	sides
1505	both	[sides]
1506	of	/both/, street
1507	with	[business section], shops
1508	newer	[shops]
1509	farther-from	/newer shops/, creek
1601	is	Mapleton Park, /on/
1602	on	side
1603	left	[side]
1604	of	/left/, street
1605	in	/is/, second block
1606	and	/is/, /sit/
1607	sit	oldtimers
1608	on (when)	/sit/, days
1609	nice	[days]
1610	on	/sit/, benches
1611	watching	[oldtimers], traffic
1701	is	building, Town Hall
1702	stone	building
1703	gray	/stone/
1704	on	/is/, Main Street
1705	with	[Town Hall], /and/
1706	upstairs	library
1707	and	/upstairs/, /in-back/
1708	in-back	Police Department
1801	is	/tallest/, Church
1802	tallest	building
1803	in-town	/tallest/
1805	Holy Savior	[Church]
1806	Lutheran	[Church]
1807	which	[Church]
1808	shows	[Church], steeple
1809	between	/shows/, /and/
1810	and	Town Hall, creek
1901	across-from	/is/, Holy Savior
1902	south	/across-from/
1903	just	/south/
1904	is	Church
1905	St.Catherine's	[Church]
1906	small	/is/, building
1907	solid	[building]
1908	but	/small/, /solid/
1909	brick	[building]
1910	red	/brick/
2001	are	homes
2002	older	[homes]

2003	On	/are/, hill
2004	behind	[hill], Town Hall
2005	white	/are/, houses
2006	frame	[houses]
2007	shaded	[houses]
2008	by	/shaded/, maples
2009	big	[maples]
2010	old	[maples]
2101	are	homes
2102	newer	homes
2103	across	/are/, town
2104	and	/across town/, /toward highway/
2105	toward	/are/, highway
2106	down	/toward highway/
2107	where	/are/, /leaves/
2108	leaves	it [highway] , creek
2201	turns-into	Main Street, country road
2202	out-of	/turns-into/, town
2203	and	/turns-into/, /meets/
2204	meets	[Main Street], highway
2205	again	/meets/
2206	after	/meets/, miles
2207	few	[miles]
2301	drove	I
2302	once	/drove/
2303	to	/drove/, end
2304	of	[end], town
2305	but	/drove/, /is/
2306	is	nothing
2307	to-see	[nothing]
2308	except	[nothing], cornfields
2401	stay-on	you, highway
2402	if	/stay-on/, /goes/
2403	goes	it [highway]
2404	down	/goes/, valley
2405	past	/goes/, town
2406	and	/goes/, /turns/
2407	turns	[highway]
2408	away-from	/turns/, creek
2501	is	too-bad,
2502	that	/is/, /pass-through/
2503	pass-through	drivers, town
2504	so-many	[drivers]
2505	without	/pass-through/, /enjoying/
2506	enjoying	leisure
2507	offers	Mapleton, [leisure]

APPENDIX D

NEW MAPLETON
Spatial (survey) Version

0101	tell-about	me, you, town
0102	called	[town], Mapleton
0103	spend	I, week
0104	where	/spend/, [Mapleton]
0105	on	/spend/, vacation
0106	[when]	/spend/, /last/
0107	last	year
0201	as	/drive/, /cross/
0202	drive	you,
0203	east	/drive/
0203	toward	/drive/, Biggcity
0204	cross	you, Creek
0205	Deer	[Creek]
0206	and	/cross/, /find/
0207	find	you, town
0208	little	[town]
0209	this	[town]
0301	runs along	highway, side
0302	south	[side]
0303	of	[side], hills
0304	on	/runs along/, side
0305	west	side
0306	of	[side], creek
0307	with	/runs along/, pasture
0308	on	[pasture], hills
0309	to	[hills], north
0401	on	side
0402	south	[side]
0403	are	fields, /on/
0404	flat	[fields]
0405	of	[fields], /and/
0406	and	corn, beans
0407	and	[fields], [barns]
0408	white	barns
0409	with	[barns], roofs
0410	red	[roofs]
0501	at	creek
0502	swings	/at/, road
0503	north	/swings/
0504	to go up	/north/, valley
0505	where	/can-be-seen/, [valley]
0506	can be seen	Mapleton, /on/
0507	on	side
0508	east	[side]
0509	of	[side], creek
0510	with	/can be seen/, hills
0511	wooded	hills
0512	behind	(hills), it(Mapleton)

0601	at	/are/, end
0602	west	[end]
0603	of	/west/, town
0604	are	homes
0605	small	[homes]
0606	along	/are/, roadside
0607	and	/are/, /is/
0608	is	school
0609	closer-to	/is/, creek
0701	is	station
0702	small	/is/
0703	gas	/is/
0704	just-past	/is/, highschool
0705	with	/is/, shop
0706	in-back	[shop]
0801	at	bridge
0802	is	store, /at/
0803	old	[store]
0804	general	[store]
0805	where	/is/, /hang out/
0806	hang-out	people
0807	young	[people]
0808	after	/hang out/, school
0901	if	/look/
0902	look	you
0903	upstream	/look/
0904	from	/look/, bridge
0905	to	/look/, /where/
0906	where	/to/, /runs/
0907	runs	creek
0908	south	/runs/, /out of/
0909	out of	hills
0910	is	Mapleton Inn
0911	visible	/is/
0912	just	/visible/
0913	on	/is/, side
0914	east	[side]
1001	could fish	I
1002	up stream	/could fish/
1003	from	/up stream/, Inn
1004	or 1	/could fish/, /[could] hike/
1005	[could] hike	[I]
1006	in	/[could] hike/, woods
1007	behind	[woods], it [Inn]
1008	or 2	/or 1/, /lie around/
1009	lie around	[I], pool
1010	and	/lie around/, /turn/
1011	turn	brown

1101	is	Inn, old
1102	but	/is/, /[is]-kept/
1103	[is]-kept	[Inn]
1104	in	/is-[kept]/, condition
1105	top	[condition]
1106	and	/is/, /were/
1107	were	meals, superb
1201	east-of	bridge
1202	is	Canyon Road, /east-of/
1203	goes	[Canyon Road], north
1204	to	/goes/, Inn
1205	and	/goes/, /disappears/
1206	disappears	[Canyon Road]
1207	behind	/disappears/, bluff
1301	on	side
1302	east	[side]
1303	of	/east/, bridge
1304	turns	highway, /on/
1305	back	/turns/, south
1306	along	/turns/, creek
1307	with	[highway], town
1308	further	/with/, east
1401	is	light
1402	at	/is/, Main Street
1403	where	/is/, /make/
1404	turn	you
1405	east	/turn/
1406	to go	/east/
1407	into	/to go/, town
1501	extends	business section
1502	small	[business section]
1503	east	/extends/
1504	four	/extends/, blocks
1505	about	/four/
1506	along	/extends/, sides
1507	both	[sides]
1508	of	/both/, street
1509	with	[business section], shops
1510	newer	[shops]
1511	farther-form	/newer/, creek
1601	is	Park
1602	Mapleton	[Park]
1603	on	/is/, side
1604	north	[side]
1605	of	[side], street
1606	in	/is/, block
1607	second	[block]
1608	east	/second/
1609	and	/is/, /sit/
1610	sit	oldtimers

1611	on	/sit/, days
1612	nice	[days]
1613	on	/sit/, benches
1614	watching	[oldtimers], traffic
1701	is	building, Town Hall
1702	stone	building
1703	gray	/stone/
1704	on	/is/, Main Street
1705	with	[Town Hall], /and/
1706	upstairs	library
1707	and	/upstairs/, /in-back/
1708	in-back	Police Department
1801	is	church, building
1802	Lutheran	[Church]
1803	Holy Savior	/Lutheran/
1804	tallest	[building]
1805	in-town	/tallest/
1806	shows	which [Church], steeple
1807	west-of	/shows/, Town Hall
1808	toward	/shows/, creek
1901	across-from	/is/, Holy Savior
1902	south	/across-from/
1903	just	/south/
1904	is	Church
1905	St.Catherine's	[Church]
1906	small	/is/, building
1907	solid	[building]
1908	but	/small/, /solid/
1909	brick	[building]
1910	red	/brick/
2001	are	homes
2002	older	[homes]
2003	on	/are/, hill
2004	north-of	[hill], town
2005	[are]	[homes], houses
2006	frame	[houses]
2007	white	[houses]
2008	shaded	[houses]
2009	by	/shaded/, maples
2010	old	[maples]
2011	silver	[maples]
2101	are	homes
2102	newer	[homes]
2103	south-of	/are/, Main
2104	down-toward	/are/, highway
2105	where	[highway], /turns/
2106	turns	it [highway]
2107	east	/turns/
2108	from	/east/, creek

2201	turns-into	Main Street, road
2202	country	[road]
2203	east-of	/turns-into/, town
2204	and	/turns-into/, /goes/
2205	goes	[Main Street], south
2206	to-meet	/goes/, highway
2007	again	/to-meet/
2301	drove-out	I
2302	east	/drove-out/
2303	once	/drove out/
2304	but	/drove-out/, /is/
2305	is	nothing
2306	to-see	[nothing]
2307	except	[nothing], cornfields
2401	turns	highway, south
2402	to go	/turns/, down
2403	back	[down]
2404	down	/to-go/, valley
2405	past	/to-go/, town
2406	and	/turns/, /turns-away]
2407	turns-away	[highway]
2408	from	/turns-away/, creek
2409	toward	/turns-away/, city
2410	east	[city]
2501	is	too-bad,
2502	that	/is/, /pass-through/
2503	pass-through	drivers, town
2504	so-many	[drivers]
2505	without	/pass-through/, /enjoying/
2506	enjoying	leisure
2507	offers	Mapleton, [leisure]

Notes:

1. predicates are verbs, modfiers (adjectives, adverbs, participles), conjunctions and prepositions. Sometimes verb-prep is used as predicate, "drive up." When predicate is copula, modifier may be in argument position.(Bovair and Kieras). Negatives are included in verb, (e.g. is-not, were-not-working).

2.Arguments are nouns, pronouns, noun phrases, and propositions. Propositions are usually indicated by the predicate only.