

Text Comprehension

Organization at different levels affects comprehensibility

1. Microstructure - local structure
2. Macrostructure - global structure

Microstructure:

Reference - linking together terms that mean the same thing

Susan likes volleyball. It is an exciting game.

- A. Pronoun - it
- B. Hyponymy - Volleyball - game

Her youngest boy had trouble with reading. The lad was falling behind his classmates.

- C. Synonymy - boy, lad

I saw a girl win the spelling bee. The girl was happy.

- D. Reiteration
- E. Indefinite - definite determiner (“a”, “the”)

Anaphoric reference - previous examples,
Use word to refer to something previous

Cataphoric reference - use word to refer to something
coming up

This is what she said. The chair of the department is a
raving lunatic.

This girl I met today was nicer than the other one. She
showed me around campus even though she had a test to
study for.

(focus of sentence)

Determinants of Pronominal Reference

1. Unambiguous

A. Gender/animacy

Susan gave John a computer game.

He wasn't too thrilled. It wasn't too exciting.

Comprehension difficulties when no suitable referent.

B. Grammatical

Kristen told Darlene to help herself.

Kristen told Darlene to help her.

2. Ambiguous

A. Verb preferences - causal implications

Mary accepted the award from Patsy because she...

Mary gave the award to Patsy because she ...

Preference? Not just subject of sentence, specific to verb

B. Foregrounding

Derek was building a sailboat. Ken admired Derek for his diligence and skill. He was planning to set sail in the summer.

Derek was building a sailboat. Derek was even more skilled than his brother Ken who had the same hobby. He was planning to set sail in the summer.

Components of Macrostructure

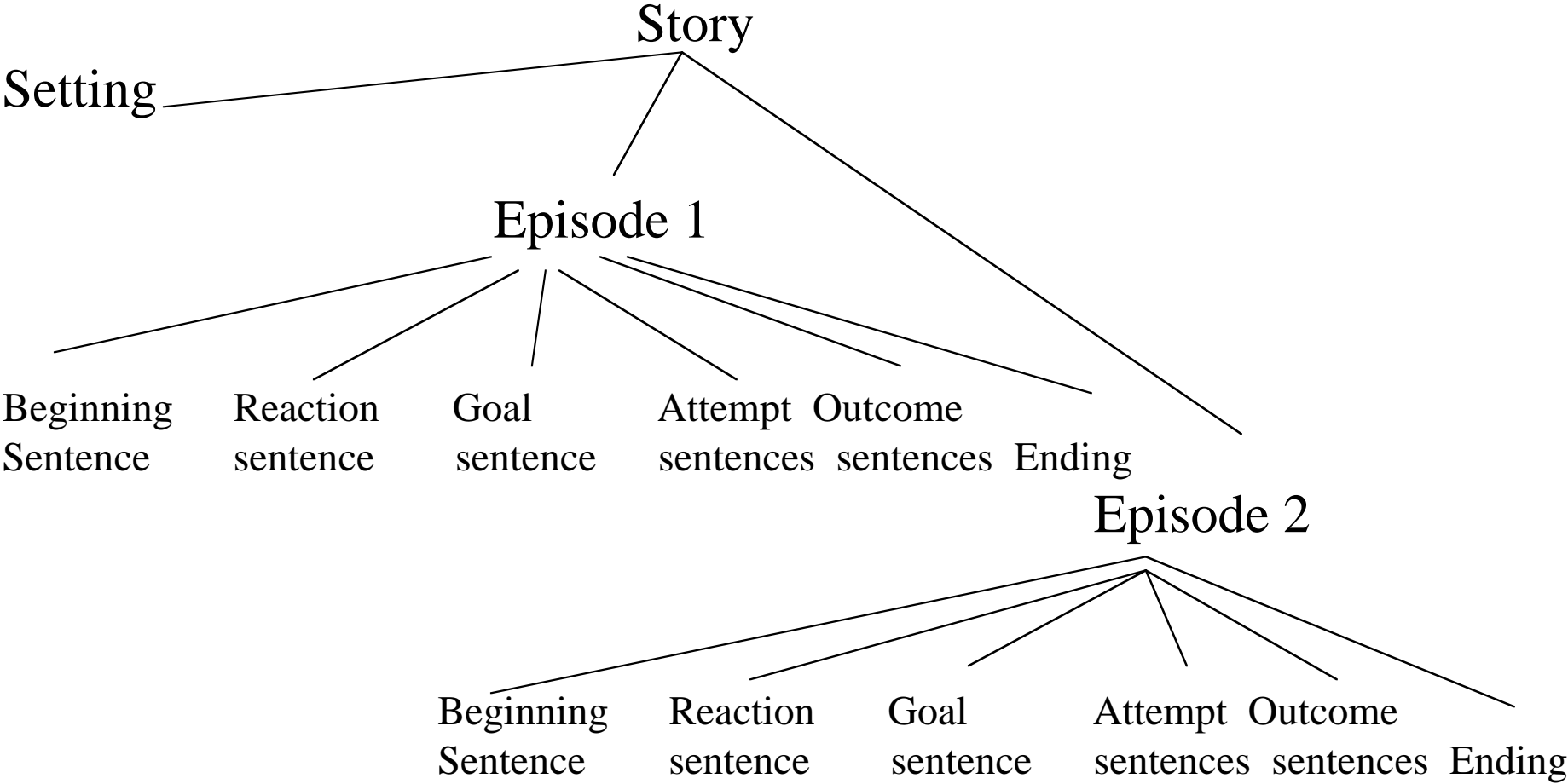
A. Formal properties

Story grammar

Narrative story: characters, setting, episodes: problem - goal, set of actions, resolution

Within each paragraph: Topic sentence, subtopics, details

From J. Mandler, 1984,



B. Role of Prior Knowledge

Comprehension depends not just on material presented, but on how it relates to prior knowledge.

Schema - a body of knowledge that helps organize new experience. Set of interrelated prior beliefs.

Schemas for going to restaurant, how a baseball game is played, what math courses are like, stereotypes about different groups

New information mapped onto existing schemas

Bransford & Johnson, 1972

Failure of schema induction (Bransford & Johnson, 1972)

The procedure is actually quite simple. First you arrange items into different groups. Of course one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step; otherwise, you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. IN the short run this may not seem important but complications can easily arise. A mistake can be expensive as well. At first the whole procedure will seem complicated. Soon, however it will become just another facet of life. It is difficult tot foresee any end to the necessity for this task in the immediate future, but then, one never can tell. After the procedure is completed one arranges the materials into different groups again. The n they can be put into their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated. However, that is part of life.

Comprehension and recall for the “Washing Clothes” passage

	<u>No topic</u>	<u>Topic Before</u>	<u>Topic After</u>
Comprehension Rating (1-7)	2.29	2.12	4.50
Number of Idea Units Recalled (max = 18)	2.82	2.65	5.83

Anderson, Reynolds, Schallert, & Goetz (1977)

Anderson, Reynolds, Schallert, & Goetz (1977)

Rocky slowly got up from the mat, planning his escape. He hesitated a moment and thought. Things were not going well. What bothered him most was being held, especially since the charge against him had been weak. He considered his present situation. The lock that held him was strong but he thought he could break it. He knew, however, that his timing would have to be perfect. Rocky was aware that it was because of his early roughness that he had been penalized so severely - much too severely from his point of view. The situation was becoming frustrating: the pressure had been grinding on him for too long. He was being ridden unmercifully. Rocky was getting angry now. He felt he was ready to make his move. He knew that his success or failure would depend on what he did in the next few seconds.

How had Rocky been punished for his aggressiveness?

A. He had been demoted to the “B” team.

B. His opponent ha been given points.

C. He lost his privileges for the weekend.

D. He had been arrested and imprisoned.

Anderson et al.,

Interpretation related to people's interests and prior experience

Most unaware of another interpretation.

Wrestling Schema (slots and fillers)

Setting

wrestlers	_____	_____	default (2)
weight class	_____		
place	_____	_____	(gym) (mat)
level	_____		(high school)

Events

opening moves	_____	_____	_____	
tactics	_____	_____	_____	(charge)
holds	_____	_____	_____	(lock)
take-downs	_____	_____		
	wrestler 1	wrestler 2		
points	_____	_____		
penalties	_____	_____		

Studies on inferencing during comprehension

Do subjects normal draw inferences immediately?

What types of inferences are drawn?

What is the memory for inferences compared to stated facts?

Bridging inferences: linking two sentences when connection is not obvious

Obvious:

The students brought the beer to the picnic in the trunk of the car. The beer was warm.

Given-new convention: Second sentence begins with repeated element (given element). Then adds new information - “was warm”.

Non-obvious:

The students drove an hour to the park for the picnic. The beer was warm.

Reading times longer on second sentence in non-obvious case.

Elaborative inference:

Jack looked sad when he blew out the candles on his cake. His friends glanced at each other but tried not to let him see.

Why is Jack sad? Elaborative inference to decide. Making guess.

What inferences are drawn and when?

How to test?

A. Recall measures - provide inference as cue and see if it helps.

Example:

The robber killed the homeowner.

The robber shot the homeowner.

Infer “gun” in both cases?

Provide “gun” as recall cue for sentence. Does it help equally for both?

Problem?

B. Priming measures

1. E.g. Read sentence, press button, name word in bold

The robber killed the homeowner.

GUN

The robber shot the homeowner.

GUN

Compare “GUN” in these sentences to “GUN” following unrelated sentence (e.g., The shopping cart was full of vegetables.”)

Results across many studies: (McKoon & Ratcliff; Singer; Fletcher)

A. Bridging inferences are drawn. Needed for coherence.

B. Strongly implied inferences of instrument, location, etc. are drawn -

Shot - gun inferred, Killed - gun, weaker priming

C. No evidence for elaborative inferences.

Methodological problem - Hard to know what inferences different people might draw when non-obvious.

Memory for Inferences Vs. Explicit Material

Kintsch (1974)

Explicit version of story:

A careless discarded burning cigarette started a fire.
The fire destroyed many acres of virgin forest.

Implicit version:

A burning cigarette was carelessly discarded.
The fire destroyed many acres of virgin forest.

Test: A discarded cigarette started a fire. True or false?

Kintsch, 1974

