

Gernsbacher's Structure Building Theory

Language and nonverbal comprehension (e.g., pictorial)

- 1. Laying a foundation for comprehension**
- 2. Mapping - adding information to foundation**
- 3. Shifting - switching to new focus**

Laying a foundation takes effort:

1. N400s larger for words earlier in sentence
2. Shadowing latencies decrease for later words
3. Faster reading times at end of clause than at beginning
Compare times for “boat”

- a. Because of its lasting construction and its motor’s power, the boat was of high quality.
- b. The newly designed outboard motor, whose large rotary blades power the boat, was of high quality.

Advantage of First Mention - Once foundation is laid, easier to refer back to it - salient in memory

- 1) Tina beat Lisa in the state tennis match. Probe: Tina (or Lisa)
- 2) Lisa beat Tina in the state tennis match. Probe: Tina (or Lisa)

Faster times for Tina for 1) Lisa for 2)

Alternative interpretations:

a) agency

Tina was beaten by Lisa.

Lisa was beaten by Tina.

B. Initial Position

Two weeks ago, Tina mailed Lisa a box full of clothes.

Tina mailed Lisa a box full of clothes two weeks ago.

C. Syntactic Subject

Because of Tina, Lisa was evicted from the apartment.

Lisa was evicted from the apartment because of Tina.

Mapping - Additional information mapped onto foundation

Ease of mapping depends on coherence factors.

A. Referential coherence (discussed previously)

B. Temporal coherence

The starter fired his pistol and the marathon began.

Half an hour later it began to rain.

The starter fired his pistol and the marathon began.

Three days later it began to rain.

C. Locational coherence

While Joe and I were enthusiastically discussing our research in the hallway, the people in the nearby room were having difficulty concentrating.

While Joe and I were enthusiastically discussing our research in the hallway, the people in the nearby town were having difficulty concentrating.

Shifting -

Switching focus to clause (or idea unit) currently being understood

Advantage of first mention seems to contradict clause recency effect reported by Caplan (1976)

Now that artists are working with acrylics, oil paintings are rare. Probe: oil
Because it is difficult for artists to work in oil, paintings are rare. Probe: oil

Faster times when probe matches word in final clause.

Gernsbacher hypothesis:

1. Each clause is represented as a substructure
2. Comprehenders have greater accessibility to the substructure currently being constructed.
3. At some point, the substructure for a second clause is mapped onto the foundational structure for the first clause. Initial information then becomes more accessible.

Gernsbacher, Hargreaves & Beeman (1989)

Tina gathered the kindling as Lisa set up the tent.

As Tina gathered the kindling, Lisa set up the tent.

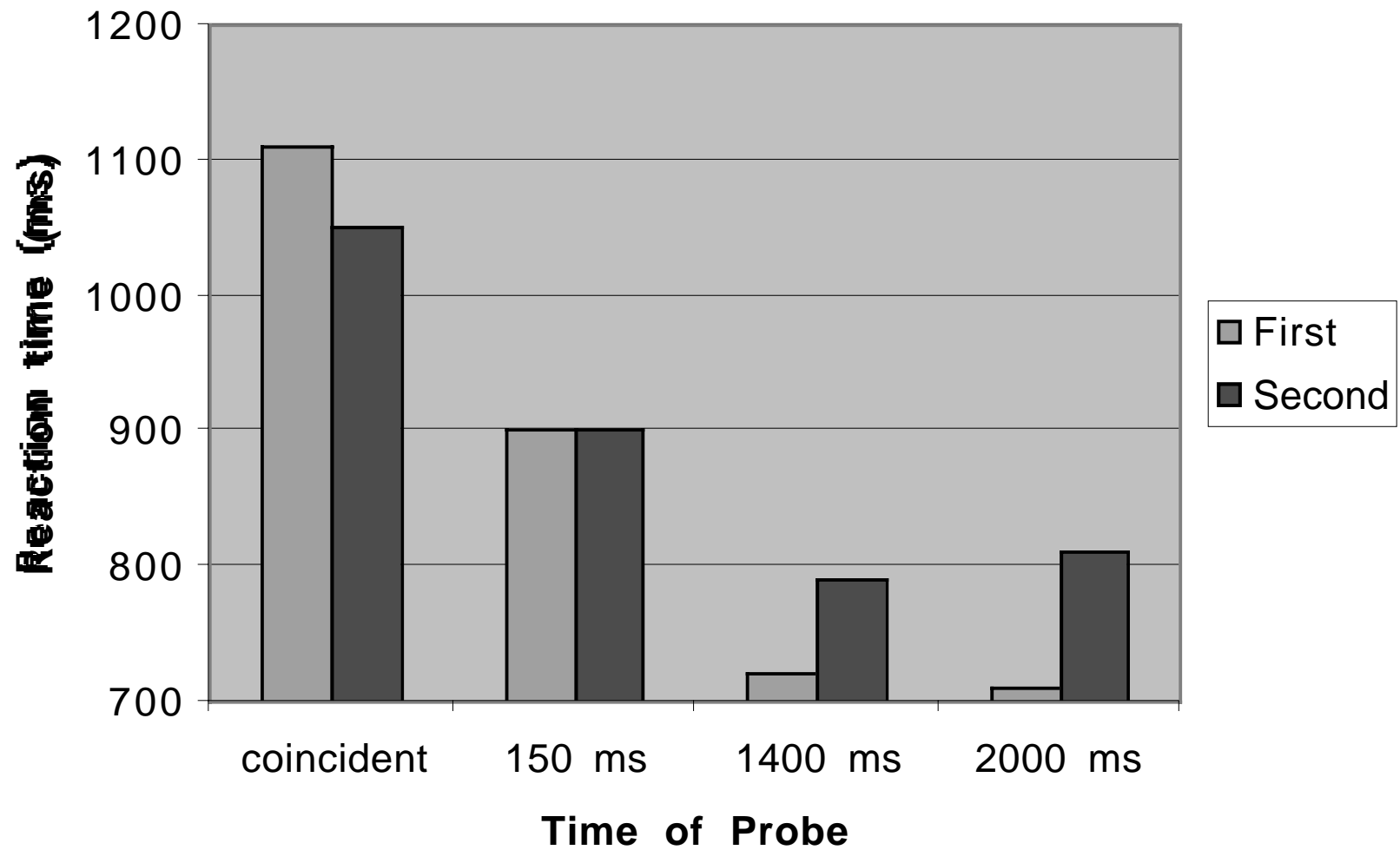
Tina gathered the kindling and Lisa set up the tent.

(same result for all structures)

Probe: Tina vs. Lisa

Timing: coincident with last word, 150 ms, 1400, 2000 ms
after last word.

Gernsbacher, Hargreaves, & Beeman, 1989



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