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Ups And Downs: Readers' Simulation Of A Story Character's Movement

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Introduction

- Previous research has shown that readers will mentally simulate or “embody” the experiences, actions, and perceptions of story characters as part of the comprehension process (e.g., Zwaan & Taylor, 2006; Dils & Boroditsky, 2010).
- The current study asks if readers embody the visual perceptions of story characters.
- Participant read a story about a character watching people traveling in a glass elevator, either upward or downward, from floor to floor. The stories were read one line at a time on a computer monitor. Instead of reading in the standard way, from the top to the bottom of the screen, the first line of the story appeared on the bottom of the screen and each successive line would appear above the last, requiring participants to read from bottom to top.
- Hypothesis: If readers embody the movement described in stories, then reading will be easier (faster) when story movement is congruent with the direction in which the text is presented than when story movement is incongruent with the direction in which the text is presented. Alternatively, if readers do not embody the movement described in stories, we will observe no effects of text presentation on participants’ reading.

Methods

- Participants read a story with the first line being presented at the bottom of a computer screen and each successive line appearing above the last.
 - Each line is advanced when the participant makes a button press.
 - When each new line appears, the previous line is masked to prevent the reading of previous lines (See figure).
- Participants read story describing characters moving in either an upward or downward direction. (Half of participants read the Up story and half read the Down story).
- Reading times for each line in the critical section are measured and compared.

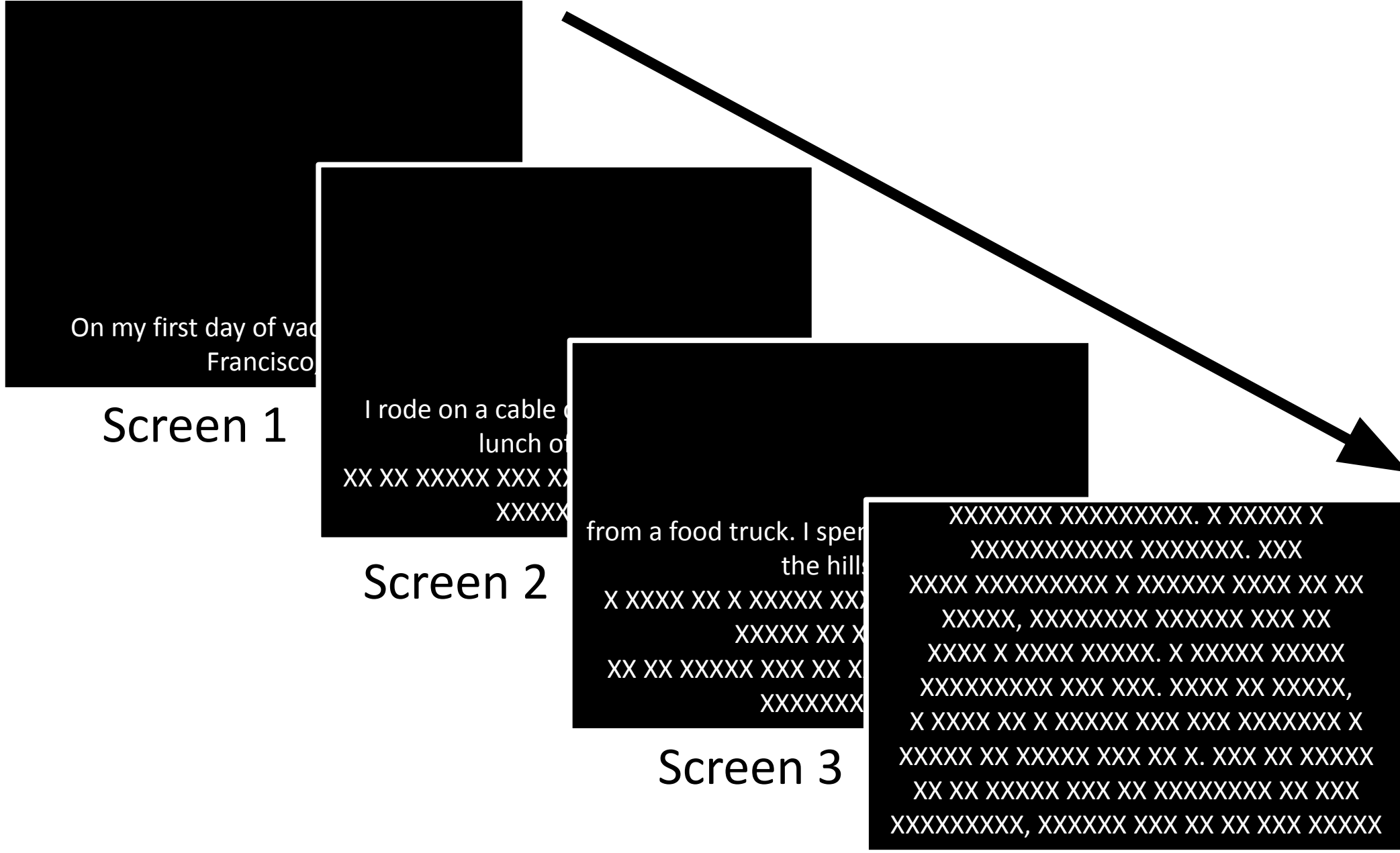


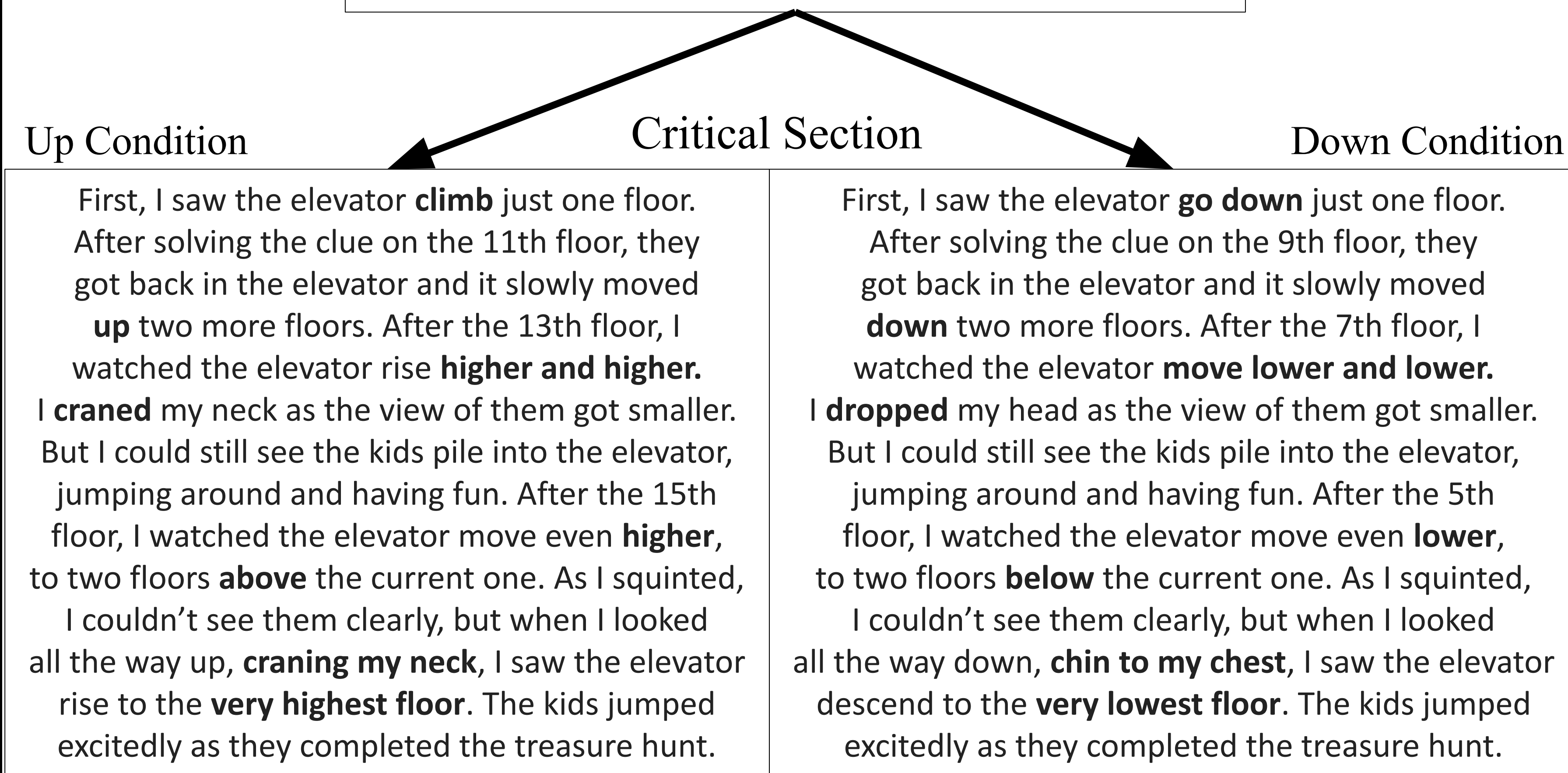
Figure. Participants' view

Materials

The Target Story

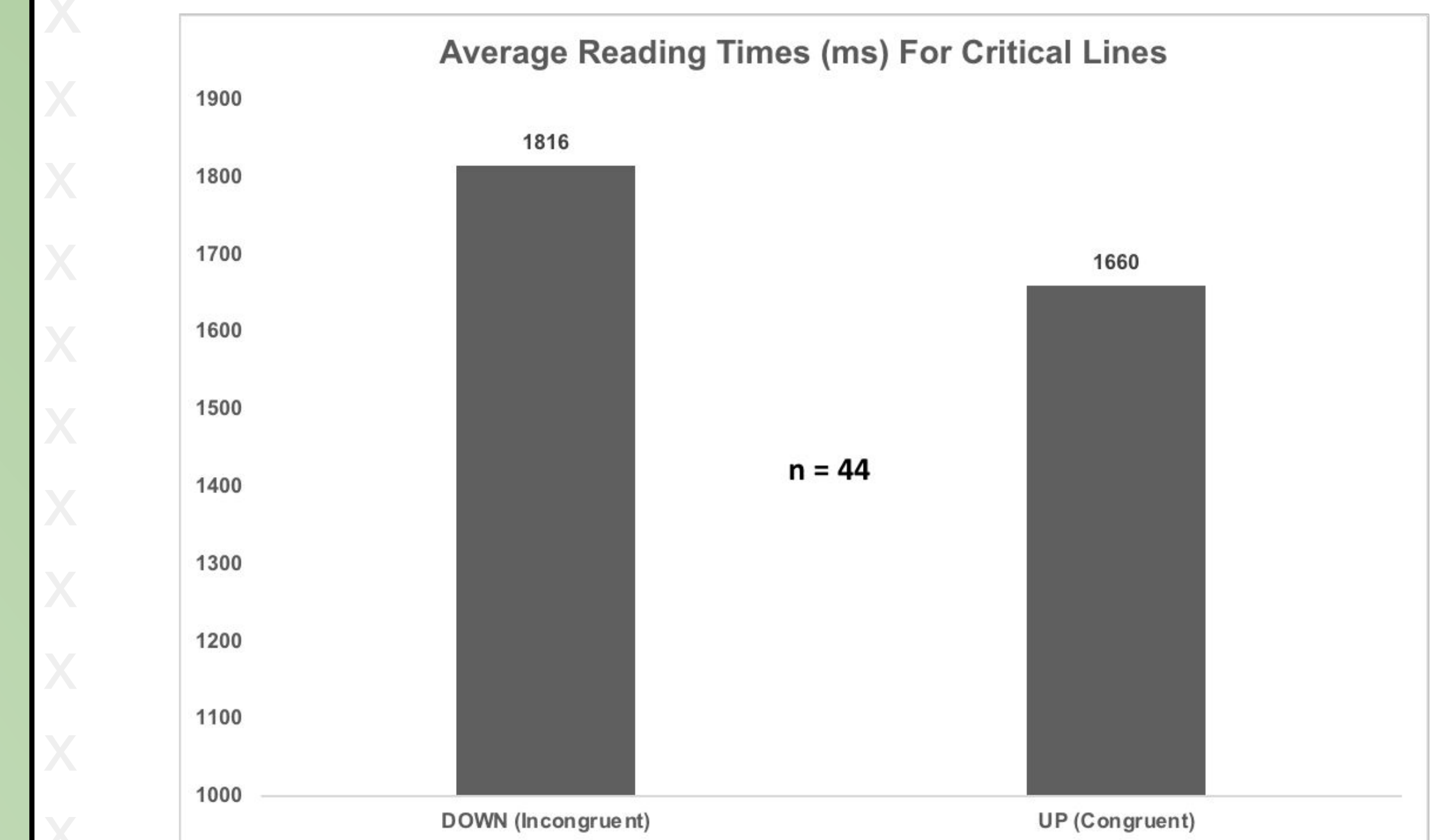
Text Introduction

On my first day of vacation in San Francisco, I rode on a cable car and enjoyed a lunch of ramen from a food truck. I spent hours exploring the hills. Late afternoon I headed back to my hotel, feeling exhausted. I found a comfortable chair on the 10th floor where there was an amazing atrium. I had a clear view of a glass elevator. It ran the whole 20 floors of the elegant hotel. I watched a group of children gather in the atrium by the elevator. From listening to their chatting, I gathered that they were on a treasure hunt in the hotel. There was something relaxing about watching the people move **up/down** the elevator from one floor to the next. I watched as they started in the atrium on the 10th floor and then watched them ride the glass elevator **up/down**, floor by floor, to find clues.



- The story is narrated from the perspective of a character sitting in a hotel atrium.
 - In the critical section, the character observes a group of children traveling from floor to floor in a glass elevator.
- The children are described as moving either up or down within the character's field of vision.
 - Stories included phrases like "I looked all the way down, chin to my chest" or "I looked all the way up, craning my neck" to describe the direction of the movement of the children being observed within the story.

Results



- These results are preliminary. Data collection is still in progress.
- The average reading time per line in the critical section was compared between conditions.
- On average, readers are slower to read in the Down (Incongruent) condition than the Up (Congruent) condition.
- Mean Difference = 156 ms

Discussion

- Reading is more difficult when the motion described in a story is incongruent with the direction in which the text is presented.
- These findings lend support to the hypothesis that readers embody character motion and simulate a sense of “up” or “down” when reading about story characters’ observations of movement.
- Generally, this study supports theories of text processing that suggest that the comprehension of text involves the mental simulation or embodiment of story events and characters’ experiences.

References

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