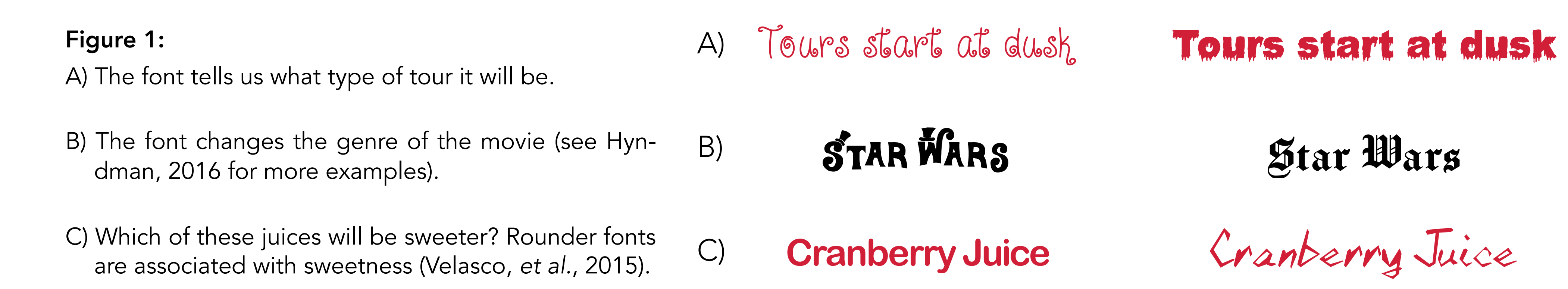


Can typeface affect the meaning of words?

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What role does font play in reading? Naïvely, we might suppose that the font merely contributes surface features that are independent of the semantics of the text. Accordingly, letter-recognition processes in reading must filter out the irrelevant features of the font to obtain the abstract letter identities, which are then used to determine the text's meaning.

But this naïve view must be wrong. Many studies show that the font used to print text influences how the text is interpreted. It is important to use a font that is consistent with the intended message of the text (see Figure 1).



We have explored how strong this influence is. Can a typeface change what a word means?

STUDY 1: Replication of Lewis & Walker (1989)

Procedure

- Font selection
 - In a preliminary study, students rated fonts on 15 dimensions: *big–little*, *dull–bright*, *fancy–plain*, *fast–slow*, *hard–soft*, *heavy–light*, *loud–quiet*, *low–high*, *masculine–feminine*, *sharp–blunt*, *strong–weak*, *tall–short*, *thick–thin*, *wet–dry*, and *young–old*.
 - Fifteen pairs of fonts were chosen that reliably received widely different ratings on each dimension.
 - Pairs of animals were chosen that also differed widely on each of the 15 dimensions:
- Main study
 - 38 student participants viewed animal names, one at a time, displayed in a font that was either congruent or incongruent with its meaning.
 - Two adjectives (e.g., light, heavy) were displayed below the animal word. Participants pressed a left or right key on the computer keyboard to indicate which adjective matched the animal.
 - Reaction times and response accuracy were recorded.

Results

Overall, for trials where participants made correct responses, reaction times were not significantly different for congruent versus incongruent trials. However, students made more errors in the incongruent trials. Reaction times on error trails were longer for incongruent trials .

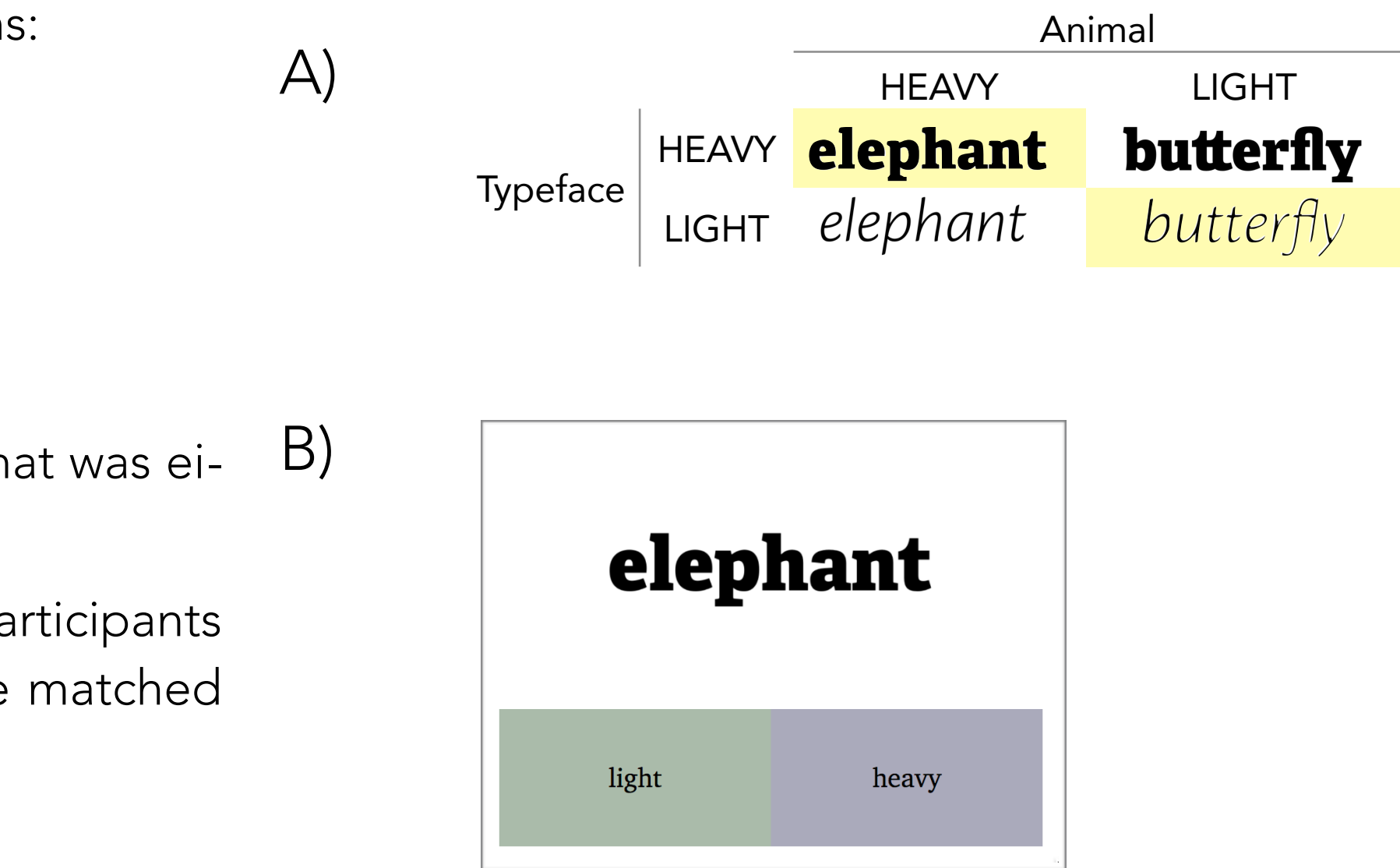


Figure 2: A) Example fonts that are congruent and incongruent with the animal. B) Example trial: the participant indicates which word ('light' or 'heavy') matches with *elephant*.

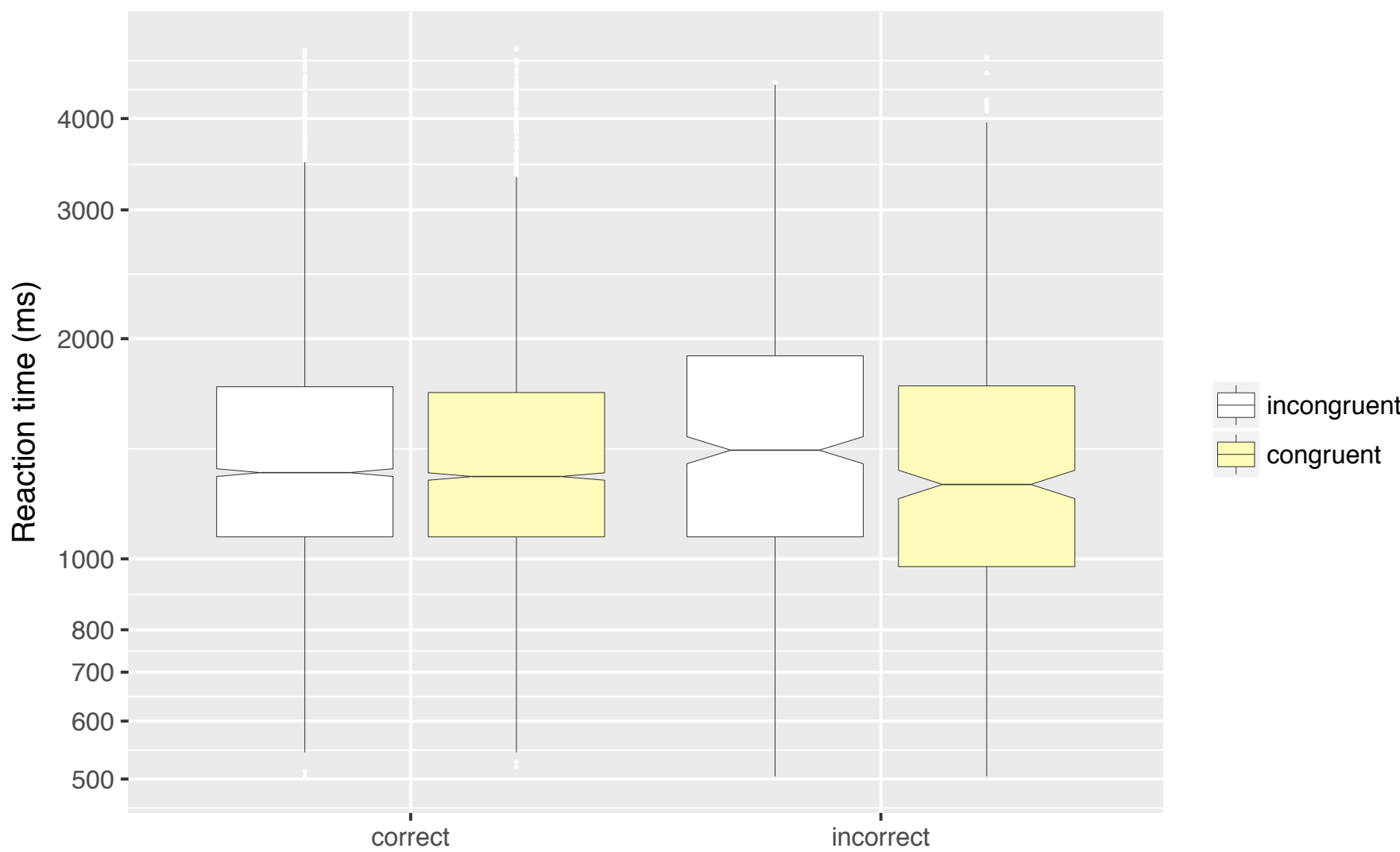


Figure 3: For ‘incorrect’ trials reaction times for the congruent trials are 63 ms faster than for incongruent trials ($p=0.002$)

STUDY 2: Rhyming

Study 1 indicated that fonts have a small effect on how quickly participants could make judgements about words. In Study 2 we explored whether fonts can directly affect the meaning of words. We tested this using words that have more than one meaning. In normal reading, the meaning of these words is disambiguated by the context of the sentence. Can this context all be provided by the font?

Procedure

- Eight target words (displayed in fonts that suggested one or other of the word's meanings — see Figure 4) were dispersed among 92 distractor words (displayed in randomly chosen fonts) in an online form.
- 96 students were randomly assigned to one of the two versions of the form.
- They were asked to select a word (from 4 options) that best rhymed with the word in question.
- For the target trials, the options included rhymes for both pronunciations of the target word.

Results

We counted the number of participants who chose each rhyming option for the different font versions of the target words. Chi-squared tests for independence indicate that the rhyme chosen for each word was not influenced by the typeface.

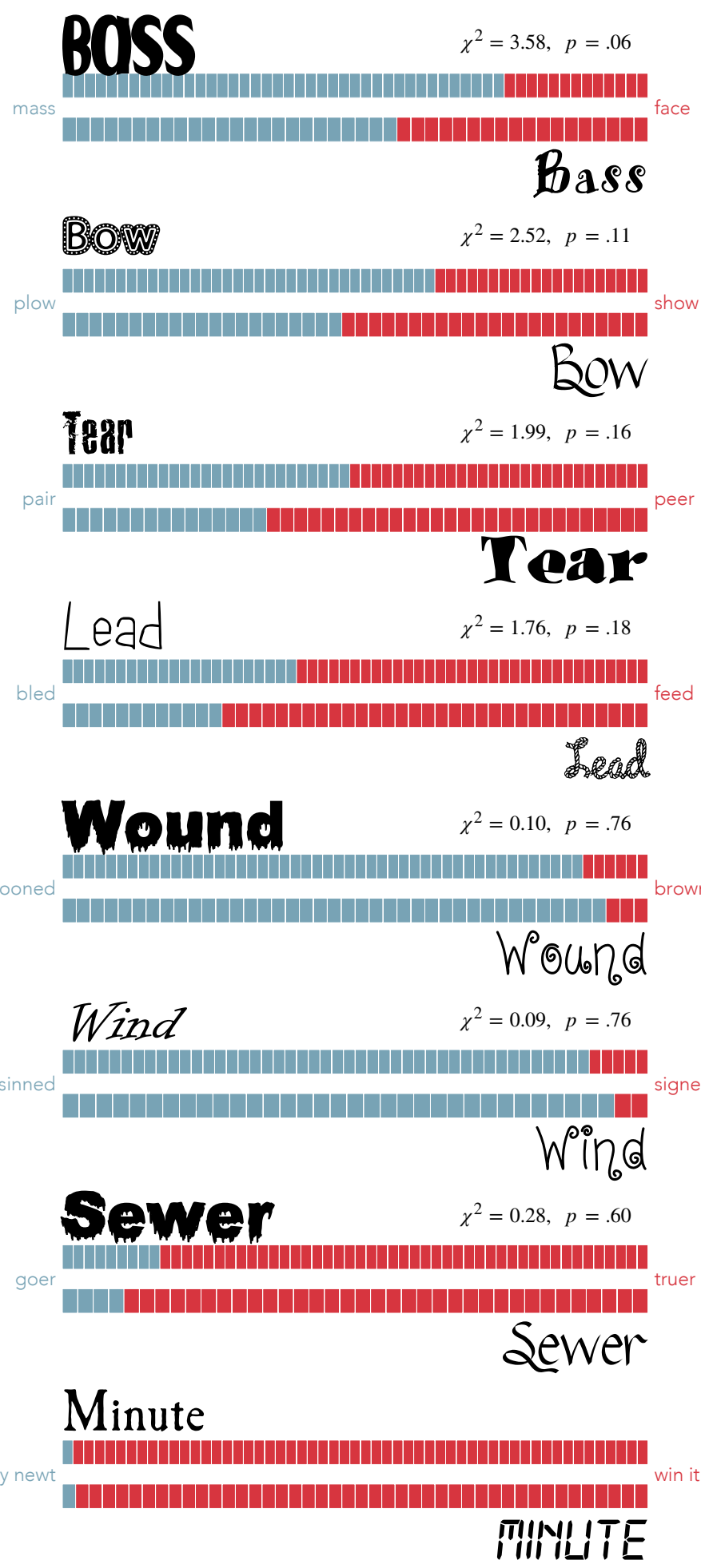


Figure 4: The number of participants who choose the rhyming options that were consistent with either font.

STUDY 3: Fonts in movie titles

This study aimed to make the participants consider the font when choosing how to interpret the ambiguous words.

Procedure

- 220 students were shown each of 5 target words, one at a time, in fonts that were consistent with one or other of each word's meanings (see Figure 5).
- The students were asked to make up a movie title that included the given word and to write a short summary of the movie's plot.
- Three judges subsequently rated the students’ responses for the meaning ascribed to the target word.
- Cases where judges disagreed, or where the meaning was ambiguous (e.g., “*The tear in her heart*”), were removed from the analysis

Results

The meaning of *bow* was biased towards ‘archery’ when printed using the *Arrowsque* font, and towards ‘theater’ when printed using the *BroadwayEvent* font ($p<0.0001$).

The meaning of *wound* was biased towards ‘twisting’ when printed using the *Curly-Shirley* font, and towards ‘injury’ when printed using the *BloodyStump* font. ($p=0.0002$).

Our choice of typefaces had no effect on the meaning of *tear* ($p=0.25$), *sewer*, or *wind*.

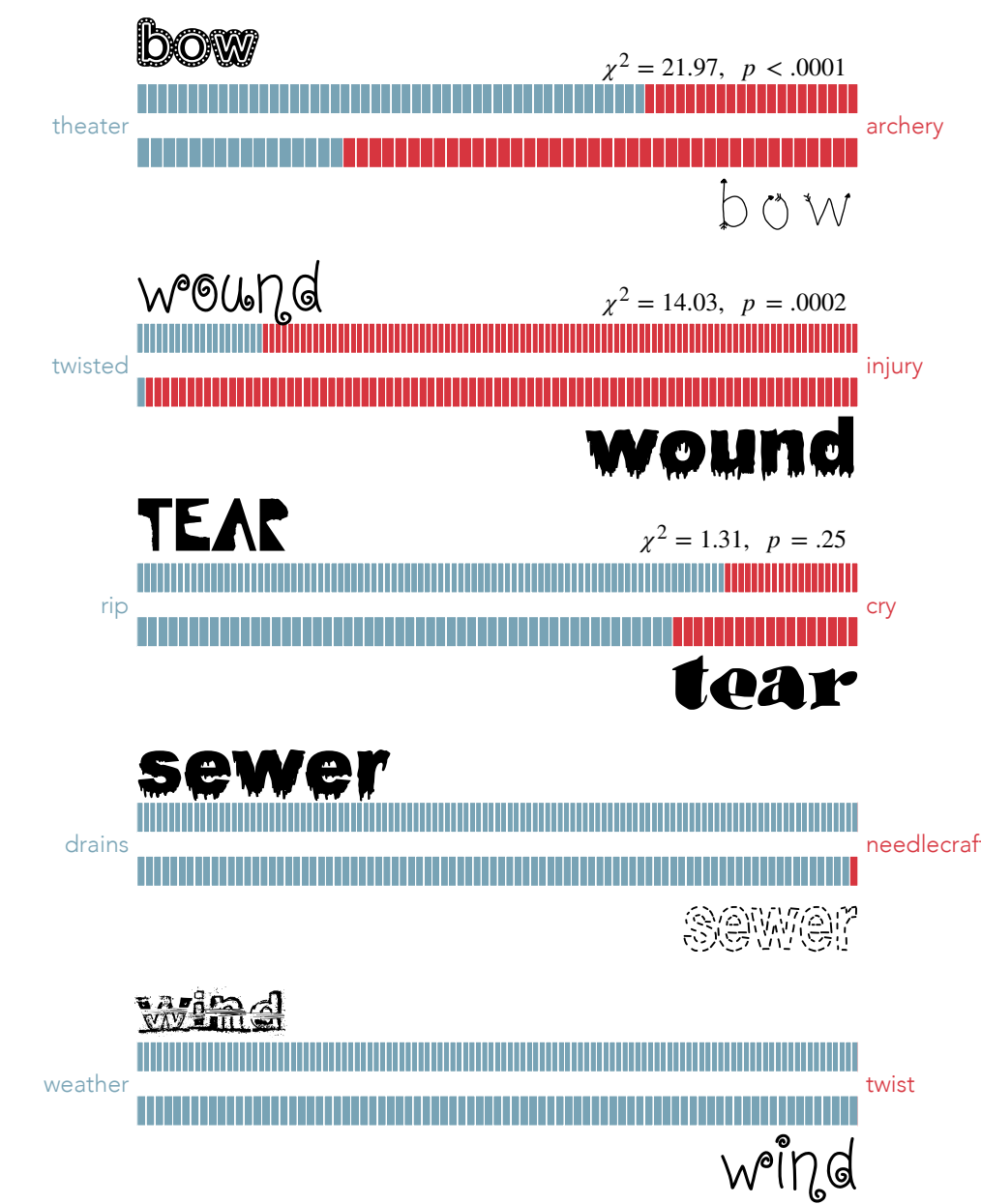


Figure 5: The number of participants who used the word in a context that was consistent with either font.

CONCLUSION

Our data show that in some situations typeface can affect the meaning of words.

References

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Velasco, C., Woods, A. T., Hyndman, S., & Spence, C. (2015). The Taste of Typeface. *I-Perception*.