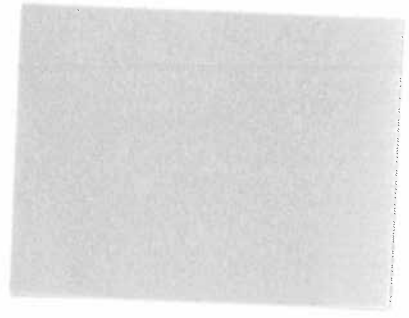


10

kudos for brevity

HW 1: 2.1, 2.4



Introduction

The experimenters in this study were interested investigating how children perceive stories differently than adults. They reasoned that when recalling a story, children might focus more on the specific sequence of events and actions that took place, whereas adults might tend to focus more on the global plot. To quantify this idea, the researchers recorded the number of times the children and adults used the phrase "and then" while recalling a movie. The hypothesis here would be that children should use more "if then" statements than adults.

Results

Nice

Figure 1 shows a histogram of the number of occurrences of "and then" statements in children and adults. In support of the hypothesis stated above, children used more "and then" statements than adults (mean +- se: 18.8 +- 0.6, 10.2 +- 0.5 respectively). Given the histograms, one can easily calculate the probability that a random sample belongs to one or the other. Additionally, one can calculate the probability of incorrectly assigning a sample to one of the two distributions. In other words, one can calculate:

$$P(\text{child} \leq \text{adult}) = (8+6+5+1+4+3+2+1+6+5+1+4+3+2+1+5+1+4+3+2+1+3*3+3*2+3+4*2+4+6)/50^2 = 0.0416$$

Since this value is less than 0.05, it would be reasonable to say children really do use more "and then" statements than adults.

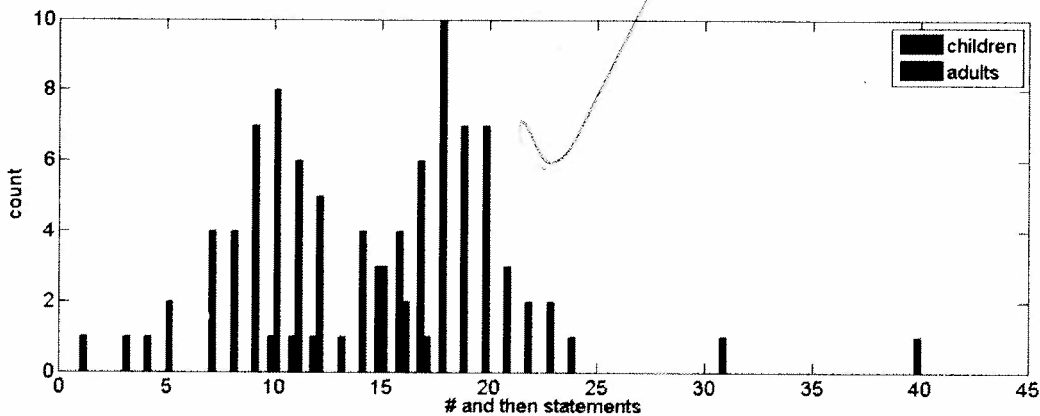


Figure 1: Frequency distribution of "and then" statements used by children and adults while recalling a story

Similar results can be obtained by observing the box plots of the data in figure 2. It is clear from the plots that the median number of "and then" statements is greater in children than adults (median: 18,

10 respectively). Furthermore, the notches showing the 95% confidence intervals do not overlap; so, in accordance with the error probability calculated above, one can say with at least 95% confidence that children use more “and then” statements than adults.

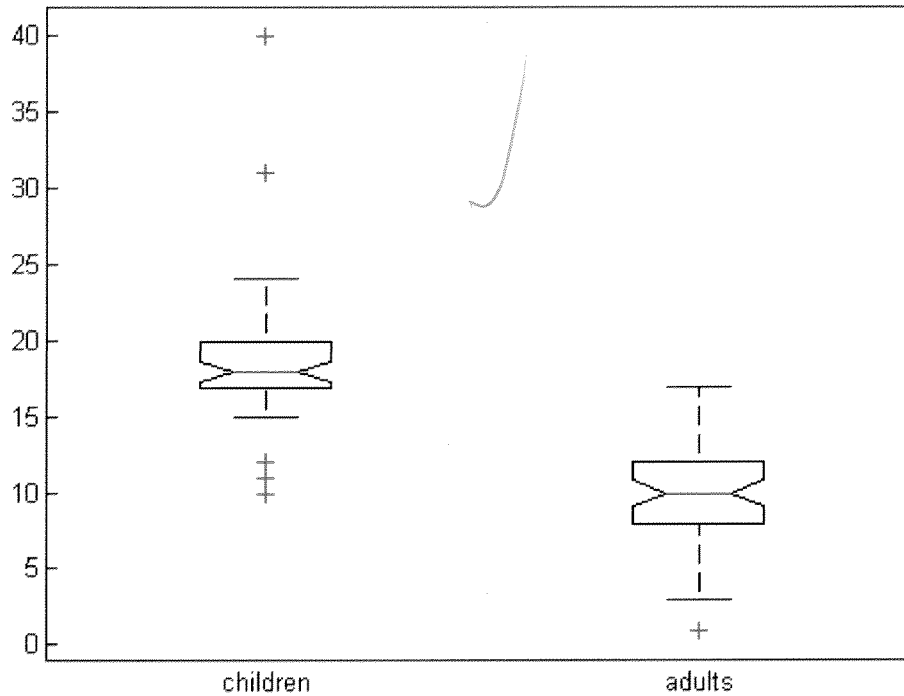


Figure 2: Box plots of “and then” responses in children and adults

Matlab Code

Figure 1:

```
>> data=[c,a]; % c and a are the data given for children and adults
```

```
>> xcenters = min(min(data)):max(max(data));
```

```
>> hist(data,xcenters)
```

Figure 2:

```
>> boxplot(data,{'children','adults'},'notch','on')
```