Maximality Experiment: v2022

Object NPs

Methods and Design

This experiment is an acceptability-judment task. Participants were shown short videos: one where the woman brought in five bags, put all of them on the table, and left (illustrating the maximal interpretation), and another one where the woman brought in five bags, put three of them on the table and one on the floor and left with one (illustrating the non-maximal condition). Participants were asked a question "What did the woman put on the table?" and asked to rate the response "The woman put the bags/bags on the table" on a scale from 1 to 10.

The variables of interest were the following:

- `ResponseId` - a participant's unique ID,
- `Rate` - a numeric rate from 1 to 10 chosen by the participant
- `Context` with two levels: maximal and non-maximal, corresponding to the video shown
- `Definiteness` with three levels: Russian bare plurals, English definite plurals, and English bare plurals.

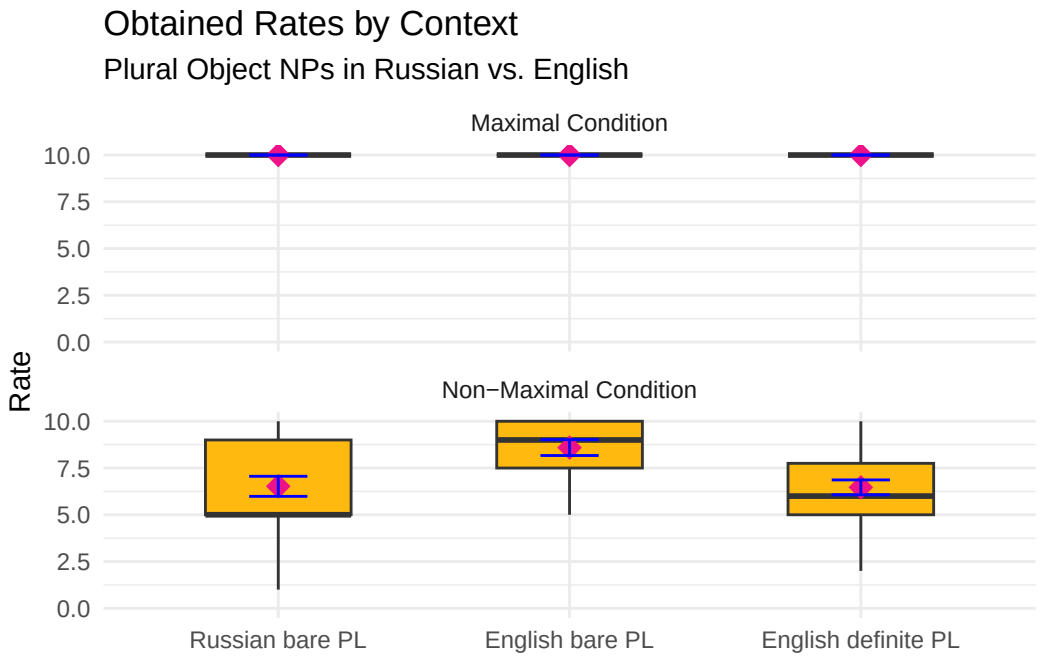
The English experiment had two experimental lists. After the removal of inadequate responses, we had 30 participants for List 1 and 27 participants for List 2.

The Russian experiment had 1 experimental list and 23 participants after the removal of inedaquate responses.

The small number of participants and the fact that we only compared two videos restricted our options of statistical analysis.

Results visualization

The results are represented below. As we can see, all the three types of plural NPs received unanimous maximal rates in the maximal conditions. We see some differences in the non-maximal condition. The yellow boxplot represents the interquartile range of the rates (Q1-Q3), or the middle 50% of the data. The black whiskers extend to 1.5*IQR. The bold line within the box is the median, and the pink diamond point is the mean. The blue whiskers around the mean represent the standard error around the mean.

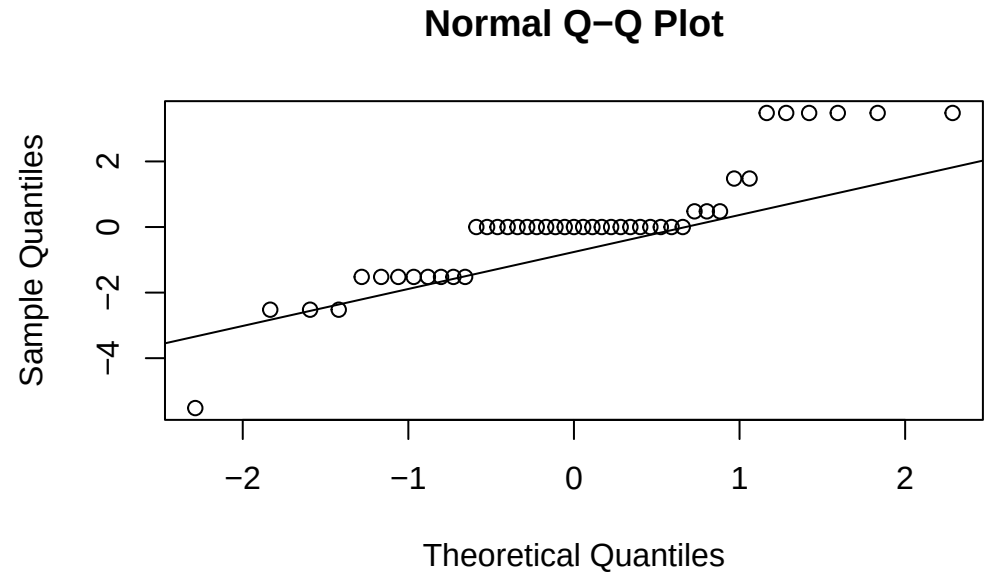


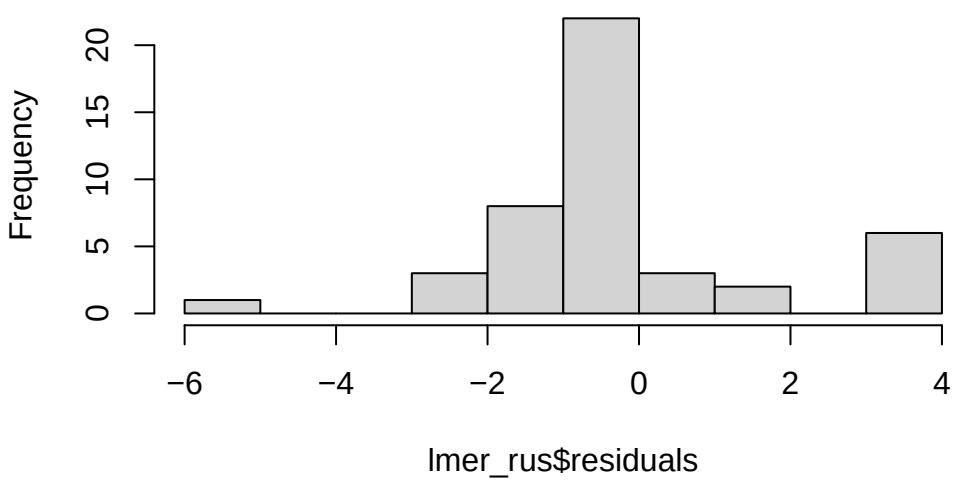
Russian

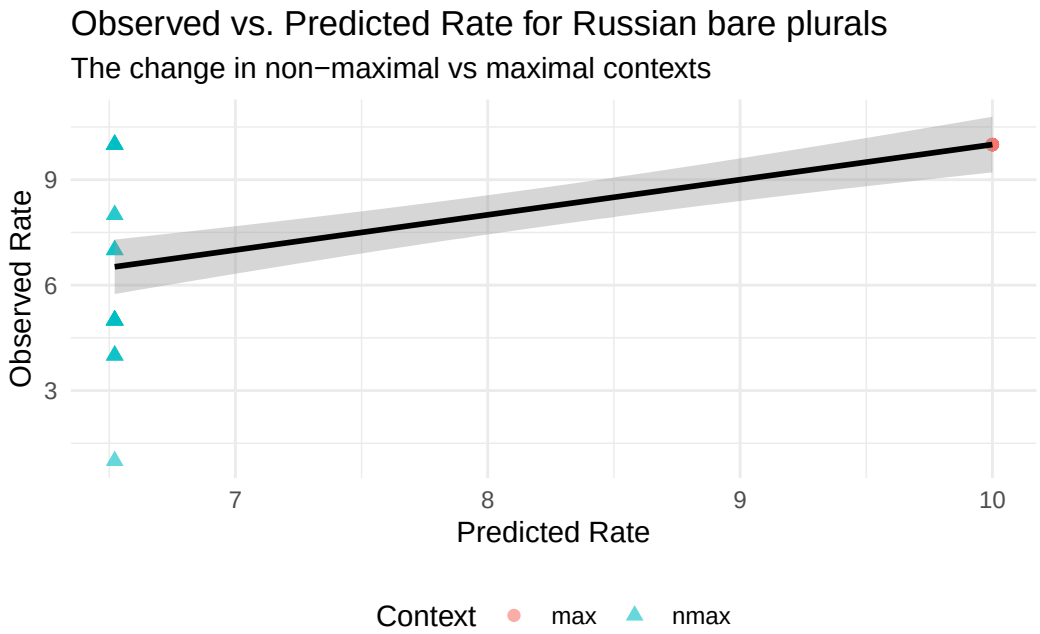
A simple regression was conducted to assess the relationship between the acceptability of Russian bare plurals and context (maximal vs. non-maximal). The model formula was `Rate ~ Context`. Due to the small sample size, including `ResponseId` as a random effect led to singularity problems for the model. The results showed that the acceptability of Russian bare plurals is significantly associated with (non-)maximality, with rates for Russian bare plurals differing between the two conditions, $F(1, 43) = 40.14$, $p < .001$. The mean rate for the for the maximal context was 10 ($SD = 0$), whereas in the non-maximal context, the mean rate was 6.52 ($SD = 2.57$). On average, bare plurals in the non-maximal context were rated 3.47 points lower than in the maximal context ($SE = 0.55$, $p < .001$). The standardized beta coefficient of -0.69 suggests a large effect size. This model explains about 48% of the variance in the rates, which indicates a reasonably good fit for a simple statistical model. The residuals of

the model were not normally distributed, but the large sample size (n = 230) accounts for non-normality.

The following plot illustrates the linear relationship between observed and predicted rates in the two conditions.






Observed vs. Predicted Rate for Russian bare plurals
The change in non−maximal vs maximal contexts
Observed Rate
9
6
3
7
8
9
10
Predicted Rate
Context
max
nmax