**Title**

**Description**

Vowel harmony constitutes a phonological phenomenon observed predominantly in agglutinative languages, exemplified in Uralic languages such as Finnish, Hungarian, and Turkic languages like Turkish and Kazakh. Within this linguistic framework, vowels within words adhere to systematic phonetic patterns, often characterized by concordance in attributes like frontness, backness, or roundness, providing a distinct consistency in the phonological structure of these languages.

**Hypotheses**

**Design plan**

**Study type**

Experiment - A researcher randomly assigns treatments to study subjects, this includes field or lab experiments. This is also known as an intervention experiment and includes randomized controlled trials.

**Blinding**

For studies that involve human subjects, they will not know the treatment group to which they have been assigned.

**Study design**

The participants will be presented all the four word conditions (i.e. a within-participants design).

**Randomization**

Items will appear to the participant in a random order.

**Sampling Plan**

**Data collection precedures**

The experiment will be created with PsychoPy, integrated online via Pavlovia.org and delivered to the participant via the Prolific website. The participants will get ... Euro. The experiment will be run in ...... 2023. To be included, the participants need to be native speakers of Turkish. Participants with reading disability or abnormal vision will be excluded.

**Sample size**

**Sample size rationale**

**Stopping rule**

**Variables**

**Manipulated variables**

There are 4 conditions of words. Target words (names with a length of 4-6 letters), typically with an average of 2 syllables, were selected as harmonic words, disharmonic words, harmonic pseudowords and disharmonic pseudowords. Pseudowords were generated with the target words and the biagram algorithm with the help of the pseudoword generator (UniPseudo by Boris New (under review)). While the target word has the vowel harmony SANAT (art), it does not have the vowel harmony ZAFER (victory). The same number of pseudowords were created to apply the same rule.

**Measured variables**

Accuracy and reaction time will be measured in the lexical decision task.

**Analysis Plan**

**Statistical models**

Bayesian linear mixed model will be used to analyse the data. Word condition (word and non-word) and harmony condition (harmonic and disharmonic) will be added as fixed effect to the models. Random intercept and slope will be added for item and subject in all models and efforts will be made to get as close to the maximal model as possible. Exgaussion family will be used for reaction time and Bernoulli family will be used for accuracy.

**Inference criteria**

**Data exclusion**

Reaction times shorter than 250 ms or greater than 3 standard deviations from the overall mean will be excluded from the analyses. 2000 ms is the deadline to make a response, and thereby response times above 2000 ms will be automatically categorized as errors by the program (DMDX; Forster & Forster, 2003).