1   Reproducing the Mehr, Song & Spelke (2016)

2   Zoren Degtyarev[1] & Ernst-August Doelle[1,2]

3   [1] Brooklyn College of the City University of New York

4   [2] Konstanz Business School

5   Author Note

6   Add complete departmental affiliations for each author here. Each new line herein

7   must be indented, like this line.

8   Enter author note here.

9   Correspondence concerning this article should be addressed to Zoren Degtyarev, Postal

10   address. E-mail: zoren@gmail.com

Abstract

A reproduction of the analysis for Experiment 1 from Mehr, Song & Spelke (2016). Five month old infants were exposed to one of two novel songs containing different melodies with lyrics and rhythms being the same. Infants either heard the songs through a toy in which their parent's voice was recorded or was sung live by a friendly unfamiliar person initially and later through video recording. Infant's selective attention was tested by having them listen to two presentations of either familiar or unfamiliar songs. Infants payed attention to the familiar song, sung by their parent in the past. No infant preference was observed between the toy onto which parent's voice was recorde or a video recording of an unfamiliar person, briefly met by an infant initially. Infants in the later two conditions retained the memory of the melody for longer than 8 months. These findings suggest that songs performed by parents at home convey social meaning to a child.

Keywords: music, social cognition, memory, infant development, open data, open materials

Word count: X

₂₆   Reproducing the Mehr, Song & Spelke (2016)

₂₇   This is an example of creating an APA manuscript using papaja, and also an example

₂₈ for part 2 (APA paper in R markdown) of the midterm assignment. This script will enable

₂₉ to recreate APA style manuscripts using R markdown. This report re-produces the analysis

₃₀ of Experiment 1 reported in Mehr, Song & Spelke (2016) (**???**). The data were downloaded

₃₁ from https://github.com/693284/papajaTest/blob/master/MehrSongSpelke2016.csv Music is

₃₂ universal to most human beings. Children and infants often listen to their parents' singing.

₃₃ Parents usually sing in a style relatable across different cultures. What is the reason behind

₃₄ children paying attention to these types of songs? Mehr and his colleagues in 2016 tested the

₃₅ hypothesis that melodies convey social meaning to infants. Specifically, these melodies

₃₆ inform us about social bonding. Mehr and colleugues assert that children are exposed to

₃₇ melodies that are shared within a specific social group. As children grow up in a specific

₃₈ culture, childrent get exposed to certain tune or songs (e.g., "Babushka Baio"), while in a

₃₉ different culture a child might be exposed to a different song (e.g., "My Little Love"). Thus,

₄₀ when an infant hears a stranger singing a song that a child recognizes, this song may convey

₄₁ crucial information that this stranger can belong to the same social group. To test whether

₄₂ this is so, the researchers conducted an experiment in which they recruited 32 infants with

₄₃ their parents. The experiment had two phases. During the first phase the participants visited

₄₄ to the lab during which the parents were taught a new lullaby that neither the parents nor

₄₅ thier child heard prior. After learning the new lullaby, parents sang it to their child every

₄₆ day for the next 1-2 weeks. After the completion of the exposure period, participants (parent

₄₇ and thier infant) returned to the lab to complete the second phase of the experiment in

₄₈ which infants first saw a screen with side-by-side videos of two strangers. Strangers were

₄₉ silently smiling while looking at the infant. To establish a baseline, infant's gaze direction

₅₀ was recorded. Following the baseline recordings, infants saw two strangers on the screen,

₅₁ singing either the lullaby that the perents learned in the first phase of the experiment or a

₅₂ different lullaby containing different melody but with the same lyrics and rhythm. Please

refer to Mehr et al. (2016) Experiment 1 for more details on experiment's methods.

Methods

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

Participants

There were 32 participants (5 month old infants; 17 females; mean age = 5.61 months, SD = 0.31, range: 5.06–6.11)

Material

The details of the Melodies are Social for Infants experiment are reported in Mehr et.al, (2016)

Procedure

The infant sat on his or her parent's lap, about 5 ft away from a 55- × 40-in. projection screen. During the experiment the parent had to sit with his or her eyes closed as well as had to wear noise-canceling headphones that played masking music. Testing the selective-attention included four parts. Infant first saw side-by-side high-definition video recordings of the two strangers, smiling while directly looking at the infant, for 16 s (baseline trial). Next, the infant saw, first, one 22-s video of each of the two strangers singing one of the two songs while keep looking and smiling at the infant (familiarization trials). Finally, the infant watched a silent 16-s test trial that was precise to the baseline trial. To keep infant's eyes attending to the center of the screen before the baseline and test trials, researchers made an object with an attractive sound appear at the center of the screen. ## Data analysis We used R (Version 3.5.2; R Core Team, 2018) and the R-packages *data.table* (Version 1.12.0; Dowle & Srinivasan, 2019), *dplyr* (Version 0.8.0.1; Wickham, François,

76   Henry, & Müller, 2019), *papaja* (Version 0.1.0.9842; Aust & Barth, 2018), *pwr* (Version 1.2.2;

77   Champely, 2018), and *summarytools* (Version 0.9.2; Comtois, 2019) for all our analyses.
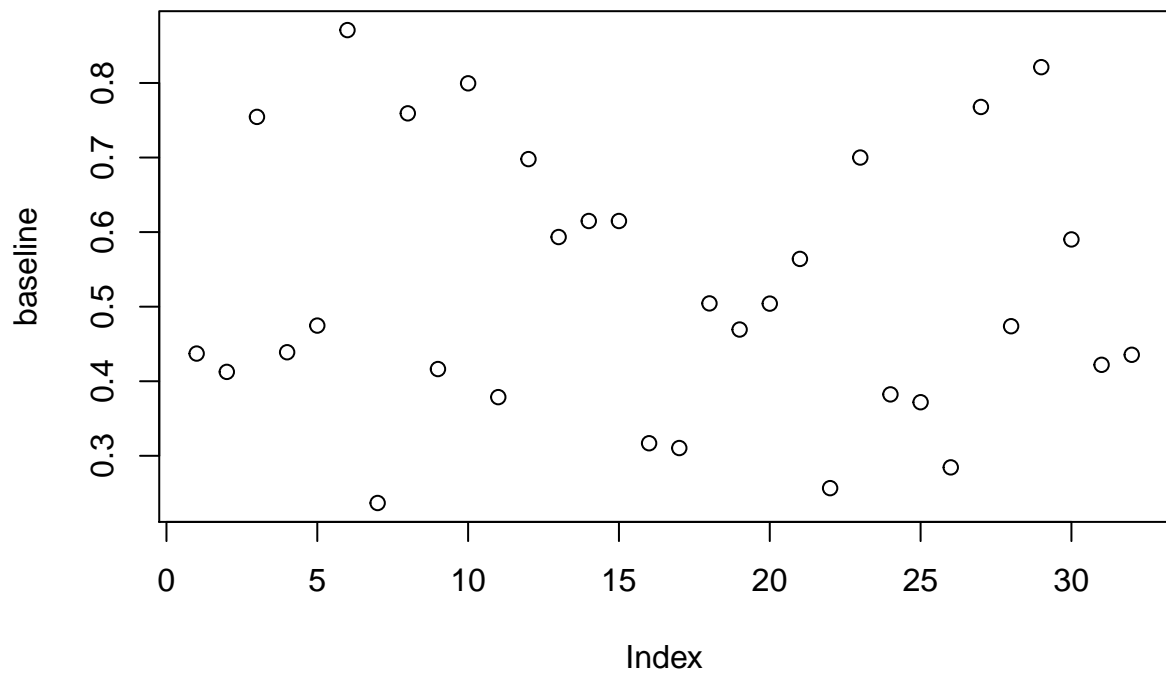
78

79   # Results

80   ## [1] 0.5210967

81   ## [1] 0.1769651

82   ##

83   ##   One Sample t-test

84   ##

85   ## data: baseline

86   ## t = 0.67438, df = 31, p-value = 0.5051

87   ## alternative hypothesis: true mean is not equal to 0.5

88 ## 95 percent confidence interval:

89 ##   0.4572940 0.5848994

90 ## sample estimates:

91 ## mean of x

92 ## 0.5210967

93 ## [1] 0.5210967

94   **Discussion**

References

Aust, F., & Barth, M. (2018). *papaja: Create APA manuscripts with R Markdown.* Retrieved from https://github.com/crsh/papaja

Champely, S. (2018). *Pwr: Basic functions for power analysis.* Retrieved from https://CRAN.R-project.org/package=pwr

Comtois, D. (2019). *Summarytools: Tools to quickly and neatly summarize data.* Retrieved from https://CRAN.R-project.org/package=summarytools

Dowle, M., & Srinivasan, A. (2019). *Data.table: Extension of 'data.frame'.* Retrieved from https://CRAN.R-project.org/package=data.table

R Core Team. (2018). *R: A language and environment for statistical computing.* Vienna, Austria: R Foundation for Statistical Computing. Retrieved from https://www.R-project.org/

Wickham, H., François, R., Henry, L., & Müller, K. (2019). *Dplyr: A grammar of data manipulation.* Retrieved from https://CRAN.R-project.org/package=dplyr