

This folder contains the data and code for the mixed linear model analysis of behavioral data. The folder includes several files:

1. **Data.mat**: This file contains all the participant data in a structure format, where each row represents a participant and each column represents a variable. Below is a description of each variable. Note that for efficiency and convenience in code execution and data reading, the variable names in this file may differ slightly from those in the data subfolder:
 - **group**: Age group, consisting of 'adult' and 'adolescent'.
 - **subid**: A unique identifier assigned to each participant.
 - **gender**: Participant's gender, where 1 represents male and 2 represents female.
 - **age**: Participant's age in years.
 - **order**: The sequence of the partner's cooperation probability changes. 1 indicates the partner's cooperation probability changes from stable to volatile, while 2 indicates the opposite.
 - **partner_res**: The partner's choice, where 1 represents cooperation and 0 represents defection.
 - **sub_res**: The participant's choice, where 1 represents cooperation and 0 represents defection.
 - **RT**: The response time in milliseconds for the participant to make a choice.
 - **Cooperativeness**: A rating of the participant's perception of the partner's level of cooperation, evaluated every 15 trials, ranging from 1 to 9.
2. **dataset.mat**: This is a well-organized dataset that includes all participants and trials, intended for mixed linear model analysis. The variables in this dataset are as follows:
 - **subid**: A unique identifier assigned to each participant.
 - **trialNumber**: The trial number, ranging from 2 to 120. The analysis focuses on how earlier trials influence later trials, so the trial count starts at 2 instead of 1. Specifically, for trialNumber = 2, the variables Timing and PartnerChoice reflect data from trial 1.
 - **Gender**: The gender of the participant, categorized as either female or male.
 - **Choice**: The participant's decision in the social dilemma task, where 1 indicates cooperation and 0 indicates defection.
 - **ReactionTime**: The time taken by the participant to make a decision, measured in milliseconds.
 - **Group**: The age group of the participant, categorized as 'adult' or 'adolescent'.
 - **PartnerExpectation**: A variable derived from the optimal model, representing the participant's estimated probability that their partner will cooperate in the next trial, with values ranging from 0 to 1.

- **IntrinsicReward:** A variable derived from the optimal model, indicating the intrinsic reward the participant perceives from mutual cooperation, computed as $p \times \text{OMEGA}$.
 - **Timing:** The number of consecutive preceding trials considered, where 1 represents the previous trial, 2 represents the last two consecutive trials, and 3 represents the last three consecutive trials.
 - **PartnerChoice:** The partner's decision, where 1 indicates cooperation and 0 indicates defection. For Timing = 3 and PartnerChoice = 1, it means the partner cooperated in all three consecutive trials.
3. **LMM2_SubjectiveRatingAnalysis.m:** Code for analyzing LMM2.
 4. **LMM_BehavioralAnalysis.m:** Code for analyzing GLMM1, LMM1, and LMM3.