Replication of Klein and O'Brien et al. 2018
"People use less information than they think to make up their minds"
PNAS 115 (52) 13222-13227.
https://www.pnas.org/content/115/52/13222

The original paper includes several studies. We randomly chose study 1. In this between-subject experiment, participants view paintings of the same, novel style. Participants are randomized to be either experiencers or predictors. Experiencers view individual paintings one by one and are asked to stop and report their answer as soon as they make up their minds about whether they like or dislike this general style of art. Predictors are asked to predict the number of paintings they would need to see before reaching the same point, after which they predict their verdict. Predictors expect that they would need to see many more paintings to make up their minds than experiencers actually need to see to make up their minds.

Hypothesis to replicate and bet on: Participants expect that they need to see a higher number of paintings in order to reach a verdict about whether or not they like a painting style compared to the number that participants experiencing the paintings actually see before reaching a verdict. To evaluate this hypothesis, the authors perform a *t*-test ($t(205) = 10.60$, $p < 0.001$); p. 13223.

Criteria for replication: The criteria for replication are an effect in the same direction as the original study and a *p*-value < 0.05 in a two-sided independent samples *t*-test.

Power analysis: The original study had 207 participants. The standardized effect size (Cohen's *d*) was $d = 1.474$. To have 90% power to detect 67% of the original effect size, a sample size of $n = 44$ is required. Since we require the replication sample size to be at least as large as in the original study, the replication experiment will use a sample size of $n = 207$ and the power will thus be >90% to detect 67% of the original effect size.

Sample: As in the original study, we will restrict our HITs to US participants. We will make sure that participants can only participate once from the same account in this specific study. While the original study only included participants with a HIT approval rate of 85% or above we will only recruit participants with a HIT approval rate of 95% or above. We will also check all IP addresses via https://www.ipqualityscore.com/; and we will remove any participants where one or more of the following is true: fraud score >= 85; TOR = True; VPN = True; Bot = True; abuse velocity = high. The replication sample size is the sample size after any exclusions of participants.

Materials: We will use the same material as in the original study, kindly provided by the original authors. In particular, we will use the original *Qualtrics* survey.

Procedure: We will closely follow the procedure of the original experiment. The following summary of the experimental procedure is therefore largely based on the description of the experiment in the article (pp. 13222–13223) and in the Supplementary Information (pp. 2–3).

Participants will first be shown a Captcha, and will thereafter provide informed consent. After this we will include an attention check that participants will need to pass to continue to the study. This attention check is in addition to any other potential attention check(s) used in the original study. Participants in both treatments (experiencers or predictors) will start the study by seeing a thumbnail collage of all 40 paintings and reading information about abstract expressionism. Participants will then be informed that they will be asked to provide the "very

first point" they make up their mind about whether they like the style or not, and that they will have to view all 40 paintings irrespective of their tipping point. Participants will then complete a practice trial similar to the real task with a randomly drawn full-size painting.

Experiencers will thereafter view the paintings, one at a time and randomly drawn. After the first painting, they will be asked: "At this point, have you seen enough examples of this style of art to know your impression of it? Is this the very first point for you?" (forced choice: Yes, Not yet). For participants clicking "Not yet," a new painting will appear and then the task will be repeated. We will record the number of paintings participants have viewed until they indicate "Yes." Predictors instead predict how many paintings they will need to see before they reach their tipping point.

Once Experiencers have indicated their tipping point, they will be asked to report whether they "like this general style of art" or "dislike this general style of art" (forced choice), while Predictors instead will predict their verdict.

As in the original study, we will ask all participants to answer a number of questions after the main task has been completed. In particular, they will be asked to complete an honesty check (where they are asked whether they stopped at their very first tipping point or whether their stopping point reflects something else, where this question is preceded by a statement that there is no penalty for honesty), report demographics (sex, age, ethnicity), report technical confusions (yes or no), report whether they think they have taken a study like this before (yes or no), report their familiarity with this art style (not at all, sort of, very), and report whether they know the name of the artist (no, yes [guess]). Participants will also be asked to complete two attention checks (whether they were asked to stop at the first or last point they made up their mind; and whether the study involved art, cars, or math problems). These questions will not be used to exclude any observations.

Analysis: The analysis will be performed as in the original paper. That is, we will compare the number of paintings Predictors predict they would need to see in order to reach a verdict about whether or not they like a painting style to the number of paintings Experiencers actually see using an independent samples t-test.

Payment: We are standardizing payments across all replications so that studies have a certain show-up fee depending on the expected length of the study, with an hourly wage from the show-up fee of $8 and a minimum payment of $1 (for studies with incentive payment we use the same incentive payment as in the original study; and this payment is paid in addition to the show-up fee). If we have problems recruiting, we will increase the show-up fee.