Measuring Decision Difficulty and Intentional Redirection

Paper Two | Mathematical derivation and proposed research protocol

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Abstract

This companion to Decision Paralysis Under Material Risk, Social Evaluation, and Internal Standards specifies how to measure decision difficulty and test its relationship to intentional redirection. The protocol separates a context-sensitive decision audit from randomized manipulation of evaluation, material stakes, and comparative cues. It specifies Decision Influence Probability (DIP), a Bayesian comparison of two specified experimental effects, distinguishes that probability from a causal attribution to rejection, and provides an editable calculation workbook. A candidate redirection proportion is presented as a research observation, with missingness bounds, rather than an official Navigation Quotient. Within Nervous System Intelligence (NSI), NSIQ represents individualized proximity to a person-authored Desired State and remains separately governed. No study has been run. The protocol is intended to make the theory falsifiable and the arithmetic reproducible before any production scoring or clinical claim.

What each calculation answers

Calculation	Question answered	Interpretive limit
Expected opportunity loss G	How far is the chosen action below the highest expected utility among documented feasible actions?	Conditional on alternatives, utility weights, probabilities, and information at the time.
Factor contrasts Δ	How does deferral change across independently manipulated task conditions?	A task effect is not automatically a specific psychological mechanism.
Posterior comparison	How probable is a larger specified evaluation effect than material effect under the model?	Not a personal diagnosis or a percentage of all causes.
Observed redirection proportion	In assessable voluntary opportunities, how often was intentional redirection documented?	A candidate research indicator, separate from alignment and any official quotient.

These calculations should never be collapsed into one score. A person can make a reasonable constrained choice, feel strong evaluation pressure, redirect deliberately, and still move away from their Desired State. Another person can respond automatically in a way that already aligns. The canonical distinction between conscious participation and self-defined alignment remains intact. [C1]

Canonical research definitions

Decision Influence Probability (DIP) is the posterior probability that one specified, experimentally defined factor has a larger signed effect on a prespecified measure of decision difficulty than another, by more than a declared threshold, within a defined context, conditional on the observations and the stated statistical model.

$$\mathrm{DIP}_{A>B}(\tau; D, M, \Omega) = P(\Delta_A - \Delta_B > \tau \mid D, M, \Omega)$$

In the current workbook τ = 0: the question is whether the evaluation effect exceeds the material-stakes effect. Any extension to a positive threshold must use a new calculation and report that threshold. The current spreadsheet does not implement such an extension. The outcome, context, factor levels, effect scale, averaging weights, model, and priors accompany every result. [D1]

Observed Redirection Proportion (ORP) is the fraction of assessable, eligible opportunities in which intentional redirection was documented under declared coding rules. ORP describes documented frequency among assessable opportunities. Its interpretation does not establish ability or self-defined alignment. [D1]

The contextual decision audit

Begin with one distinct Reference Point and one clearly described choice. Preserve the person's account. Record what was known then, what became known later, resources actually accessible, threats, time pressure, and the alternatives considered. Give unavailable alternatives a specific exclusion reason. Another person's later harmful conduct remains their action; inserting it into an outcome model does not assign responsibility to the person making the earlier choice.

Use numerical expected utility only when outcome categories, probabilities, and utilities can be stated coherently. The two-outcome workbook uses Q(a) = p × U_better + (1 - p) × U_other - action cost. Its probabilities must describe mutually exclusive, exhaustive outcomes. Costs and utilities share one scale; a dollar amount cannot simply be subtracted from a preference rating. The numerical audit is unsuitable when incomparable outcomes or unknown probabilities would create artificial precision.

For a sequence of decisions, replace the one-step model with V_t(s) = max over feasible a of E[r_t(s,a,o) + γV_(t+1)(s') | I_t]. State s includes evolving resources and constraints. Specify a finite horizon T and terminal value V_T(s) = U_terminal(s); 0 ≤ γ ≤ 1 is the declared discount factor, with γ = 1 allowed for this finite horizon. This proposed extension preserves the concern about compounded pathways. Future options depend on previous outcomes and other actors; they cannot be treated as a fixed menu known from the beginning. No dynamic model is fitted in the workbook.

In the fictional example, plan A has Q = 75, B has Q = 72, and unavailable C has Q = 96. The chosen feasible A has G = 0. The probability threshold at which A ties B follows from 100p + 20(1 - p) - 5 = 72. Therefore p = 57/80 = 0.7125. The workbook exposes this threshold and the

result of changing p. A conditional optimum is not evidence that the actual history has been fully reconstructed.

An experiment that can distinguish the proposed influences

Use a repeated-choice task with independently assigned factors: external evaluation S, small material stakes C, and a comparative benchmark cue B. Each has two predeclared levels, producing eight conditions. Keep colors, option count, available time, instructions, useful visual information, and motor demands matched. Use small ethically acceptable consequences. Do not manufacture rejection or expose participants to dangerous interpersonal situations.

Factor	Lower condition	Higher condition
External evaluation S	Choice remains private, with privacy credible to the participant.	A disclosed evaluator sees the choice using a fixed procedure.
Material stakes C	No loss tied to the selected option.	A disclosed small, bounded loss contingency independent of the evaluator.
Comparative cue B	Matched reference material without rank or superiority framing.	The same useful content with a disclosed comparison cue.

Benchmark presentation tests response to a cue, not the entire history of self-criticism. Separately ask whether the person is seeking the best result, avoiding inadequacy, anticipating disapproval, or pursuing a chosen learning goal. A second randomized contrast can offer a person-endorsed sufficient-result rule. A forced low standard would test compliance with an instruction rather than agency. Counterbalance order and assess whether changes in mood or fatigue carry over between conditions.

Before each block, obtain clear consent and the ability to stop. Ethics review, distress procedures, privacy protections, and compensation rules belong in the actual study plan. The person may prefer deferral or declining the task. A chosen delay can be appropriate navigation. The study must identify the intended response and available opportunity before interpreting non-action.

Observations to collect

For each trial, retain a deidentified person ID, Reference Point or trial ID, session, time, task domain, assigned factors, actual objective outcome distribution, and whether the cue was believed. Record the decision, latency, opportunity window, deferral, checking or reassurance requests, and the participant's expected material harm, expected disapproval, internal standard, and ambiguity. Record pain, fatigue, sleep, expertise, urgency, and resources when relevant. Ratings of motives are reports rather than direct observations of nervous-system computations.

Capture whether intentional redirection was wanted, possible, and documented, separately from whether the final response aligned with the currently versioned Desired State. Missing, uncertain, not applicable, and declined responses require distinct states. Multiple accounts of

the same underlying event attach to the same Reference Point. They are not independent repetitions. Neither one moment nor a universal event count establishes a canonical Pattern. [C1]

A proposed statistical model

$$Y_{ijt} \sim \text{Bernoulli}(p_{ijt})$$

$$\text{logit}(p_{ijt}) = \alpha_i + u_{ij} + \beta_{Si}S + \beta_{Ci}C + \beta_{Bi}B$$

$$+ \beta_{SCi}SC + \beta_{SBi}SB + \beta_{CBi}CB + \beta_{SCBi}SCB + \gamma^T Z_{ijt}$$

Here i indexes a person, j a session, and t a trial. α_i and u_ij represent person and session variation. Z includes preregistered covariates such as expertise, task order, and physiological state. The factor coefficients describe effects of assigned conditions. Associations with reported fear or standards are analyzed separately; adding post-manipulation ratings to a causal effect model can change its estimand and should not be done automatically.

For small samples, use a reduced model or partial pooling rather than fitting every person-specific interaction freely. Specify priors before examining outcomes and conduct parameter-recovery and prior-predictive checks. Preregister a task-specific meaningful-effect threshold and explicit redirection coding rules before study data collection. No universal sample size or event threshold is asserted here. Choose enrollment and trial counts through simulation for a prespecified precision target, accounting for clustering, attrition, floor effects, and manipulation credibility. Analyze latency with an appropriate positive-time model; do not average only completed choices and thereby remove deferred trials. Deferral beyond a fixed window can be treated as right-censoring in a complementary time-to-choice analysis.

Calculating Decision Influence Probability in the workbook

The workbook begins with the simpler four-condition experiment at one fixed benchmark level. Its notation matches Paper One: the first condition index denotes evaluation and the second denotes material stakes. Let independent rates have Beta priors. If k deferrals occur in n independent trials, the posterior is Beta(α_0 + k, β_0 + n - k). Uniform Beta(1,1) priors are an explicit illustrative choice, not a claim of objective certainty.

$$p_{10} \mid \text{data} \sim \text{Beta}(a, b) \qquad p_{01} \mid \text{data} \sim \text{Beta}(c, d)$$

$$P(\Delta_S > \Delta_C \mid \text{data}) = P(p_{10} > p_{01} \mid \text{data})$$

$$P(p_{10} > p_{01} \mid \text{data}) = \int_0^1 f_{\text{Beta}}(x; a, b) F_{\text{Beta}}(x; c, d)\, dx$$

For integer a, the exact finite expression used in the spreadsheet is:

$$P = \sum_{i=0}^{a-1} \frac{\mathrm{B}(c+i, b+d)}{(b+i)\,\mathrm{B}(1+i, b)\,\mathrm{B}(c, d)}$$

$$\ln \mathrm{B}(x, y) = \ln \Gamma(x) + \ln \Gamma(y) - \ln \Gamma(x+y)$$

The workbook uses log-gamma terms to calculate the finite sum stably. It supports whole-number deferral counts with trial totals from 0 to 200 per cell and common positive integer prior parameters from 1 to 20. Those are calculator capacity limits, not research-design recommendations. Invalid counts remain visible. Comparisons with no observations are not presented as empirical estimates. The finite expression has been checked against numerical integration for the worked example.

For fictional evaluation-only observations k = 12, n = 20 and material-only observations k = 6, n = 20, a = 13, b = 9, c = 7, and d = 15. The exact result is 0.969198203331. The estimated mean difference is 13/22 - 7/22 = 0.272727. Its approximate 95 percent equal-tailed interval from 400,000 independently drawn posterior pairs, seed 20261004, is -0.0147 to 0.5361. These calculations quantify uncertainty about the two rates under this simplified model. They do not fit a real participant.

At fixed B, Δ_S - Δ_C = p_10 - p_01. To average across benchmark conditions, the difference is the average of the corresponding p_10b - p_01b contrasts over a declared distribution of B. That requires all eight cells and a joint posterior calculation. The four-cell finite sum cannot be relabeled as a three-factor result. Repeated within-person trials also require dependence-aware inference. The workbook is a transparent teaching and prototyping calculator, while the hierarchical model is the proposed analysis for a real repeated-measures study.

Why a percentage of an effect is not a probability of a cause

In the fictional table the evaluation contrast is 0.45, material contrast 0.15, and their sum 0.60. Dividing 0.45 by 0.60 yields 75 percent. This split allocates the interaction equally through averaging the two conditional effects. It is valid only for that defined contrast and scale. If contributions are negative or the total is zero, a nonnegative share is not reported. A different outcome measure or different factor levels can yield a different allocation.

The posterior probability of 96.9 percent answers a separate question: which specified effect is larger under the assumed data model? Neither number is the probability that rejection is the underlying cause of a person's paralysis. Causal attribution requires an identified intervention or a calibrated mechanism model. The workbook does not subtract one cause from another and call the remainder rejection.

Observed Redirection Proportion as a research indicator

Define an eligible opportunity only when the person reports wanting to redirect, the situation provides a safe and practicable chance to do so, and the intended response is specified. Let n be eligible opportunities, m the subset with enough evidence to assess intentional redirection, and r the documented redirects. ORP is r/m when m > 0. It measures observed participation in these opportunities, not general competence or automatic-response quality.

$$\text{Observed redirection} = \frac{r}{m} \qquad \text{Evidence coverage} = \frac{m}{n}$$

$$\text{Missingness bounds} = \left[\frac{r}{n}, \frac{r+n-m}{n}\right]$$

With fictional n = 16, m = 14, and r = 10, observed redirection is 71.4 percent and evidence coverage is 87.5 percent. Missingness alone permits an all-opportunity proportion from 62.5 to 75.0 percent. These are identification bounds, not a sampling confidence interval. When m = 0, ORP is not assessable. When n = 0, coverage and the bounds are not assessable. With n > 0 and m = 0, coverage is zero and the bounds are [0,1]. Unknown opportunities do not become failed redirects, and unavailable opportunities do not lower a score.

This indicator may inform a future Navigation Quotient study, but it is not the official quotient. Establishing a measure of ability requires evidence that goes beyond the frequency of a behavior in a particular sample of opportunities. At minimum, investigate reliability, generalization to matched contexts, opportunity dependence, and the difference between capacity and chosen use of capacity.

Testing relationships with the governed constructs

Once an authorized Navigation Quotient measure exists, a longitudinal model can include its within-person change and interactions with evaluation, material stakes, and comparison cues. Group averages must not be interpreted as rankings of an individual's personal journey. An observed relationship with the proposed factor contrasts should also be tested against established measures of evaluation fear, maximization, and uncertainty to assess incremental explanatory value. The nursing and social-learning studies make these competing explanations particularly relevant. [R1, R7]

NSIQ belongs in a separate analysis of proximity to the person's Desired State. Retain the Desired State version, its authorship, the Origin, and the evidence supporting the estimate. Do not compare values across revised destinations as though the target were unchanged. An automatic aligned response can support proximity without an episode of conscious redirection. A conscious response can also move away from the chosen direction. No linear distance formula, universal weighting, or production score is implemented here. [C1]

The NIRVA Method can structure a future intervention: NOTICE the response; INTERRUPT & IDENTIFY the relevant influences; REGULATE enough to permit a chosen response; VALIDATE what was reasonable or protective in context; and ALIGN the next action with the person-authored direction. This is an operational proposal, not evidence that the method caused a neural change. Compare it with an active control, measure expectancy, and

distinguish immediate practice effects from sustained change. An intervention must not reward a preferred outward behavior regardless of the participant's goal.

Verification and editorial review

Three internal editorial passes were completed. The first checked canon, terminology, and voice, including the distinction between Navigation Quotient, NSIQ, conscious participation, and self-defined alignment. The second checked the eight recent research references, separated findings from hypotheses, and independently verified the expected utilities, factor identities, Beta comparison, credible interval, and missingness bounds. The third checked publication status, intellectual interest, AI assistance, and the absence of empirical validation. These internal checks do not constitute external peer review.

The supplied workbook contains four distinct calculations: a constrained decision audit, four-condition contrasts, a Beta posterior comparison, and an observed redirection indicator with evidence coverage. All supplied values are fictional. Changing the inputs recalculates the outputs. It provides no official NSIQ or Navigation Quotient score. Actual mechanism probabilities remain a data-collection and model-identification task.

Research status and disclosures

No human-subject study was conducted, and no personal mechanism probability or empirical validation is reported. All worked numbers are fictional. The author develops the Nirva Life NSI concepts discussed here, creating an intellectual and potential commercial interest in their interpretation. Literature synthesis, drafting, and calculations were developed with AI assistance. This protocol requires author review before public submission and has not received external peer review.

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