SYMPOSIUM

Transformative Decisions and Their Discontents*

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█ **Abstract** In this commentary we engage with L.A. Paul's *Transformative Experience* as it relates to decision making. We consider why deciding whether to undergo a transformative experiences can feel so agonizing yet also be so fun, whether people have any preferences to decide over in the first place, and who people even think they are.

KEYWORDS: Transformative Experience, Big Decisions; Preference Construction; Theory of Self; Mental Effort

█ **Riassunto** *Decisioni trasformative e relative insoddisfazioni* – In questo commento ci concentreremo su come il volume di L.A. Paul *Transformative Experience* affronta i processi decisionali. Esamineremo perché la decisione se intraprendere un'esperienza trasformativa possa risultare così struggente ed essere altresì divertente; se le persone abbiano in assoluto qualche preferenza nel prendere decisioni definitive e chi le persone persone ritengono di essere.

PAROLE CHIAVE: Esperienza trasformativa; Grandi decisioni; Costruzione delle preferenze; Teoria del sé; Sforzo mentale

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TRANSFORMATIVE EXPERIENCE IS AN IMPORTANT and engaging work on an important and engaging topic. One of its (many) commendable features is that it substantially engages with contemporary cognitive science.

We largely grant Paul her central arguments, and draw connections between her work and current research in cognitive science and psychology. In *Transformative Experience*, Paul identifies two related in-principle barriers to making the decision to undergo a transformative experience. Roughly, the barriers are (i) people's beliefs, preferences, and so on can radically change through a transformative experience, and (ii) it is impossible for people to correctly predict how the transformative experience will change them, and what they will be like on the other side of the experience.

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We think Paul is correct to identify these two barriers to making decisions about transformative experiences. In what follows, we wish to consider these barriers from the perspective of cognitive science. Specifically, we will examine: the particular agony of facing transformative decisions, the difficulty of predicting oneself in the future given changes in the environment, preference construction, and, lastly, the psychology of selves.

Difficulties with difficulty

Decisions about transformative experiences are often agonizing.[1] Accounting for the particular difficulty of big decisions is not necessary for Paul's argument about the irrationality of applying standard decision theory to transformative decisions, but it is worth considering in the light of Paul's argument.[2]

As a paradigmatic case of decision agony, consider Penelope, the long-suffering wife of Odysseus. Penelope describes her woes in waiting for her missing husband, while holding out against the suitors who compete for her: As everyone else in the house lies down to sleep comfortably, Penelope is «afflicted by some god with pain beyond all measure... [M]y mind pulls two directions – should I stay here besides my son, and keep things all the same...or should I marry one of them?».[3]

The decision whether to continue on as before or radically alter one's life-project is a wrenching experience. Many people facing a big decision find themselves trodding the same ground mentally in cycles, agonized and paralyzed. This experience can sometimes feel like working through a difficult puzzle, but is the difficulty of a puzzle the difficulty of a big decision? Penelope presumably will not reach a *eureka* moment if she only thinks about her choice long enough. There is simply the stark choice to be made. And when faced with the stark choice of a big decision, people often go out of their way to put it off or avoid it altogether. People delay, or drift, or dice decisions into manageable chunks.[4]

In considering the source of the agony of big decisions, it helps to imagine a decision-making machine (DMM) that has particular beliefs (encoded as, say, probability distributions over states of the world) and goals (encoded as, say, utility functions). Suppose the DMM follows the basic maxim of acting to maximize its expected utility under its beliefs, and can calculate its prospects given its current understanding of the world. We grant that Paul's argument of the irrationality of transformative decisions would readily apply to this machine: The DMM cannot adequately simulate itself post a transformation of its epistemic states, or choose reasonably a point that is past a change of its central preferences, and therefore cannot rationally choose whether to alter its own self. But would the DMM agonize over this choice? This is not a question about the phenomenology of agony, but a more focused concern of the sort that certain cognitive scientists busy themselves with: we want to understand the computational correlate of decision agony.

A basic amplification account would identify the difficulty of big decisions with computational costs. Evaluating a set of options requires keeping those options in memory, and simulating the resulting prospects of each option requires computational resources, memory, and time. And much as calculating the progression of a thousand stars is more computationally demanding than the bouncing of a single ball, so too considering a decision such as whether to leave one's husband or stay for the sake of the children may eat up a great deal of mental resources in spinning out and evaluating more detailed possible futures and sub-options within each future.[5] If this account is true, the DMM could also be said to have greater difficulty with greater decisions, to the degree that the machine is spending more computing resources. Such an account is tempting in its reduction, but faces several problems. First, there are many non-big decisions (and non-decision mental simulations) that can be difficult in terms of computing resources but carry hardly any agony to them: One's mind

may be taxed computationally by which of 300 urns to choose in a convoluted math riddle, but solving riddles can be enjoyable and fun even if mentally challenging. Second, many of the paradigmatic cases of big decisions are simple and stark, but still carry agony. Penelope's mind tugs two directions, not two thousand. The pro-and-con list for each option can also be rather short. The torment is not the memory cost of keeping the options and their features in mind, but bringing them to mind at all.

A different and more naive kind of amplification account would suggest that the difficulty of making a big decision is directly tied to the consequences of the decision: A game involving big sums weighs on the mind more heavily than a bet over a nickel. Changing the self certainly seems like large consequence, so there's agony to match. However, this account also presents problems. We can construct situations with big consequences but little mind-wrecking in their reckoning. Consider a game of selecting one of two identical doors to open, where some amount of gold is behind one door, and a pile of straw is hidden behind the other, but you have no idea which door is which.[6] There is nothing to evaluate in this choice, as far as standard rational planning goes given that the connection between action and reward is unknown, and one simply picks a door, no matter the amount of gold.

There may certainly be added agony and projected regret in imagining a future in which one selects the wrong door, in that the unpleasantness of not winning the gold is larger than the pleasantness of winning the gold.[7] Such an explanation would sit *on top of* the fact that big stakes are involved. That is, it is not that large stakes are identified with agony in and of themselves, but rather that they lead to certain operations, such as simulating futures, with some of those futures being painful to hold in mind. But big decisions can involve simulating alternative futures that are all beneficial, while still being tormenting. Do I want to keep with tradition and become a monk in

my father's buddhust monastery, or strike out on my own and to become a successful corporate lawyer? Neither option is negative per se, both might be tempting, but their juxtaposition creates the problem.

Instead of super-sizing the troubles of ordinary decisions, we may find decision agony lurking in what makes big decisions unique. As Paul and others argue, transformative decisions cause standard models of rational choice to break down. A "breakdown" account of the source of the agony suggests that the agony involved in transformative decisions is caused by the fact that while big decisions present themselves as if they are standard decisions, they are missing some of the key components needed for a standard decision-making module to work.

Think of the way a garbled nonsense sentence might be initially labeled for further processing by sentence-comprehension computations, but with this processing breaking down since the input is not an actual sentence. Perhaps a big decision presents itself initially as a standard selection scenario: it involves a set of alternatives of which one must select only one, and the alternatives have distinguishing properties that allow them to be evaluated. But past this initial stage, processing then breaks down. In this sense, the DMM might be said to be experiencing big decision difficulties, as it would hum along just fine for standard decisions but return an error when processing a big decision. For example, this breakdown or error may happen because standard decision making requires commensurable options, whereas big decisions require comparing incommensurable options.[8] What dimensions or features can Penelope use to contrast remaining faithful to her husband's memory, with the destruction of his son's livelihood? Or perhaps, going back to Paul's argument, the breakdown may be that the DMM cannot rationally simulate what the consequences of selecting the different options will be, and recognizes this basic failure of its simulation.[9] But a breakdown account is strange, in that it pos-

its people may recognize the failure of their own processing, yet persist in this failure.

A deeper problem for both the amplification and breakdown accounts is that transformative choices can be a lot of fun. So long as we don't have to actually make them, that is. In previous work with Paul on modal prospection, we asked many people to imagine making outlandish, life altering, transformative choices.[10] While not the main focus of that study, the great majority of people reported such imaginations highly enjoyable. Such fun poses a problem for basic amplification accounts, since imagining and making a fictional choice summons the supposed correlates of difficulty in a real choice but not their sting. This enjoyment is thorny for breakdown accounts as well. Reasoning through imagined transformative decisions should still cause a breakdown in processing (just as imagining reading a nonsense sentence should not lead to comprehension), and yet if any faulty processing is occurring, it does not seem to bring agony.

Imagining a choice and making a choice are not the same, but what is it about an actual choice that may drive the agony? Perhaps real consequences sharpen the mind and force us to summon resources we otherwise would not, going back to the simple amplification account. We do not rule out such a hypothesis, and it could be tested empirically, for example by having people lay out all their options and considerations in both a pretend-choice and a real-choice scenario. However, we think a different aspect of real choices may be in play: the fact that they cordon off the non-selected futures. Let us call this the gate-shutting account of decision difficulty. There may be intrinsic value and pleasure in having multiple possible paths still open for oneself, and a dreading of having paths cut off. The term *Torschlusspanik* (gate-shut-panic) is ascribed to the general anxiety that as time passes opportunities are flying away, but we may be even more reluctant to shut the gate ourselves. This account may explain why we delay and dither in a big

decision, putting it off for a month when we could just as well make it today. It fits with the difficulty of relatively simple big decisions, where all the options are known and all we are faced with is choosing and yet we cannot decide. It is in line with the fact that imagining a choice without actually making it is pleasurable.

Of course, any choice is a cordoning off of some options. In this sense, perhaps we are back to the amplification account: small decisions cut off a little bit of our possible future, and big decisions cut off a lot. But in the same way that big decisions are characterized as sharply affecting core beliefs and desires,[11] transforming rather than evolving the self, so too the mind may only consider decisions as cordoning off futures in the case of big decisions. The decision to snack on apples does not present itself to us as standing at a crossroads, forever cutting off the person that we would have been if only we had pears.[12] Unlike the accounts considered so far, such an abhorrence towards cordoning off does not fall out of a simple DMM, requiring additional considerations (such as a meta-preference over option availability), and suggesting that a simple DMM could not be said to be having big difficulties with big decisions.

Predictions and preferences

We now move to discuss two other issues in psychology that relate to *Transformative Experience*: briefly, the difficulty of predicting oneself in the future, especially given the role of the environment, and then, at more length, the construction of preferences. One way to read this psychology is as further empirical motivation for the difficulty of choosing transformative experiences. Another way to read this psychology, made salient by Paul's work, is that even non-transformative decisions are more difficult than we might have thought. We don't intend to give anything like a comprehensive review of even the parts of psychology that we discuss. Our

intent, instead, is to describe one or two relevant experiments to give a flavor of the kind of work being done.

Paul points in *Transformative Experience* to some of the work on failures of affective forecasting, and it's certainly true that people sometimes systematically fail to predict their future feelings.[13] We here briefly comment on a feature that can make such predictions particularly difficult for transformative experiences.

People find it difficult to make predictions about themself in different states,[14] but a large influence on people's behavior is not simply their own state, but also the environment. Post a transformative experience, not only are you a different person, but your world writ large has probably changed in dramatic ways too. For example, the people that you interact with regularly may be different, the demands on your time may be different, or baby crying may be suddenly interrupting your slumber.

The problem, however, is that when thinking about the causes of behavior or predicting behavior, people tend to overweight the dispositional, as opposed to the situational, causes of behavior.[15] People's (future) behavior not only depends strongly on the particular environment, but they have a strong disposition to believe that dispositions – rather than environments – should be the main input to their predictions. And when it comes to environment change, people probably do not have a good sense of how their environment will change post a transformative experience.

Psychology suggests that making forecasts about preferences is an extremely non-trivial ask, especially given changes in the environment. But there's a deeper issue with respect to preferences. One big theme that has emerged from work on behavioral decision making is that we often don't have a predefined preference between the alternatives that we are considering. Instead, our preferences are constructed on the spot.

Think back to your days as a student attending lectures. The professor announces that they are going to give a poetry reading the following week. How much would you like to go to such a performance, and bathe in the sounds of "Leaves of Grass"? Forget making a fine-grained judgment, is this something that would be a positive experience or a negative experience for you? It turns out that for many people whether this experience is perceived as positive or negative depends on how the experience was initially framed. People who were first asked whether they'd pay $10 to attend the reading saw it as more positive than those who were first asked whether they'd attend if paid $10.[16]

Most psychology experiments do not involve poetry-reading professors,[17] but there are many other studies that demonstrate that people's choices change depending on the means of elicitation. The most well-known of these show that people's preference between two gambles reverses, depending on whether you ask people to choose between the gambles or indicate how much they are willing to pay for each gamble, demonstrating that people probably did not have a clear preference between the gambles before being asked.[18]

What should we make of preference construction in thinking about transformative experiences? One issue raised by preference construction is that Paul's account of transformative experiences assumes that people have preferences that change in a way impossible to predict, but this work suggests that people never had such stable preferences in the first place. This, of course, potentially makes transformative experiences even more difficult to rationally decide about. Some of Paul's worries about the rational account of transformative decision making may also rear their heads for non-transformative decisions preference construction.

The psychology of selves

Research in psychology tells us that preferences may be unstable or difficult to predict even in fairly simple, well-controlled set-

tings. But, Paul's *Transformative Experience* doesn't deal with the kind of choices common in a lab setting, such as between more or less risky monetary gambles. Rather, the choices are about the different selves that you might become post the transformative experience.

Much of the contemporary work in psychology on how people think about the self has focused on how connected people feel to their future self, and the implications this has for how they make intertemporal tradeoffs.[19] To give two examples, people who feel more connected to their future self exhibit more patience,[20] and greater perceived similarity to the future self is associated with higher life satisfaction ten years later.[21]

Beyond how connected people feel to their future self, a more basic question is how people conceptualize and represent the notion of a self. What are the important features that make up people's self concept, and should it even be thought of in terms of features? One possible answer to this question comes from Chen and colleagues.[22] In one study, they show participants a feature (e.g. your intelligence level) and ask what other features of their self it causes (e.g. does it cause your degree of shyness, your aesthetic preferences, your height), as well as how much their self would be disrupted if the feature is interfered with. They find that the degree of disruption is predicted by how causally central a feature is. They thus argue that people's self-concept is much like many other concepts, in that what matters is the structure of the causal relations between its features.

We think the existing work in psychology on how people represent and reason about the self is already potentially useful for philosophers thinking about such issues. But, inspired by *Transformative Experience*, we also believe there are many exciting empirical questions to be asked in this area. How do people think about distances over the space of selves? For example, people may be reluctant to change into a self that is far away from their current self, even if it's a wonderful self otherwise. How do judgments about your present self in various states compare to judgments about your future self? For example, one can ask people for judgments about how different they will be in five years, versus how different they are when angry. How do people's beliefs about their self inform their decisions about whether to undergo a transformative experience, and how do such decisions change their beliefs about their self?

Given the difficulties involved in transformative experiences, we think it's appropriate to end with interrogatives rather than bold claims, but we look forward to philosophers and psychologists making progress on such questions. Don't you?

▍ Notes

[1] The question of what makes hard choices hard has attracted recent attention in philosophy, and see for example R. CHANG, *Hard Choices*, in: «APA Journal of Philosophy», vol. XCII, 2017, pp. 586-620. Here we focus on the question from a more computational cognitive science perspective.

[2] Here we treat big decisions as transformative experiences by definition, and see E. ULLMANN-MARGALIT, *Big Decisions: Opting, Converting, Drifting*, in: «Royal Institute of Philosophy Supplements», vol. LVIII, 2006, pp. 157-172. Not all transformative experiences are decisions, however. Being forced into exile may transform you, but it is not a choice. Likewise, not all big decisions are agonizing. The decision to become a parent is certainly transformative, but many people may not find it difficult to make at all. We could argue that in such a case becoming a parent is not really a decision, but won't.

[3] HOMER, *Odyssey*, book 19, translated by E. WILSON, Norton, New York 2017.

[4] E. ULLMAN-MARGALIT, *Big Decisions*, cit.

[5] Regardless of big or small decisions, the mechanistic explanation of mental effort remains an open question. For a recent review of promising directions, see A. SHENHAV, S. MUSSLICK, F. LIEDER, W. KOOL, T.L. GRIFFITHS, J.D. COHEN, M.M. BOTVINICK, *Toward a Rational and Mechanistic Account of Mental Effor*t, in: «Annual Review of Neuroscience», vol. XL, 2017, pp. 99-124.

[6] More specifically, this would be a situation of

picking (specifically picking-by-default), rather than choosing, and see E. ULLMANN-MARGALIT, S. MORGENBESSER, *Picking and Choosing*, in: «Social Research», vol. XLIV, n. 4, 1977, pp. 757-785.

[7] D. KAHNEMAN, A. TVERSKY, *Prospect Theory: An Analysis of Decision Under Risk*, in: «Econometrica», vol. XLVII, n. 2, 1979, pp. 263-292, in particular p. 279.

[8] See R. CHANG, *Hard Choices*, cit., for both a review and critique of this option.

[9] E. ULLMANN-MARGALIT, *Big Decisions*, cit.: «We find it difficult to look [big decisions] straight in the eye, as it were [...] we may in fact be badly equipped to deal with opting situations. Infrequent exceptional and all-encompassing as they are, we can hardly draw on our own past experience or on the experience of others in resolving them. We recognize, as theorists, that big decisions test the limits of rational decision theory while we try, as practitioners, to extricate ourselves from them as best we can».

[10] See J. MCCOY, L. PAUL, T. ULLMAN, *Modal Prospection*, in: A. GOLDMAN, B. MCLAUGHLIN (eds.), *Metaphysics and Cognitive Science*, Oxford University Press, Oxford 2019, pp. 235-247. You know, like would you go with aliens on a voyage through the galaxy if it was perfectly safe but you could never come home again?

[11] E. ULLMAN-MARGALIT, *Big Decisions*, cit.

[12] This account does not extend to durians.

[13] E.g, as reviewed in D. GILBERT, *Stumbling on Happiness*, Knopf, New York 2007; D. KAHNEMAN, *Thinking, Fast and Slow*, Ferrar, Straus & Giroux, New York/London 2011.

[14] See for example G. LOEWENSTEIN, *Hot-Cold Empathy Gaps and Medical Decision Making*, in: «Health Psychology», vol. XXIV, n. 4, Supplement, 2005, p. S49-56.

[15] For a provocative survey of person versus situation and what people understand about them see L. ROSS, R.E. NISBETT, M. GLADWELL, *The Person and the Situation: Perspectives of Social Psychology*, Pinter & Martin, London 2011.

[16] We have obviously elided many details. For these studies, and for studies that address alternatives including an inference (of quality) account and possible demand effects see D. ARIELY, G. LOEWENSTEIN, D. PRELEC, *Tom Sawyer and the Construction of Value*, in: «Journal of Economic Behavior & Organization», vol. LX, n. 1, 2006, pp. 1-10.

[17] We're not sure whether that's a good or bad thing.

[18] The classic papers here on this kind of preference reversal are those of Lichtenstein and Slovic. See, e.g., S. LICHTENSTEIN, P. SLOVIC, *Reversals of Preference Between Bids and Choices in Gambling Decisions*, in: «Journal of Experimental Psychology», vol. LXXXIX, n. 1, 1971, pp. 46-55. For a wonderful edited volume on this subject see S. LICHTENSTEIN, P. SLOVIC, (eds.), *The Construction of Preference*, Cambridge University Press, Cambridge/New York 2006.

[19] For recent reviews of such work, see H.E. HERSHFIELD, D.M. BARTELS, *The Future Self*, in: G. OETTINGEN, A.T. SEVINCER, P. GOLLWITZER (eds.), *Psychology of Thinking About the Future*, Guilford Press, New York 2018, pp. 89-109; H.E. HERSHFIELD, *The Self Over Time*, in: «Current Opinion in Psychology», vol. XXVI, 2019, pp. 72-75; O. URMINSKY, D.M. BARTELS, *Identity, Personal Continuity, and Psychological Connectedness Across Time and Over Transformation*, in: A. REED II, MARK FOREHAND (eds.), *Handbook of Research on Identity Theory in Marketing*, Edward Elgar - forthcoming.

[20] D.M. BARTELS, L.J. RIPS, *Psychological Connectedness and Intertemporal Choice*, in: «Journal of Experimental Psychology: General», vol. CXXXIX, n. 1, 2010, pp. 49.

[21] J.S. REIFF, H.E. HERSHFIELD, J. QUOIDBACH, *Identity Over Time: Perceived Similarity Between Selves Predicts Well-Being 10 Years Later*, in: «Social Psychological and Personality Science», online first April 23rd, 2019 – doi: 10.1177/1948550619843931.

[22] S.Y. CHEN, O. URMINSKY, D.M. BARTELS, *Beliefs About the Causal Structure of the Self-concept Determine Which Changes Disrupt Personal Identity*, in: «Psychological Science», vol. XXVII, n. 10, 2016, pp. 1398-1406.