

Title: Fission and the Fear of Death: The Interventionist Criterion of Survival

1. Introduction

In *Reasons and Persons* (1984), Derek Parfit shifted the debate on personal identity from strict numerical identity to "Relation R"—psychological connectedness and continuity maintained by the "right kind of cause." While Parfit successfully argued that identity is not "what matters" in survival, his account suffers from an ambiguity: the precise metaphysical nature of the requisite causality remains underdetermined (Sidelle, 2011). This conceptual vagueness becomes critical in puzzle cases, particularly fission (branching), where Parfit's view forces us to accept counter-intuitive conclusions regarding the survival value of replicas.

This paper accepts the reductionist premise that identity is not necessary for survival but argues that Parfit's account is incomplete without a robust, naturalistic definition of causality. I propose to resolve this ambiguity by deploying James Woodward's (2003) interventionist theory of causation. By redefining the survival relation not as a mere stream of qualitative similarities, but as a structural capacity to support counterfactual dependence under hypothetical interventions, I formulate the **Interventionist Criterion of Survival (ICS)**. I argue that the ICS offers a superior framework for handling fission cases and, crucially, aligns more accurately with our pre-theoretical intuitions regarding the "Existential Fear of Death."

2. The Interventionist Criterion of Survival (ICS)

Woodward's manipulability theory analyzes causation via invariance under intervention. A relationship between variables X and Y is causal if and only if the dependence of Y on X remains invariant under idealized manipulations of X .

Building upon Woodward's framework, I define several concepts.

Causal Connectedness: A state variable X at time t_1 is causally connected to a state variable Y at time t_2 if and only if the dependence of Y on X is invariant under a set interventions on X (e.g., rewriting a memory).

Causal Continuity: The future-directed transitive closure of Causal Connectedness.

CCE: A future entity that maintains strong causal continuity—comparable to the invariance found in normal biological survival—with a present entity is defined as a **Causally Continuous Entity (CCE)**.

ICS: A person P at time t survives at a future time $t+n$ if and only if there exists at least one CCE of P at $t+n$.

Unlike Parfit's view, which relies on qualitative continuity, the ICS grounds survival in the preservation of the causal mechanism itself.

3. Application: Reinterpreting the Branching Case

In the "Mars Teletransporter" fission case, an Original before fission (O) is scanned at time T_0 to create a Replica (R) on Mars at time T_1 , but the scanning process fails to destroy O immediately, leaving a dying O' (Original after fission) on Earth. Parfit argues that because R bears Relation R to O', O's impending death is "as good as survival" for O'. This clashes with the existential intuition that O' faces absolute death regardless of R's existence.

The ICS resolves this by analyzing time-relative causality.

1. **Ex Ante (O at T_0):** The teletransportation mechanism ensures that interventions on O's state at T_0 would result in corresponding changes in R's state at T_1 in an invariant manner. Thus, R is a CCE of O.
2. **Ex Post (O' at T_1):** Interventions on O' have no causal efficacy on R. Thus, R is not a CCE of O'.

Therefore, under the ICS, survival is valid for the pre-fission self but fails for the post-fission branching self (O'). This distinction validates the intuition that the existence of a replica does not mitigate the death of the branched individual.

4. The Argument from the Phenomenology of Death

To further substantiate the ICS, I analyze the phenomenology of the "fear of death." Here, I categorize this fear into three distinct modes:

- (1) **Social Fear:** concern for the impact of one's absence on others/society.
- (2) **Physical Fear:** dread of the dying process.
- (3) **Existential Fear:** dread regarding the permanent cessation of the subjective "self".

Parfit's Relation R suffices to assuage Social Fear; a perfect replica can fulfill one's societal roles. The Existential Fear is rooted not in the cessation of functional continuity, but in the permanent severance of the "thisness" of subjective experience.

The ICS aligns with the intuition that O' (the dying branch) is justified in feeling Existential Fear. Even though O survives in R, O' possesses no causal pathway to R's future experiences. For O', R is a causally inaccessible distinct agent. By validating O's death as a genuine cessation of the causal self, the ICS demonstrates that "what matters" is the preservation of the causal structure, not merely the existence of a psychological successor.

5. The Ethics of Branching

Finally, I address the normative question: If survival obtains under the ICS, is the outcome necessarily "good"? The ICS highlights a divergence between "survival" and "prudence."

In the fission case, O survives through R. However, O must also consider the welfare of O'. If O' is left to exist for a duration sufficient to conceptualize their impending doom, O' will experience

Existential Fear. Since O' is causally continuous with O, this future suffering is a prudential harm to O.

Therefore, I argue that O has a strong prudential reason to care about the specific mode of branching. A "clean" branching—where O is destroyed at the precise moment R is created—is preferable to a "messy" branching where O' lingers. In the latter, while survival is technically secured, it entails the creation of a transient entity (O') condemned to existential dread. This argument suggests that "good survival" requires not just the existence of a CCE, but the minimization of "dead-end" branches that retain the capacity for Existential Fear.

Conclusion

The Interventionist Criterion of Survival refines reductionism by replacing vague causality with a precise interventionist account of causation. By acknowledging that survival is grounded in counterfactual dependence, the ICS successfully accommodates our intuitions regarding fission and the phenomenology of death. It demonstrates that the continuous causal power to project oneself into the future is the non-negotiable core of our concern for survival.

References

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Sidelle, Alan. 2011. "Parfit on 'the Normal/a Reliable/any Cause' of Relation R." *Mind* 120 (479): 735-760.

Woodward, James. 2003. *Making Things Happen: A Theory of Causal Explanation*. Oxford: Oxford University Press.

Figure

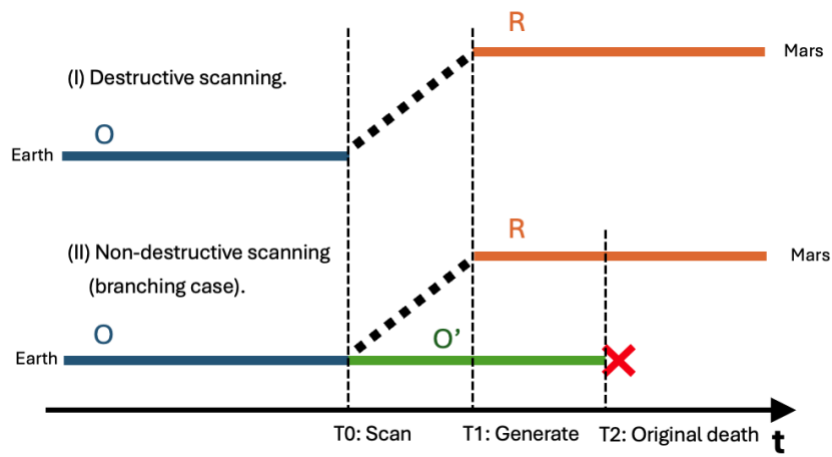


Figure 1. "Mars Teletransporter" branching case.