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# Saving People from the Harm of Death

Edited by Espen Gamlund

and

Carl Tollef Solberg

With a Foreword by Jeff McMahan

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## Putting a Number on the Harm of Death

Joseph Millum

### 1. Introduction

Donors to global health programs and policymakers within national health systems have to make difficult decisions about how to spend scarce health care dollars. These decisions are particularly pressing in the context of global health because the needs are so great relative to the available resources. In resource-limited settings, for example, the decisions could include a choice between expanding the national immunization program to include new rotavirus vaccines, providing antiretroviral therapy to HIV-infected mothers and their children, or investing in low-cost interventions to prevent stroke. All of these have the potential to save many lives at a relatively low cost, but they would save the lives of very different age groups.

One important input to any principled decision-making process for health care priority setting is a measure of how effective different allocations of health care dollars would be. The measures of effectiveness currently used are usually *summary measures of health*.<sup>1</sup> These measures, which include Quality-Adjusted Life Years (QALYs) and Disability-Adjusted Life Years (DALYs), are designed to provide a common measure of the disvalue (or value) of morbidity and mortality. They therefore permit comparisons between different interventions for different diseases. For example, they allow us to compare how bad it is to be blind with how bad it is to have epileptic seizures or be in chronic pain and to relate how bad these health states are to how bad it is to die. However, their construction requires that we assign specific numbers to the disvalue of people's deaths. Herein lies a challenge.

<sup>1</sup>Throughout this chapter I discuss the construction of summary measures of *health*. It is very plausible that this is not the appropriate measure of the effectiveness of health care interventions. My arguments would apply equally well to the use of alternative measures, such as well-being.

Philosophers considering how bad it is to die have come to conflicting conclusions about the relative importance of the loss experienced by young children who die compared with the loss experienced by adults who die. Some people think that the loss to infants matters much less than the loss to young adults (McMahan 2002; Persad et al. 2009). Others, including those who currently construct summary measures of health, take the opposite view (Murray et al. 2012). In the context of global health spending, this has the potential to make a huge difference to priority-setting decisions because young deaths constitute a large proportion of the global burden of disease. For example, according to the 2010 Global Burden of Disease data, nearly 800,000 newborns in sub-Saharan Africa die within the first week of life, around 2 million in total during the first year, and approximately another 1.2 million in the four years of life that follow (Institute for Health Metrics and Evaluation, 2015). The relatively tiny number of newborns and young children who die within the European Union indicates that these deaths in sub-Saharan Africa are largely preventable.

Given the number of deaths at very young ages, exactly which values we assign to the prevention of a death at a particular age may make a big difference to which interventions are considered cost-effective. In this chapter, I present one class of views about the disvalue of death—*gradualist* views—and consider the prospects for specifying them in a way that gives guidance about what values to assign. I argue that there are multiple ways to defend gradualism, but even if we accept that gradualism is true, it is very hard to assign these values with as much accuracy as we might want. This is for three reasons: (1) there are different theories that entail gradualism; (2) the characteristics that are supposed to underlie what makes death bad for the decedent are underspecified by these theories; and (3) little attention has been given to the relative importance of these characteristics. Despite these problems, some values must be assigned. I close by tentatively suggesting key features of the most plausible function relating age and the disvalue of death.

## 2. Starting Assumptions

I start with three important assumptions. The first is the *Termination Thesis*: when I die, I cease to exist. By “I” here, I mean whatever it is about me that provides the basis for my mattering morally. We might argue about what I am essentially—a person, an organism, or an embodied mind (Johansson, chapter 11, this volume). Whatever it is, once it is permanently gone, I’m dead. Moreover, I make the secular assumption that when we say of someone that she is dead, that part of her is permanently gone. Second, I assume that some version of the *Deprivation Account* of what makes death bad is correct (Solberg, chapter 6, this volume). The Deprivation Account is the dominant

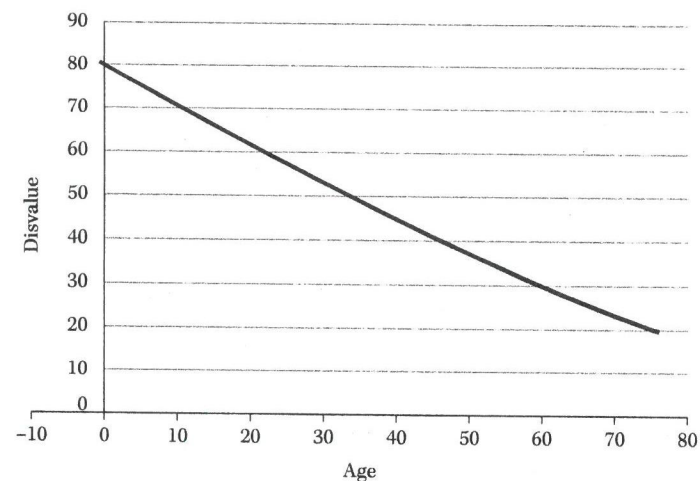


FIGURE 4.1. Disvalue of death: comparativism.

view in the philosophical literature (Nagel 1970; Feldman 1991). According to this view, death is bad for the decedent because of what she misses out on by dying. If I get hit by a car tomorrow and die, this is bad for me because it means that I miss out on all the goods of life that I would have had were I to have stayed alive.<sup>2</sup> Finally, and more controversially, I assume that some form of *gradualism* is probably correct. By gradualism, I mean the view that the characteristics that make death bad for the decedent are not wholly present at birth, but usually develop gradually over time. I say more about how to conceptualize gradualism as I proceed.

## 3. Current Practice

Currently, for both QALYs and DALYs, it is assumed that death is bad for the decedent just in virtue of the amount of healthy life she misses out on by dying. This gives us a pretty straightforward relationship between age at death and the disvalue of that death. The older you are, the less you miss out on by dying, so the lower the disvalue (figure 4.1). The worst time to die is right after birth—this is when you miss out on the most life. I label this current, default

<sup>2</sup>The Deprivation Account has a number of advantages. First, it gives a plausible explanation of what makes death bad. Second, the explanation is not special to death—we can have a deprivation view of harm in general. Third, it allows us to say that some deaths are not bad for the decedent. In those cases in which the alternative to death is suffering, such that the bad aspects of being alive outweigh the good ones, it may be that death is good for the decedent, because of what she misses out on. Fourth, it will allow us to say how bad a death is.

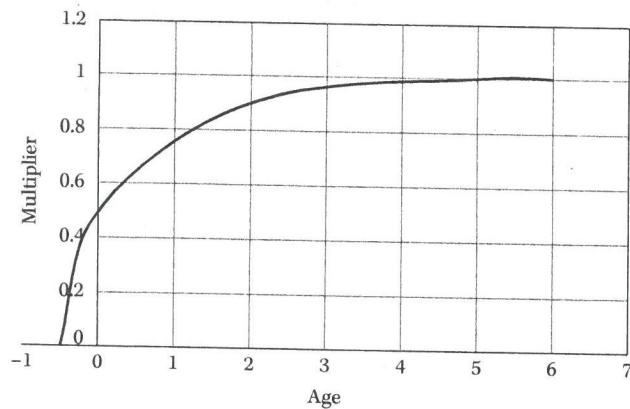


FIGURE 4.2. Disvalue of losing future life: gradualism.

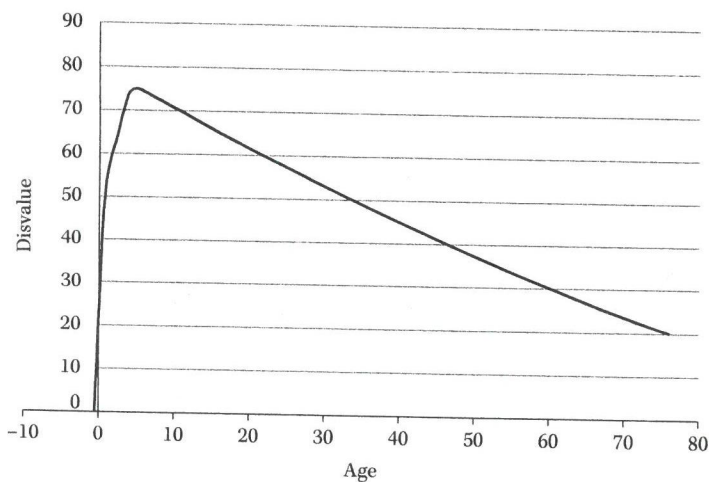


FIGURE 4.3. Disvalue of death: gradualism.

view *comparativism*. Right now comparativism is assumed by policymakers whenever they use QALYs or DALYs to help them make spending decisions.

On a gradualist view, by contrast, the disvalue of losing some amount of future life gradually increases from some point in infancy or childhood as the person develops cognitively. Figure 4.2 plots the disvalue of losing future life against age for the gradualist with the highest value at 1.<sup>3</sup> When we combine this view about the disvalue of losing future life with the amount of future life that is lost (which still diminishes with age), we get a curve relating the average disvalue of death to age that looks like that in figure 4.3.

#### 4. Putting Gradualism into Practice

I noted already that I am assuming that gradualism is correct. Even so, in order to assign numbers to the disvalue of different deaths, three key questions must be answered:

- (1) At what point does death start to be bad for the decedent, that is, in figures 4.2 and 4.3, where should we locate the intercept on the  $x$ -axis?
- (2) When does the disvalue of losing future life reach 1, that is, when does each year of lost life count fully?
- (3) What is the shape of the curve, that is, what function should we use to plot the points between the intercept on the  $x$ -axis and  $y = 1$  in figure 4.2?

To answer these questions, we need to know exactly what determines how bad death is for an individual, which means that we need to look at the underlying theory that justifies gradualism. However, it turns out that multiple theories could entail a gradualist view of the disvalue of death.

First, there are theories according to which the basis for egoistic concern develops gradually, such as Jeff McMahan's Time-Relative Interest Account (TRIA) (McMahan 2002; chapter 8, this volume). Second, there are hierarchical accounts of people's interests (where someone's interests correspond to her well-being) according to which the interests that are frustrated or set back by death develop gradually. Third, there are developmental accounts of personhood, which are not about the disvalue of death per se but can be interpreted to have similar implications for allocation decisions. I now briefly go through these in turn. I then take two theories, which give some specifics about the characteristics that matter—McMahan's and Mary Anne Warren's—and see what we can glean from them about the form of the function relating age and the disvalue of losing future life.

First, gradualists like McMahan think that someone has reason to care about herself over time only insofar as relations of prudential unity link herself now to herself in the future. The extent of these relations depends on the degree of psychological unity that holds between earlier and later stages of the person, where

The degree of psychological unity within a life between times  $t_1$  and  $t_2$  is a function of the proportion of the mental life that is sustained over that period [e.g., constant beliefs or dispositions], the richness or density of that mental life, and the degree of internal reference among the various earlier and later mental states. (McMahan 2002, 74–75)

As this quotation suggests, the characteristics that supply psychological unity include memories, desires and intentions, self-awareness, and so on. These are

<sup>3</sup> For the purposes of this chapter, I assume that it then remains at 1, although this isn't a given.

characteristics that fetuses and very young children—for the most part—do not possess but that develop gradually during infancy and childhood. Since psychological unity underlies prudential unity, the reasons that children have to care about their future selves also become stronger during normal development. Consequently, as they develop, losing future life becomes worse for them.

Second, a number of philosophers have accounts of interests that suggest that a person's interests in her future will develop gradually over time with cognitive development. If certain losses are possible only once someone has reached some stage of cognitive development or if the possible losses increase as someone develops a set of characteristics, then death will normally get worse as a child develops (Millum 2015, 5–7). For example, Peter Singer argues that self-conscious rational beings have interests in satisfying their preferences, over and above the interests that all sentient beings have in experiencing pleasure and avoiding pain. He writes:

For preference utilitarians, taking the life of a person will normally be worse than taking the life of some other being, since persons are highly future-oriented in their preferences. To kill a person is therefore, normally, to violate not just one, but a wide range of the most central and significant preferences a being can have. Very often, it will make nonsense of everything that the victim has been trying to do in the past days, months, or even years. (1993, 95)

Other philosophers who have hierarchical views of interests include Joel Feinberg (1984, 42), Ronald Dworkin (1994, 204), and, in fact, McMahan (2002, 184) again. McMahan combines TRIA with a view according to which the frustration of desires for future goods, narrative unity, investment in one's future, and desert are all also relevant to how bad someone's death is for her. I return to this shortly.

Third, assume that death is bad for the decedent in a sense relevant to priority setting only if the creature who dies is a person. This would be plausible if only persons have claims on the rest of us for a share of scarce resources. Now it might be that personhood is a binary concept, but we do not know exactly what characteristics entail that someone has acquired personhood or exactly when someone acquires them. Alternatively, there could be gradations of personhood as someone acquires more of the features that underlie it.<sup>4</sup> Warren, when discussing the basis of the right to life, seems to take the first tack. She writes:

It does seem reasonable to suggest that the more like a person, in the relevant respects, a being is, the stronger is the case for regarding it as

having a right to life, and indeed the stronger its right to life is. Thus we ought to take seriously the suggestion that, insofar as “the human individual develops biologically in a continuous fashion . . . the rights of a human person might develop in the same way.” (1973, 43–61).

If we had a view like Warren's, then we might model the increasing strength of the case for a being's having a claim on scarce resources by adopting a gradualist view about the disvalue of death at young ages.<sup>5</sup>

These argument sketches suggest that three different types of theory all may entail a gradualist view about the disvalue of death. Moreover, these routes to gradualism are not mutually exclusive, as McMahan's argument shows. Unfortunately, this convergence on gradualism is also a problem. Depending on which theory (or theories) are correct, the starting point, slope, and peak of the function relating age to the disvalue of death will be different. In fact, how we interpret the details of these theories will affect the shape of the function, too, and how to interpret them is very unclear. I now illustrate this point by going through some details of McMahan's and Warren's views.

## 5. Putting Numbers on the Disvalue of Death: McMahan

Two aspects of McMahan's account of what makes death bad for the decedent have gradualist implications. The first aspect is the Time-Relative Interest Account, which is undergirded by the concept of the degree of psychological unity between the individual who dies and her future interests. McMahan thinks that sentience is sufficient for some small degree of psychological unity, but it is much less than full-blown psychological unity. Along with sentience, according to McMahan, psychological unity increases as we get continuity of character or beliefs, desires, memories, self-awareness, and awareness of one's future (McMahan 2002, 170, 183).

The non-TRIA characteristics that matter—that is, the characteristics that affect how bad death is for an individual but are not constituents of psychological unity—include narrative unity, the investment that an individual has made toward her future, desert, and desires for future goods.<sup>6</sup> For example, regarding narrative unity, McMahan writes:

The importance of narrative unity helps to explain why the deaths of human fetuses and infants are less bad. It is only as a life progresses that

<sup>5</sup>Either the claim or the reasonableness of asserting that a creature is a person will gradually increase over time.

<sup>6</sup>McMahan (2002, 183) also writes as though desires for future goods were a component of TRIA, so I am not sure exactly how to categorize them. However, for the sake of what I'm doing in this chapter, it should not matter.

<sup>4</sup>Compare Ben Bradley's Partial Welfare Subject View (chapter 9, this volume) according to which how bad death is for an individual depends on the degree to which she is a “well-being subject.”

TABLE 4.1 } McMahan and the Disvalue of Death

	Trait	Age
Psychological unity	Sentience	28 weeks' gestational age
	Beliefs, dispositions, memories	Increasing into mid-childhood
	Self-awareness: mirror test	18 months
	Self-awareness: embarrassment	2 years
	Awareness of temporally extended self	3+ years
Non-TRIA (not constitutive of psychological unity)	Narrative unity	Increasing into middle age?
	Investment	Increasing into middle age?
	Desert	Tracks investment
	Desires for future goods	Increasing into mid-childhood

its story lines become more focused and determinate. And as the story of one's life becomes more defined, the narrative significance of succeeding events becomes increasingly important. (2002, 175–176)

Table 4.1 lists the characteristics that matter, according to McMahan, and provides rough approximations for when those traits arise, on average, during normal development according to available data.

Sentience, characterized at a minimum by the ability to feel pain, is probably present at around 28 weeks' gestational age.<sup>7</sup> When the relevant beliefs, dispositions, and memories arise depends on exactly which ones count and what relative importance they have. For instance, there are many very basic beliefs that we retain from early infancy—for example, about the location and limits of our bodies, object permanence, and family members—that are fundamental beliefs about ourselves and the world that remain throughout life. Likewise, some memories are essential to our lives, even when we cannot bring those memories into conscious experience. Consider, for example, what we have to remember in order to acquire the ability to walk or to speak a native language. So a great deal hangs on exactly what is taken to be necessary for psychological unity. Similarly, when self-awareness arises depends on exactly what sort of self-awareness matters. If it is sufficient to recognize oneself in the mirror, then this appears around 18 months (Rochat 2003). Perhaps this is not the self-awareness that is morally significant. By age 2, children experience emotions like embarrassment—implying that they understand themselves as objects of others' perceptions (Lewis 1992). By 3, children can identify themselves in pictures and may understand that the photos were taken at different times; that is, they develop awareness of themselves as temporally extended (Povinelli 2001).

These considerations suggest that constructing a function that relates age to the disvalue of death on the basis of McMahan's account is currently impossible to do with precision. For the most part, we do not have conceptions of the relevant terms that allow us to map them onto what we know about child development. We do not know exactly which beliefs, dispositions, memories, desires, and so on matter, or how to aggregate them. And, crucially, we do not know the relative weight that should be given to each of these characteristics. For example, how important is simple sentience as compared with self-awareness?

## 6. Putting Numbers on the Disvalue of Death: Warren

Turn now to Warren. She was not writing about the harm of death, but she does present a list of the characteristics that plausibly constitute personhood, so her work provides a helpful case to illustrate the challenge for implementing gradualism.<sup>8</sup> She writes:

I suggest that the traits that are most central to the concept of personhood . . . are, very roughly, the following:

- (1) Consciousness (of objects and events external and/or internal to the being), and in particular the capacity to feel pain;
- (2) Reasoning (the *developed* capacity to solve new and relatively complex problems);
- (3) Self-motivated activity (activity which is relatively independent of either genetic or direct external control);
- (4) The capacity to communicate, by whatever means, messages of an indefinite variety of types . . . ;
- (5) The presence of self-concepts, and self-awareness, either individual or racial, or both. (1973, 55)

She goes on: “(1) and (2) alone may well be sufficient for personhood, and quite probably (1)–(3) are sufficient” (55).

We can attempt to date the characteristics that Warren considers important to personhood in the same way as with McMahan (table 4.2).

Challenges of interpretation arise again as soon as we try to identify what provides solid evidence of the acquisition of the characteristics. Consciousness seems relatively straightforward if we interpret it as sentience. Reasoning, which Warren describes as “the *developed* capacity to

<sup>7</sup> For discussion, see Phillips and Millum (2015); Millum et al. (forthcoming).

<sup>8</sup> I therefore do not impute to Warren the view that follows; rather it constitutes what someone who adopts her views about personhood *might* extrapolate from them in order to analyze the disvalue of death.

TABLE 4.2 } Warren and the Disvalue of Death

Trait	Age
Consciousness and the capacity to feel pain	28 weeks' gestational age
Reasoning	1 year: two-stage goal-directed actions 2 years: object permanence, planned sequential acts 3 years: use of visualization to solve tasks
Self-motivated activity	1–2 months: focuses on people and objects, lifts self, rolls
The capacity to communicate messages of an indefinite variety of types	5 years?
The presence of self-concepts and self-awareness	18 months: mirror test 3 years: race concepts (Quintana 1998)

solve new and relatively complex problems,” is trickier. At about age 1, children can plan out two-stage actions (e.g., turn around spoon, grasp spoon) (Keen 2011). At 2, they have acquired object permanence and can engage in planned sequential acts. By 3, they can visualize the consequences of actions in order to problem-solve. Which, if any, constitutes a developed capacity to solve new and relatively complex problems? Similar challenges arise with the interpretation of self-motivated activity, communication, and self-concepts.

## 7. Gaps, Uncertainty, and Our Best Approximation

What lessons can we draw from this brief analysis? It suggests multiple gaps that we need to fill in order to confidently assign numbers to the disvalue of death at different ages in the construction of summary measures of health. First, since multiple theories would entail a gradualist view of the disvalue of death, we are faced with uncertainty about which view is correct. Second, we lack precise descriptions of the characteristics that the defenders of these different views think matter. The lack of precision entails that it is very challenging to identify indicators that would tell us whether those characteristics are present. Third, no one suggests how to weight the characteristics that matter against one another—for example, how we should weigh the relative importance of self-awareness versus narrative unity.

Nevertheless, we do not have the option of not assigning values. If we are going to use summary measures of health (or well-being) in priority setting, and if those measures will include the loss due to mortality as well as morbidity, then they will incorporate some view of the relationship between the disvalue of death and age. I end this chapter with a tentative proposal for the

key features of the function that I think we should use in the face of all this uncertainty.

I base my proposal on the following guiding principles. First, only beings capable of sentience have deaths that are bad for them. I think the arguments against nonsentient beings having a welfare are compelling and do not rely on controversial premises. We should take sentience as a necessary condition for a death to be bad for the decedent. Second, in allocating scarce resources, we should adopt what I call an *anti-snobbery principle*: it is not significantly worse for a hyperactive intellectual to die than an unemployed couch potato. Relatedly, we should be wary of assuming that death is particularly bad for creatures like us—adult human academics—by virtue of the traits that distinguish us from other people or creatures. Third, we need to take our uncertainty about the right view and the relevant characteristics into account.

Taking these guiding principles into account, I propose the following:<sup>9</sup>

- (1) Death should be regarded as bad for the decedent starting from 28 weeks' gestational age. This is a reasonable approximation to the onset of sentience, which I suggested is a necessary condition for death to be bad for the creature that dies. There are theoretical and intuitive reasons for thinking that just being sentient is also sufficient for us to regard a fetus as experiencing *some* loss from dying. Accounts like TRIA provide theoretical reasons; for example, McMahan (2002, 79) thinks that we get *some* psychological continuity once we get a consistent subject of experiences, and so this will ground *some* egoistic concern about the loss of future life. Intuitively, many people think it's bad for the fetus to die, even though they don't think it's as bad as the death of someone older.<sup>10</sup>
- (2) We should plot a smooth curve (as illustrated in figure 4.3). A smooth curve is one way to deal with the many possible sources of uncertainty. It might be true that the disvalue of death for an individual increases in steps, rather than smoothly increasing. However, there is no way we are currently clear enough on the empirical facts and normative principles to locate the steps with confidence.
- (3) The disvalue of losing future life should reach 1 (its highest value) by age 5. If we don't have the peak by this age, then we risk violating

<sup>9</sup> Compare the set of values proposed by Andreas Mogensen (chapter 3, this volume) For Mogensen, most of the characteristics that matter are acquired in early childhood, even though the disvalue of losing future life will not finally reach one until around 18 years of age.

<sup>10</sup> Consider the controversy following Giubilini and Minerva's (2012) article on what they called “after-birth abortion.” They argued that similarities between newborn infants and late-stage fetuses implied that we should treat them similarly. If it was permissible to kill one, then it was permissible to kill another. Commentators in the popular media were outraged.

the anti-snobbery principle. By age 5, normally developing children have had desires, memories, and self-consciousness for some time. They understand the past, present, and future and the fact that they persist through time. They have close and varied relationships with others. They have enduring interests (and may have interests that endure for the rest of their lives, such as in music, dance, or sports). They have a broad emotional palette and may have some understanding of and fear of death (Kliegman et al. 2011; Centers for Disease Control and Prevention 2012). To show that 5-year-olds do not have what it takes, a gradualist would have to defend the inclusion of a characteristic that 5-year-olds lack but is both very important for the loss of one's future to matter to one *and* is possessed by most healthy adults. Philosophers are fond of citing long-term projects (like writing books) and life plans (like raising families). But do we really want to say that people whose projects are more short-term and whose life plans are more changeable have deaths that are significantly less bad (Gamlund 2016)?

- (4) The function should be close to its peak by 18–24 months. It seems clear why characteristics like future-directed mental states and a conception of oneself would be relevant to whether losing future life would count as a loss for the individual. Not having a conception of oneself as a creature (and a creature with a future and a past) makes it challenging to see why going out of existence would be personally bad. Most of the writers whose views seem as though they would entail gradualism also mention such characteristics. My confidence that more sophisticated cognitive abilities make a substantial difference to how bad it is to die is much lower. We must make a trade-off here: we must balance the risk of overvaluing the saving of young lives with the risk of undervaluing it. I propose that we err in favor of the former. The chance that a 2-year-old has everything that it takes for death to be bad for her seems to me much higher than the chance that she has nothing or little of what makes death bad for someone.

## 8. Objections

Several writers, including McMahan, believe that the worst time to die is later than I have suggested (McMahan 2002; Persad et al. 2009; Dworkin 1994). They think that it falls sometime in adolescence or early adulthood. Two of the characteristics from McMahan's list—narrative unity and investment—might justify this view if they make a substantial difference to how bad it is to die. McMahan thinks that narrative unity increases with age: "It is only as a life

progresses that its story lines become more focused and determinate" (2002, 176). And the longer one lives, the more, all else being equal, one can invest in one's life and so have wasted when it does not come to fruition. However, I do not think that either implies that it is worse to die as an adolescent or a young adult than as a 5-year-old.

First, consider the claim that the loss from dying to infants and young children is lower as a result of the greater narrative unity of older children's and adults' lives. Distinguish two reasons why someone might think that having one's life narrative interrupted makes one worse off. We might think that a life with narrative unity is better than one without. But if this is the right way to interpret what is bad about an interrupted narrative, then someone who dies without starting a narrative, and therefore does not have a life containing narrative unity, is at least as badly off in that respect as someone whose narrative has begun and been cut off. Alternatively, it might be claimed that having a narrative and having it interrupted is worse than having no narrative at all. But someone who makes this claim owes us an explanation of why we should think that infants and young children haven't started their narratives. After all, we might naturally start our life stories with our births, and early life experiences may both have substantial effects on our lives and be considered highly relevant to their meaning. For example, many adoptees consider the facts surrounding their adoption an important part of their life story.

Second, consider the relevance of investment to the loss incurred by dying.<sup>11</sup> Here the claim is that someone who has invested in her life and then not reaped the rewards of that investment is thereby made worse off than someone who did not even have the opportunity to invest. I find this implausible. By analogy, would we say that someone who had money to invest in the stock market and lost it all was worse off than someone who never had money to invest? The former might feel more regret, but that is not what is at issue—we have to hold all else equal, so the disappointment that the investor feels does not count.<sup>12</sup>

## 9. Conclusions

Priority setting using summary measures of health or well-being requires that we put numbers on the disvalue of death at different ages. Uncertainty about

<sup>11</sup>Since desert, in the sense that McMahan seems to mean it, likely tracks investment, my skepticism about the relevance of investment should entail similar skepticism about the relevance of desert.

<sup>12</sup>Certainly, at least, some people are pulled by the opposite intuition: that it is worse to never even have had the chance to invest in one's future. Consider Tennyson's much-cited couplet from *In Memoriam*:

"Tis better to have loved and lost  
Than never to have loved at all.



empirical facts and normative principles makes this challenging. The available theories suffer from (1) uncertainty about the correct account of the disvalue of death; (2) a lack of precision about the characteristics that matter and appropriate indicators for them; and (3) no discussion of relative weights of the characteristics that matter. I have presented some key features of the best approximation I can provide of the correct function relating age and the disvalue of death, given the theories in play and some opinions about the plausibility of the considerations they mention.

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## Disclaimer

The opinions expressed in this chapter are my own and do not reflect the view of the National Institutes of Health, the Department of Health and Human Services, or the US government.

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