

Chapter 8

Case Study, Phase III: Reaching a State of Reflective Equilibrium?



In the third and final phase of the case study, I work toward a preliminary consolidation and evaluation of a resulting position. Previously, in the first phase (Chap. 6), I tested how reflective equilibrium (RE) can be used to construct a first candidate system, and in the second phase (Chap. 7) we saw how the RE criteria can be used in the two alternating steps of adjusting system and commitments. Now the case study focuses on the (preliminary) conclusion of the equilibrium-process.

8.1 Overview: Phase 3

In this final phase of the case study, the goal is to test how the RE criteria can be used to assess a resulting position, i.e., to assess whether it is in a state of reflective equilibrium. Thus, to reach a position that is sufficiently fleshed out, the selection of alternative candidate systems is narrowed down for the purpose of the case study.

In Sect. 8.2, we start by adjusting the current system—the Maximin Precautionary Principle for Combinations of Uncertainty and Incommensurability (Maximin-PP)—in order to enable it to account for the commitments that remained unaccounted for at the end of Step B₄ (see Chap. 7). Several candidates for a substantial moral-value base of a PP are compared, but only one candidate—a rights-based approach to moral precaution—is further explored and elaborated.

When adjusting the current commitments with respect to the chosen “Rights-Maximin-PP” in Step B₅ (Sect. 8.3), further input commitments emerge that are in tension with the Rights-Maximin-PP. When adjusting the system in Step A₆ (Sect. 8.4), I thus compare the Rights-Maximin-PP with another new candidate, the Tripartite Precautionary Approach to Threats of Rights Violations (Rights-TPA), which turns out to be more defensible than the Maximin-PP, and is selected as the resulting system at the end of phase 3. Arguably, in Steps A₇ and B₇, applying the two steps of adjusting system and commitments no longer leads to

substantial changes of the position. Consequently, the equilibration-process comes to a (preliminary) end point, and, in Sect. 8.6, I evaluate whether, and to what degree, a position in reflective equilibrium was reached.

Section 8.7 recapitulates the results from phase 3, including a schematic summary of the steps in Fig. 8.5. In the appendix, you can also find Fig. A.7, which gives a schematic overview of the whole process of adjustments.

Throughout phase 3, gray boxes are again used to summarize the main points of each step. As before, only relevant or exemplary aspects of the process are described in detail, and readers can refer to Appendix A at the end of the book for the full list of commitments, candidates for (parts of) the system, background information, and case descriptions.

8.2 Step A₅: Developing and Adopting the Rights-Maximin-PP

The Maximin Precautionary Principle for Combinations of Uncertainty and Incommensurability (Maximin-PP) is adjusted in order to be better able to account for commitments. The meaning of “incommensurability” in the Maximin-PP is newly explicated with “(threshold) lexical superiority”, i.e., it applies when some outcome values cannot be outweighed by others because they take lexical priority (Sect. 8.2.1). As candidates for a relevant threshold of lexical priority, human rights, environmental harm, irreversible harm, harm to human health, and catastrophic harm are roughly assessed. To obtain a new candidate system, I then propose to supplement the Maximin-PP with *The Rights-Threshold Principle*, i.e., giving lexical priority to avoiding wrongful rights violations (Sect. 8.2.2). After assessing this *Rights-Maximin-PP* with respect to its ability to account for current commitments (Sect. 8.2.3) and its theoretical virtues (Sect. 8.2.4), I adopt it as the new system (Sect. 8.2.5).

In Step A₄ (Chap. 7), the Maximin-PP was chosen as the current system:

Maximin-PP for Combinations of Uncertainty and Incommensurability (Maximin-PP) Select the course of action with the best worst case if you are either:

- In a situation of decision-theoretic risk or uncertainty (or some combination), and the outcomes of the available actions can be ranked on an ordinal scale, and all courses of action alternative to the one selected by maximin have outcomes that are incommensurably worse than the best worst case; or

- In a situation of (partial) decision-theoretic uncertainty, outcomes can be ranked on a cardinal scale, and all courses of action alternative to the one selected by maximin have negative outcomes that outweigh every potential gain that could be made above the level that can be guaranteed by maximin.

The Maximin-PP tells us that if there are threats of harm that for some reason or another cannot be outweighed by possible gains, then we should choose the course of action that has a best worst case that does not threaten to cause this kind of harm. However, as we have seen when adjusting the commitments in Step B₄ (Chap. 7), the Maximin-PP cannot, in itself, account for a range of substantial value commitments that concern, e.g., the protection of human health, the environment, or the rights of future generations. The Maximin-PP is a principle of *rational choice* that gets applied to a decision problem in which we already know the values that we assign to the various possible outcomes. However, the pragmatic-epistemic objective of my RE project is to justify a principle of *moral* precaution (see Chap. 5). I am committed to a difference between rational, self-interested precaution, and morally demanded precaution. When exposing yourself to an uncertain harm, this is a question of rationality.¹ However, when you expose others to uncertain outcomes, the demands of morality additionally come into play. There is a difference between risk-taking and risk-imposing.

IC 7 Morally, a higher degree of precaution is required when making decisions that will have effects on others: when making decisions that will only affect yourself, precaution is a question of rationality, depending on your preferences and beliefs; but when making decisions that threaten to harm others, precaution is morally required. [medium]

This is one of the commitments that the Maximin-PP cannot account for. We could now discard the Maximin-PP, and try to come up with a completely new candidate system. Instead, though, I am going to try to adjust the Maximin-PP and to develop it into a moral precautionary principle. Such a substantial moral precautionary principle does not need to conflict with what rationality requires, but it might put additional requirements on our decisions. In Step B₄, a range of input commitments emerged that assign more weight, or even lexical priority, to certain kinds of threat:

EC 23 *Pro tanto*, threats of harm to human health have lexical priority for precaution. [low] [emerged at Step B₄]

EC 24 *Pro tanto*, threats to the environment have lexical priority for precaution. [low] [emerged at Step B₄]

EC 26 When taking precautionary measures against a threat, attention has to be paid to those who would be worst off if the harm should materialize. (Distributional concerns matter for precaution.) [high] [emerged at Step B₄]

¹ Assuming that only you are affected, and that there are, e.g., no indirect effects on people who care about you, etc.

Thus, the moral precautionary principle that we are searching for might in particular put additional requirements on how possible outcomes should be evaluated. What form can, or should, these additional requirements take? In the following, I propose (i) to use another explication of “incommensurability”, i.e., to spell it out in terms of lexical priority, and (ii) to supplement the Maximin-PP with a threshold that gives lexical priority to human rights.

8.2.1 Explicating “Incommensurable” as “(Threshold) Lexical Superiority”

So far, I did follow Aldred (2013, 133) in defining incommensurability of outcomes as meaning that their value cannot be precisely measured along some common cardinal scale. However, that the values of two outcomes are incommensurable does not seem to be enough to warrant choosing the course of action with the best worst case as the Maximin-PP demands. Incommensurability as defined by Aldred only entails that we do not know, e.g., how much better or worse one outcome is than another. It does not entail that some outcomes are *always* better or worse than other outcomes—i.e., that there are some values of outcomes that take lexical priority (cf. Chang 2013). While incommensurability in the sense of values not being measurable along a common cardinal scale is part of (threshold) lexical priority, it is not already sufficient to establish it. Yet lexical priority seems to be what should be required for the Maximin-PP: that some outcome values are always worse or better than any instance of other outcome values (Chang 2013, 3–4). This understanding of “incommensurability” also fits better with Aldred’s own example, in which the medium outcome (reduced economic growth from climate change mitigation) is always better than the worst case (climate catastrophe):

The key discontinuity claim is that, no matter how much worse we make m (call it $m- -$), it is still better than w . $m- -$ involves very high mitigation expenditure, but it is still better than any outcome w involving climate change catastrophe. w is incommensurably worse than both b [no climate catastrophe, no mitigation costs, *T.R.*] and m (which are commensurable with each other). (Aldred 2013, 137)

The Maximin-PP tells us to choose the policy option that has m as its possible outcome, and not the one that has w and b as its possible outcomes. Now, especially the claim that “no matter how much worse we make m [...], it is still better than w ”, indicates that there is more at stake than outcome values not being measurable among a common cardinal scale: moreover, avoiding some outcome value (climate catastrophe) takes *lexical priority* over promoting other outcome values (additional economic gains).²

² Both in the “basic” sense of incommensurability as well as with lexical priority, outcome values might still be *comparable*, i.e., it is not excluded that they can be ranked on an ordinal scale.

Consequently, I propose to adjust the meaning of “incommensurability” in the Maximin-PP to refer to “lexical priority”. The next question is which threshold(s) of lexical priority should be chosen to supplement the Maximin-PP in order to enable it to account for the substantial value commitments that, so far, it cannot account for.

8.2.2 *Candidates for a Threshold of Lexical Priority*

There are several candidates for having lexical priority when it comes to taking precautionary measures. Among the most prominent that we can find in the literature are: harm to the environment, harm to human health, irreversible harm (these three can, e.g., be found in both the Rio and the Wingspread PP), catastrophic harm (e.g., Hartzell-Nichols 2012, 2017; Sunstein 2007), and violations of rights (Caney 2009; Roser 2009, 2020).

Human Rights I argue that based on the subject matter, i.e., my commitments, and my pragmatic-epistemic objective, human rights are a good candidate for having lexical priority when it comes to taking precautionary measures. Firstly, rights are already seen as constituting such a threshold: “Rights are characterized by a threshold—not letting other persons fall below that threshold is of very high (or absolute) importance, benefiting them above the threshold is of very low (or zero) importance” (Roser 2009, 16).

Secondly, I argue that adopting rights as the normative basis for a precautionary principle provides a unifying rationale, since most if not all relevant cases of harm to the environment and/or to human health will be subsumable under it—as will be cases of threat of catastrophe.

In the following, I discuss each of the other candidates in comparison with the rights threshold, arguing that on their own, they all face significant problems and/or can relatively straightforwardly be subsumed under a rights threshold.

Environmental Harm Harm to the environment does not only raise conceptual questions such as how to distinguish “nature” from “culture”: there is also the fundamental question of *why* we should give priority to avoiding harms to the environment. Is it because we ascribe some intrinsic value to the environment? But if yes, does this value have lexical priority compared with basic human interests?

I am not willing to commit to, e.g., that we should have let Hurricane Katrina run its course, as Hartzell-Nichols (2013) suggests would have been a consequence of a PP that gives lexical priority to protecting the environment:

It arguably would have been much better for the environment to let Hurricane Katrina run its course, as reinforcing levees, while important to the protection of human health and property, only further interfered with natural sediment transfer. (Hartzell-Nichols 2013, 313)

I do not want to take a stance here on the question of whether or not our environmental ethics should be anthropocentric, e.g., whether or not we should ascribe value to the environment only insofar as it has instrumental value for human interests. Giving lexical priority to (the protection of) rights as the normative basis of a moral PP does not exclude the possibility of ascribing intrinsic value to the environment. It just means that when there is a conflict between threats of environmental harm and threats of rights violations, the threats to the latter take priority. And since an intact environment is important for even the most basic and fundamental rights, it is to be expected that such conflicts will only seldom or only temporarily (e.g., in case of impending harm, like the Hurricane Katrina example) lead to environmental degradation.

Irreversible Harm Giving lexical priority to the avoidance of irreversible harm is not defensible either: firstly, there is the question of how to conceptualize the relevant sense of “irreversible”, since it cannot mean everything that cannot be undone, like the decision to take coffee instead of tea for breakfast in the hotel (which could even cause me some small irreversible *harm* if the coffee turns out to be disgusting). Secondly, even if there is a plausible way to conceptualize irreversibility, it seems rather to be something that reinforces the demand for precaution instead of constituting it on its own. Most importantly, there are threats that demand precaution even if the harm is not irreversible in the relevant sense. And even if it is irreversible, this is not always a reason for extra precaution: at least some goods can be replaced by substitutes that serve the same purpose at least equally well. And in many cases, there are straightforward reasons to even accept irreversible loss of valuable goods for which there is no substitute, as Roser (2020) argues:

[There] are many straightforwardly justifiable reasons for irreversibly giving up goods. Irreversible loss is a common occurrence on which there is no absolute prohibition. Heritage conservation does not protect every building or valuable memory. Thus, cautiousness with respect to irreversibly lost values needs further argument. (Roser 2020, 309)

In economics, irreversibility is also explicated with the concept of “quasi-option value”, i.e., adding an additional positive value to courses of action that “keep options open” by, e.g., not developing/using a natural resource or not permanently polluting something (Arrow and Fisher 1974). Understood in this way, irreversibility can also be relevant from a rights-perspective, additional to the economic argument: in this specific sense, irreversibility can be understood as the opposite of sustainability, and sustainability can, again, be understood as a commitment to the rights of future generations.

Harm to Human Health Harm to human health can most straightforwardly be subsumed under a human rights approach. Not every harm to human health might constitute a human rights violation, but arguably, all the *relevant cases* for precaution will fall under a human rights approach.

Catastrophic Harm As Roser (2020) argues, if “catastrophic” or “serious” harm is about the extent of harm that is threatened, then singling out such thresholds of harm seems *ad hoc*. Since extent of harm is gradual, the response should be gradual, too: of course, serious damage and catastrophes are reason for concern. Any damage is reason for concern and in so far as serious damage amounts to extremely large damage it is reason for extremely large concern. However, the extent of damage is a continuous quantity and—if the focus of the effect condition is put on damage—then there should thus be continuity in the strength of the response as well, rather than a principled difference between the response to serious and non-serious damage.

Why would a cautious response to uncertainty regarding small damages not be just as appropriate as a cautious response to uncertainty regarding serious damages? Treating serious or catastrophic damage in a fundamentally different way might lead us astray—to take just one example—in comparisons of policies of which one comes with a small probability of catastrophe but is most probably hugely beneficial and another policy has an even smaller probability of catastrophe but virtually certainly yields significant but not quite catastrophic damage. Some reason would have to be given why there should be a non-continuous treatment of damages as they get larger and larger and then cross the threshold to where they are ‘catastrophic’ or ‘serious’. Otherwise, the suggested rationale is *ad hoc*. (Roser 2020, 308)

Catastrophic (or serious) harm is thus not a plausible candidate for having lexical priority as part of the current system, the Maximin-PP. However, harm that threatens to be catastrophic or very serious will typically also threaten substantial rights violations.

Proposing the Rights-Maximin-PP All in all, I argue that giving lexical priority to avoiding rights-violations is the most defensible current alternative for a normative threshold for the evaluation of outcomes. We can formulate the candidate like this:

The Rights-Threshold Principle Threats of rights violations have lexical priority over other threats, and are incommensurable with chances of other kinds of gains.

By combining it with the Maximin-PP, we obtain what I call the “Rights-Maximin Precautionary Principle for Combinations of Uncertainty and Incommensurability (Rights-Maximin-PP)”. It is worth pointing out that giving lexical priority to avoid threats of rights violations does not mean that other kinds of threats should be neglected, in the sense that no precautionary measures should be taken against, e.g., threats to human well-being that do not amount to violations of human rights. The point expressed by the Rights-Threshold Principle is that rights deserve special attention: we have to avoid violations of rights even at high costs, as long as these costs do not themselves include equally or more serious rights violations.

In the following, I assess this candidate with respect to its ability to account for commitments and its theoretical virtues. I roughly compare it with the Maximin-PP on its own.

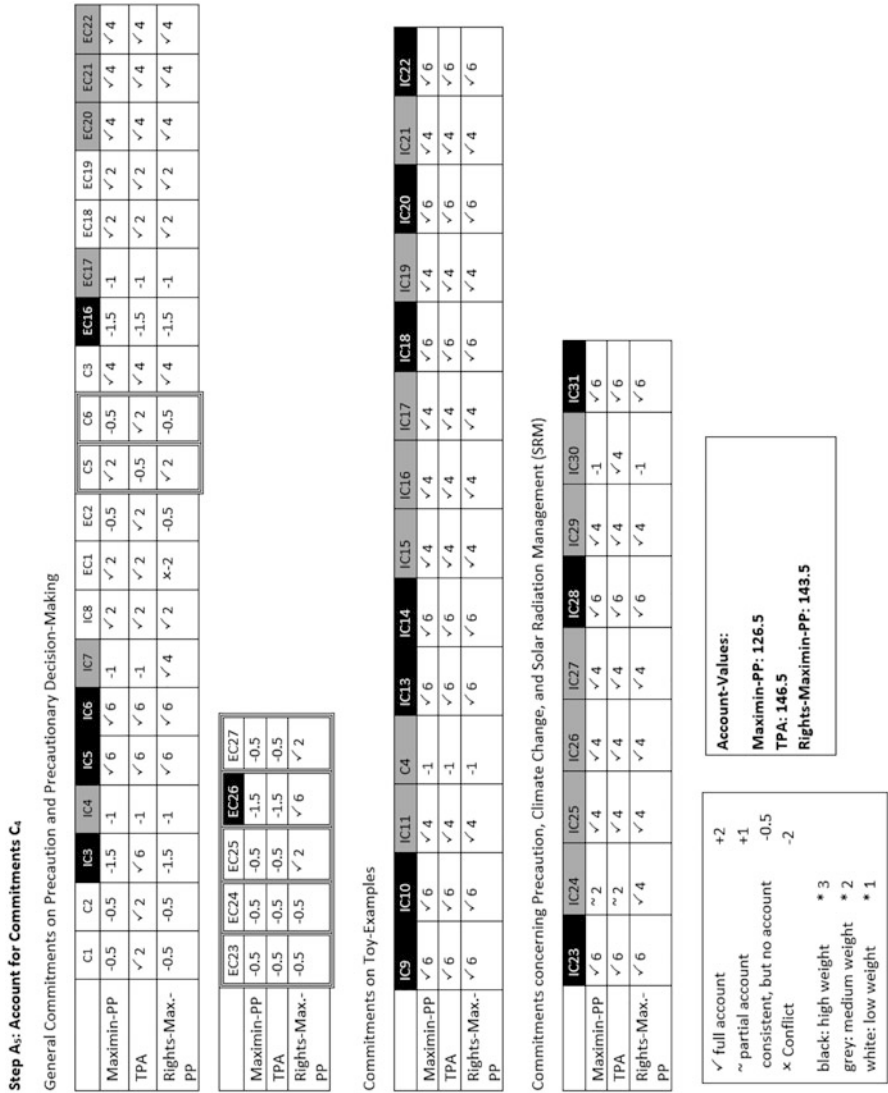


Fig. 8.1 Step A₅: account for commitments C₄

8.2.3 Rights-Maximin-PP, Account for Commitments

Compared with the Maximin-PP without the Rights-Threshold, account was increased from 126.5 to 143.5. See Fig. 8.1 for an overview.

The Rights-Maximin-PP can now account for some of the commitments that the Maximin-PP on its own could not account for:

IC 7 Morally, a higher degree of precaution is required when making decisions that will have effects on others: when making decisions that will only affect yourself, precaution is a question of rationality, depending on your preferences and beliefs; but when making decisions that threaten to harm others, precaution is morally required. [medium]

The Rights-Threshold Principle can account for the difference between risk-taking and risk-imposing: you can waive your own rights, but not those of others.³

EC 25 When evaluating possible outcomes of courses of actions, the rights of future generations must not be discounted. [low] [emerged at Step B₄]

If we assume that if you have a right to x , then you have this right independently of your place in time and other morally irrelevant factors, then rights of future generations cannot be discounted *simply* because they are in the future.

EC 26 When taking precautionary measures against a threat, attention has to be paid to those who would be worst off if the harm should materialize. (Distributional concerns matter for precaution.) [high] [emerged at Step B₄]

Ensuring that as many people as possible receive what they have a right to takes priority over maximizing net gain (and giving some people more than what they have a right to at the cost of depriving others of their rights).

EC 27 Serious threats that can be addressed by an earlier generation must not be deferred to future generations. [low] [emerged at Step B₄]

If “serious threats” refers to threats to rights, then the current system can also account for this. Maybe the commitment needs to be adjusted—or this counts only as a “partial” account, leaving open the possibility that there might be other classes of serious threat that should not be deferred to future generations.

8.2.4 *Rights-Maximin-PP, Theoretical Virtues*

I roughly assess the theoretical virtues of the Rights-Maximin-PP, with respect to the Maximin-PP on its own, and also compared with some of the other candidates for a threshold of lexical priority. For more information on how I understand the theoretical virtues, see Chap. 5 and Sect. 5.5.

Determinacy On the one hand, “incommensurable” was further specified to mean cases of outcome values that have lexical priority over other outcome values. This

³ I take this to be part of the background, even though there is a debate about whether or not you can actually waive your own fundamental human rights. But in any case, there seems to be an agreement that you can at least waive *some* of your rights to *some degree*.

increases determinacy. On the other hand, the determinacy of the Rights-Threshold Principle depends on how fleshed-out a rights theory we have. Although referring to rights is not extremely determinate, nevertheless the Maximin-PP on its own did not determine any relevant cases of incommensurability, so adding such a threshold does increase its determinacy *even if* this threshold itself is only moderately determinate. And as the comparison of the rights threshold with alternatives like a catastrophic-harm threshold has shown, it is at least as determinate as currently available alternatives.

Practicability As with Determinacy, I argue that the Practicability of the Rights-Maximin-PP is not decreased as compared with the Maximin-PP, since we did spell out one aspect that was not covered by the Maximin-PP and kept the original principle. And compared with other alternatives for having lexical priority, the rights threshold is at least as practicable as them.

Scope Combining the Rights-Threshold Principle with the Maximin-PP does not mean that precaution is *reduced* to threats of rights violations—the Maximin-PP leaves room for other cases of lexical priority and incommensurability, and also still applies to cases where outcomes are commensurable, but disproportional. I have just added the rights threshold as one substantial moral rationale to the Maximin-PP in order to do justice to my pragmatic-epistemic objective of formulating an action-guiding moral precautionary principle that applies in other-regarding decision-making (e.g., intergenerational contexts). I.e., the scope (range of applicability) was not reduced as compared with the Maximin-PP on its own.

Simplicity The combination of the Rights-Threshold Principle and Maximin-PP is less simple than the Maximin-PP on its own: we have at least the concept of rights-violations in addition, and also the concept of lexical priority. This raises the technical apparatus from seven to nine concepts.

Above, I argued that adopting a rights threshold provides a unifying rationale because most if not all relevant cases of harm to the environment and/or to human health will be subsumable under it—as will be cases of threat of catastrophe. This argument is interesting from an RE perspective: arguably, this means that the rights threshold has more **unifying power** than other alternatives. This is a theoretical virtue, but one that was not selected as relevant in the initial setup. Still, it distinguishes the rights threshold from the other candidates, and clearly seems to speak in its favor.

8.2.5 Adopting the Rights-Maximin-PP

At the end of Step A₅, I am now adopting the “Rights-Maximin Precautionary Principle for Combinations of Uncertainty and Incommensurability (Rights-Maximin-PP)” as the current system. It can better account for current commitments than available alternatives, and its theoretical virtuousness was not significantly

decreased compared with the Maximin-PP, which was chosen as the current system at the last step. The Rights-Maximin-PP consists of the following two parts:

Maximin-PP for Combinations of Uncertainty and Incommensurability (Maximin-PP) Select the course of action with the best worst case if you are either:

- In a situation of decision-theoretic risk or uncertainty (or some combination), and the outcomes of the available actions can be ranked on an ordinal scale, and all courses of action alternative to the one selected by maximin have outcomes that are incommensurably worse than the best worst case; or
- In a situation of (partial) decision-theoretic uncertainty, outcomes can be ranked on a cardinal scale, and all courses of action alternative to the one selected by maximin have negative outcomes that outweigh every potential gain that could be made above the level that can be guaranteed by maximin.

The Rights-Threshold Principle Threats of rights violations have lexical priority over other threats, and are incommensurable with chances of other kinds of gains.

In the next step, current commitments are adjusted with respect to the Rights-Maximin-PP.

8.3 Step B₅: Adjusting Commitments to the Rights-Maximin-PP

Two commitments that are in tension with the Rights-Maximin-PP can be adjusted, and a conflicting commitment is given up (Sect. 8.3.1). But when searching for further relevant commitments, problems for the Rights-Maximin-PP emerge: relevant information about possible outcomes should not be irrelevant for the decision-process (Sect. 8.3.2).

8.3.1 *Trying to Increase Account*

The two commitments to giving priority to human health and the environment can be adjusted in order to increase their agreement with the current system. That is, from

EC 23 *Pro tanto*, threats of harm to human health have lexical priority for precaution. [low] [emerged at Step B₄]

to

C 7 Threats to human health have lexical priority for taking precautionary measures insofar as they are threats of rights violations. [high] [replaced EC 23 at Step B₅]

And I change the commitment:

EC 24 *Pro tanto*, threats to the environment have lexical priority for precaution. [low] [emerged at Step B₄]

to:

C 8 Threats to the environment have lexical priority for taking precautionary measures insofar as they are threats of rights violations. [high] [replaced EC 24 at Step B₅]

Arguably, by adjusting the commitment in this way, a lot of the original intention of the commitment is preserved, namely, that threats to the environment deserve special attention. At the same time, it makes sense to adjust the weight of this commitment from “low” to “high”, since we can now better defend this commitment by being able to cite a *reason* for why some threats to the environment have lexical priority.

Then we have a commitment that is in direct conflict with the current system, by demanding that no threat is given priority insofar as it threatens a specific entity.

EC 1 The target PP is neither restricted to threats to specific entities (e.g., the environment and/or human health), nor is there a category of threat that takes lexical priority for the application of a PP insofar as it is a threat to specific entities. [low] [emerged at Step B₁]

I argue that this commitment can be rejected on the basis that the current system, the Rights-Maximin-PP (S₄), shows how, by accepting that if we take a category of threat to have lexical priority, we gain a lot in terms of account, applicability, and determinacy. Also, the weight of this commitment is only *low*—it was more a working hypotheses than a substantial commitment.

C 9 Non-EC 1 [replaced EC 1 at Step B₅]

8.3.2 *Searching for Further Relevant Commitments*

So far, I treated the Maximin-PP more or less as “set”, i.e., as being in equilibrium with the relevant commitments that it is supposed to systematize. The focus was on how the value, or respectively evaluative, commitments can be systematized by adding a threshold of lexical priority. Starting at Step A₅, I compared candidates for a part of the system that can supplement the Maximin-PP in order to arrive at a target-system that meets the pragmatic-epistemic objective. But when moving on,

we need again to take the whole system into perspective. In this subsection, I explore whether there are further relevant commitments that would destabilize the current position.

So far, I have bracketed the question of what counts as “reasonable outcomes”, i.e., which outcomes are still plausible enough to include when considering alternative courses of action, thinking that this is a problem of risk assessment and not relevant for the choice of the decision-principle.⁴ However, when consulting the literature on maximin principles and precaution, it emerges that this is something that needs to be taken seriously. Take the following example:

[When] deciding how to arrange the ventilation in my house, I take into account that insects may try to enter through certain types of ventilators, but I disregard remote possibilities such as that a tropical snake from the nearby zoo tries to break in through the ventilator. The line has to be drawn somewhere, but there is no general rule telling us exactly where to draw it in different decision problems. (Hansson 2003, 296)

As Hansson (2003) argues, using a maximin approach transfers the difficulties from the analysis of a problem to the prior construction of a formal decision problem. Identifying what the *relevant* worst case is far from trivial (Betz 2010; Roser 2017, 1402). It is true that every decision principle for decisions under uncertainty faces the problem of how to identify reasonable outcomes, as Gardiner (2006) argues. But since maximin principles focus almost exclusively on worst cases, they are especially sensitive to how the decision problem is framed and where we draw the line. I thus adopt the following commitment:

EC 28 A decision principle for decisions under uncertainty needs criteria to decide which outcomes should still be included as “reasonable” or “plausible” enough. [medium] [emerged at Step B₅]

A further problem for maximin principles is stressed by Roser (2017, 1402):

If our evidence is such as to allow for a judgement about the realistic range of consequences, this same evidence surely allows for at least some [comparisons of likelihood, T.R.] within and beyond that range.

While I do not want to follow Roser in his specific use of “epistemic probabilities”, I do agree that if we have enough information to decide which outcomes to include as realistic enough, then this information should not simply be discarded when deciding which course of action we should choose. This is also in line with my commitment that the price of precaution should be proportional not only to the seriousness, but also to the plausibility of a threat:

EC 19 The price of precaution should be proportional to the seriousness and the plausibility of the threat, given the available alternatives. [low] [emerged at Step B₂]

⁴ See Sect. 6.4.2, p. 134, where I stipulate that we have something in the background that allows us to distinguish plausible outcomes from those that are not plausible.

If the evidence in favor and against the possibility of an outcome does not play a role beyond deciding whether an outcome is “reasonable” or not, then it is hard to identify measures that really are proportional to the plausibility of a threat.⁵ I thus endorse the following emerging commitment:

EC 29 The information we have about possible outcomes of courses of actions should not be irrelevant for the decision process only because it is not sufficient to assign reliable probabilities. [medium] [emerged at Step B₅]

8.3.3 *The Adjusted Set of Current Commitments, C₅*

As Fig. 8.2 shows, adjusting EC 23, EC 24, and EC 1 to C 7, C 8, and C 9 did increase the account value for the Rights-Maximin-PP. However, the two emerging commitments EC 28 and EC 29 decrease it again.

8.4 Step A₆: From Rights-Maximin-PP to Rights-TPA

The Tripartite Precautionary Approach (TPA) is adjusted to also account for my commitments to giving priority to human rights. The resulting “Tripartite Precautionary Approach to Threats of Rights Violations (Rights-TPA)” is then compared with the Rights-Maximin-PP both with respect to their ability to account for commitments (Sect. 8.4.1) and their theoretical virtues (Sect. 8.4.2). In particular, two emerging commitments from Step B₅ make the TPA more attractive than the Maximin-PP, since they do directly conflict with the latter (and not only with some of its implications). Consequently, the Rights-TPA is adopted at the end of Step A₆ Sect. 8.4.3).

In this step, I argue that the two emerging commitments from Step B₅ now make the TPA more attractive than the Maximin-PP: they are commitments that do not only conflict with some of the implications of the current system, S₅, but that conflict directly with one of its central parts, the Maximin-PP. As I will argue in the following, adapting the *Tripartite Precautionary Approach (TPA)* to the idea of threats of rights violations having lexical priority does avoid these problems and is,

⁵ Unless we understand “plausible” as a yes/no question, like whether an outcome is “reasonable” or “realistic”, and a measure is proportional if it is taken against a plausible threat and not proportional if the threat is not plausible. But this neither seems convincing nor is it how I introduced “plausibility” in Sect. 6.4.2.

Step B₅: Current Set of Commitments C₅

General Commitments on Precaution and Precautionary Decision-Making

	C1	C2	IC3	IC4	IC5	IC6	IC7	IC8	C9	EC2	C5	C6	C3	EC16	EC17	EC18	EC19	EC20	EC21	EC22
TPA	✓2	✓2	✓6	-1	✓6	✓6	-1	✓2		✓2	-0.5	✓2	✓4	-1.5	-1	✓2	✓2	✓4	✓4	✓4
Maximin-PP	-0.5	-0.5	-1.5	-1	✓6	✓6	-1	✓2		-0.5	✓2	-0.5	✓4	-1.5	-1	✓2	✓2	✓4	✓4	✓4
Rights-Max.-PP	-0.5	-0.5	-1.5	-1	✓6	✓6	✓4	✓2	✓2	-0.5	✓2	-0.5	✓4	-1.5	-1	✓2	✓2	✓4	✓4	✓4

	C7	C8	EC25	EC26	EC27	EC28	EC29
TPA			-0.5	-1.5	-0.5		
Maximin-PP			-0.5	-1.5	-0.5		
Rights-Max.-PP	✓2	✓2	✓2	✓6	✓2	-1	x-4

Commitments on Toy-Examples

	IC9	IC10	IC11	C4	IC13	IC14	IC15	IC16	IC17	IC18	IC19	IC20	IC21	IC22
TPA	✓6	✓6	✓4	-1	✓6	✓6	✓4	✓4	✓4	✓6	✓4	✓6	✓4	✓6
Maximin-PP	✓6	✓6	✓4	-1	✓6	✓6	✓4	✓4	✓4	✓6	✓4	✓6	✓4	✓6
Rights-Max.-PP	✓6	✓6	✓4	-1	✓6	✓6	✓4	✓4	✓4	✓6	✓4	✓6	✓4	✓6

Commitments concerning Precaution, Climate Change, and Solar Radiation Management (SRM)

	IC23	IC24	IC25	IC26	IC27	IC28	IC29	IC30	IC31
TPA	✓6	~2	✓4	✓4	✓4	✓6	✓4	✓4	✓6
Maximin-PP	✓6	~2	✓4	✓4	✓4	✓6	✓4	-1	✓6
Rights-Max.-PP	✓6	✓4	✓4	✓4	✓4	✓6	✓4	-1	✓6

✓ full account	+2
~ partial account	+1
consistent, but no account	-0.5
x Conflict	-2
black: high weight	* 3
grey: medium weight	* 2
white: low weight	* 1

Fig. 8.2 End of Step B₅: current commitments C₅

overall, a more convincing candidate system—i.e., it better fulfills the RE criteria with respect to the input commitments and the pragmatic-epistemic objective.

In part, I arrived at combining the *Rights-Threshold Principle* with the Maximin-PP because the latter, with its incommensurability criterion, seemed to lend itself to an interpretation along the lines of certain outcome values having lexical priority over others. However, the TPA is at least as well suited for such a combination: the “harm condition” of its Precautionary Tripod in the sense of a failure of meeting a “safety target” is well suited for the idea of lexical priority of rights. I propose the following adaptation of the TPA:

The Tripartite Precautionary Approach to Threats of Rights Violations (Rights-TPA):

- **The Rights Meta Precautionary Principle (Rights-MPP):** Uncertainty must not be a reason for inaction when there are threats of rights implications.
- **The Precautionary Tripod:** The elements that have to be specified in order to obtain an action-guiding precautionary principle version: If there is a threat that meets the *harm condition* (i.e., a specific rights violation) under a given *knowledge condition* then a *recommended precaution* should be taken.
- **Proportionality:** Demands that the elements of the Precautionary Tripod are adjusted proportionally to each other, understood as *Consistency*: The recommended precaution must not be recommended against by the same PP version, and *Efficiency*: Among those precautionary measures that can be consistently recommended by a PP version, the least costly one should be chosen.

The starting point for a rights-based PP version: If there is (1) a threat of a wrongful rights violation, then (2) select the least stringent knowledge condition that results in a consistently applicable version of PP given the harm condition. To comply with the Rights-MPP, uncertainty must neither render the PP version inapplicable nor lead to continual delay in taking measures to prevent rights violations.

It is noteworthy that the Rights-TPA, in itself, does not tell us which rights implications are permissible and which are wrongful rights violations. The Rights-MPP only tells us that uncertainty must not lead to inaction when there are threats of rights implications. But this does not exclude that there are other reasons than uncertainty that make the rights implication acceptable or permissible—e.g., consent of the party on whom the threat is imposed might make a difference. To clarify this is, however, the subject of a theory of rights.⁶ The Rights-TPA only tells us that if there is a threat of rights implications, and all reasons for inaction aside from uncertainty have been ruled out (i.e., if it were a wrongful rights violation,

⁶ By this “move”, I hope to avoid discussions about, e.g., why driving a car is permissible even though you impose a very low threat of dying on everyone. Why this is still permissible—e.g., because everyone, even those who do not drive themselves, benefit from the practice of car-driving—has to be explained by a theory of rights. (A more detailed analysis of the threat impositions in car driving might, however, also reveal that it cannot be prohibited by a proportional Rights-PP-Version.)

would it materialize), *then* the uncertainty must not lead to inaction: the Rights-TPA requires us to find a Rights-PP-Version that consistently can recommend action.

Comparing Rights-TPA and Rights-Maximin-PP In Step A₅, I treated the Maximin-PP as *set* and was searching for a plausible candidate that could supplement the Maximin-PP as a lexical priority threshold. I argued that giving lexical priority to avoiding threats of rights violations is one of the most plausible candidates. Now, we are keeping this part—the rights threshold—constant, and are comparing whether the Maximin-PP or the TPA is better suited to complement it as a decision-making approach.

8.4.1 *Rights-Maximin-PP and Rights-TPA: Account*

Contrary to the Rights-Maximin-PP, the Rights-TPA can account for EC 28 and EC 29:

EC 28 A decision principle for decisions under uncertainty needs criteria to decide which outcomes should still be included as “reasonable” or “plausible” enough. [medium] [emerged at Step B₅]

The (Rights-)TPA avoids the problem of “reasonable outcomes” by demanding that a precautionary measure against a threat should at least meet the same knowledge condition; and demanding that the least stringent knowledge condition should be chosen that still leads to a consistently applicable PP version. Understood in this way, “reasonable” outcomes are those against which we can reasonably take precautions. This answer to the “reasonable outcomes”-problem does thereby not consist in adding some *de minimis* condition, i.e., adding some more or less arbitrary threshold for how likely outcomes have to be in order to be included (Steel 2015, 37).

EC 29 The information we have about possible outcomes of courses of actions should not be irrelevant for the decision process only because it is not sufficient to assign reliable probabilities. [medium] [emerged at Step B₅]

Contrary to the Maximin-PP, where evidence only plays a role in determining which outcomes should be included, the Rights-TPA takes available evidence into account when deciding on a course of action: the TPA can operate both with quantitative knowledge conditions, e.g., numerical probabilities, and with qualitative rankings of knowledge conditions, i.e., ordinal rankings (Steel 2015, 6; 111). Examples of knowledge conditions that Steel mentions are, e.g., probability thresholds of 34%, 50%, or 10% (Steel 2015, 202), which are quantitative knowledge conditions expressed in numerical probabilities. However, other examples are “hypothetically possible” which is less stringent than “a scientifically established mechanism type exists that could bring the outcome about”, which is again less stringent than there being “a known specific scientific mechanism observed to be in operation likely to

lead to a specific outcome” (Steel 2015, 113). This means that as long as knowledge conditions of a harm condition and about the outcomes of a precautionary measure can at least be ordinally ranked, they can be taken into account and compared when deciding on a proportional precautionary response that is required by a threat (of rights violations).

For the rest of the commitments, I don’t assess in detail for each of them whether or not the candidates can account for them—this would require a lot of work in terms of specifying a lot more background information about which rights might be at stake, etc. But it seems plausible enough that the Rights-TPA will be able to account for more commitments than the Rights-Maximin-PP, *if* the background information *were* specified accordingly.

Take the examples of the cases *Asbestos 1* and *Asbestos 2*:

Case 5: Asbestos 1 Large-scale mining and manufacturing of asbestos has started about 15 years ago. Asbestos is seen as a desirable material because of its properties like sound absorption, tensile strength, and its resistance to fire and heat. Production costs are low, so it is also affordable. However, there are observations and reports that associate lung diseases with inhaling asbestos, although no systematic scientific research has been done on it so far; thus, a clear connection cannot be proved, and the diseases might have other causes.

We have to choose between the following four options:

- (i) BAU: Continuing business-as-usual,
- (ii) Research: Starting systematic scientific research on the harmfulness of asbestos dust, including long-term studies and mortality statistics of asbestos workers,
- (iii) Research&Regulation: Starting systematic scientific research while already strictly regulating asbestos production, including, e.g., limiting exposure of workers to asbestos dust, and making compensation arrangements, based on agreed liabilities, or
- (iv) Ban: Banning asbestos.

Case 6: Asbestos 2 Large-scale mining and manufacturing of asbestos has started about 45 years ago. Asbestos is seen as a desirable material because of its properties like sound absorption, tensile strength, and its resistance to fire and heat. Production costs are low, so it is also affordable. It is widely used in a range of applications, and its use is continuing to grow. However, it is now accepted that the inhalation of asbestos dust can cause a lung disease called “asbestosis”.⁷ Recently there have been cases of asbestosis that have been complicated by lung cancer, but a clear connection is difficult to prove, one reason being that smoking has become increasingly popular

⁷ E.g., a health study of asbestos workers has shown that 66% of those employed for 20 years or more suffered from asbestosis, versus none of those employed for less than 4 years (Harremoës et al. 2001, 54).

and is also seen as a potential cause for lung cancer.⁸ Additionally, some concerns have been raised that the inhalation of asbestos dust might cause other long-latent-period harm to people. There are other, presumably safer substances available, but they are much more expensive in production costs.⁹

We have to choose between the following three options:

- (i) BAU: Continuing business-as-usual,
- (ii) Research&Regulation: Starting systematic scientific research while already strictly regulating asbestos production, including, e.g., limiting exposure of workers to asbestos dust, and making compensation arrangements, based on agreed liabilities,
- (iii) Ban: Banning asbestos.

If we assume that the threshold of the “Minimally Acceptable Level”, as specified in Figs. A.3, p. 262, and A.4, p. 263, refers to threats of wrongful rights violations (e.g., the right of the workers and consumers to human health), then the Rights-TPA can perfectly account for the two commitments in these cases. In case *Asbestos 1*, two courses of action have worst cases that do not meet the harm condition: (iii), Research&Regulation, and (iv), Banning Asbestos. So both these options can be consistently recommended by the Rights-TPA. However, option (iii) is the less costly option, so efficiency as part of the proportionality criterion of the Rights-TPA will tell us to choose option (iii). This fits with my commitment:

IC 15 In case 5, *Asbestos 1*, we should choose option (iii), Research&Regulation. [medium]

The Rights-Maximin-PP, however, cannot tell us whether we should choose (iii) or (iv) in *Asbestos 1*, because not “all courses of action alternative to the one selected by maximin have outcomes that are incommensurably worse than the best worst case”. It thus cannot account for the commitment, even though it is consistent with it.

In case *Asbestos 2*, only one course of action has a worst case that does not meet the harm condition: (iii), Banning Asbestos. Consequently, the Maximin-PP tells us to choose it, and can thereby account for the commitment. But so does the Rights-TPA. Consequently, the TPA tells us to choose it, which is again in agreement with my commitment:

IC 16 In case 6, *Asbestos 2*, we should choose option (iii), banning asbestos and substituting it with other, safer substances. [medium]

⁸ I omit here that in Germany, before smoking became popular and while lung cancer rates were still relatively low, a connection between asbestos and lung cancer was already accepted in 1938 (Harremoës et al. 2001, 54).

⁹ For reasons of simplicity, I do not consider what kinds of measures were already taken, and how effective (or not) they have been.

That is, not only can the Rights-TPA account for the two commitments, it can also account for the difference between the two cases, i.e., why once Research&Regulation is chosen over Banning Asbestos, while in the other case Banning Asbestos should be chosen over the Research&Regulation option. Since the Maximin-PP has no such efficiency criterion, it fails to account for the commitment concerning *Asbestos 1*, and also for the difference between the two cases.

In Fig. 8.3, the results from assessing account for current commitments are summarized.¹⁰ There are now some interesting trade-offs in terms of for which commitments each candidate can account: the TPA and the Maximin-PP both fail to account for C 7, C 8, and EC 25–EC 27, which all are moral value-commitments. Their rights-based adaptations, the Rights-Maximin-PP and the Rights-TPA, both can account for these commitments but have other problems: the Rights-Maximin-PP (like the Maximin-PP on its own) can't account for EC 28 and EC 29 which concern the role of evidence for a PP. The Rights-TPA can account for these commitments, but fails to account for commitments concerning individual risk-taking, e.g., IC 9–IC 11. All in all, the Rights-TPA still reaches the highest account value, namely 152.5, whereas the Rights-Maximin-PP reaches 144.

8.4.2 *Rights-Maximin-PP and Rights-TPA: Theoretical Virtues*

When assessing Determinacy and Practicability for the Maximin-PP and the TPA in Step A4, the Maximin-PP did rank higher than the TPA. Now both these candidates have been supplemented with a rights threshold, but since this threshold is the same for both candidates, it makes no difference for the comparative assessment of Determinacy and Practicability. Consequently, the Rights-Maximin-PP will rank higher than the Rights-TPA with respect to these virtues. This leaves us with assessing scope and simplicity.

Scope While the range of applicability of the Rights-TPA is the same as the one of the Rights-Maximin-PP, it has a broader application-set, i.e., there are more situations in which it will yield an action-guiding verdict. While this is not directly relevant for scope in the sense as I understand and use it here, it is relevant because this broader application set actually allows the Rights-TPA to *account* for more commitments. For example, the TPA does not focus on the best worst case, but on how to most efficiently avoid or reduce threats of not meeting a defined safety target (i.e., in the case of the Rights-TPA, this safety target is not violating (specific) rights). This means that it can sensibly be applied when several “worst cases” would meet the safety target: it then takes benefits and costs into account by demanding that the most efficient precautionary measure should be taken.

¹⁰ Please note that for case-specific commitments, it has been stipulated that there is a theory of rights in the background that yields outcome evaluations that fit with the commitments.

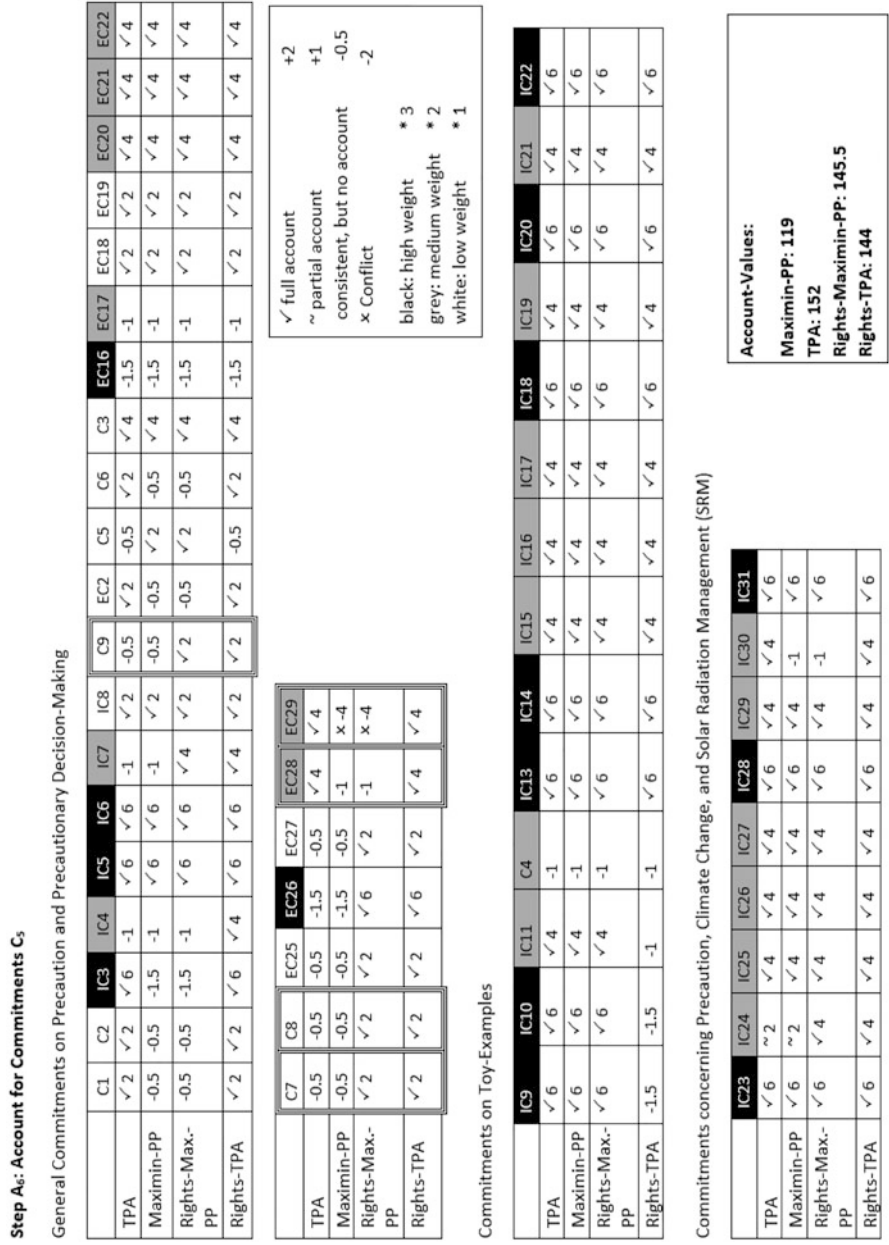


Fig. 8.3 Step A₆: account for commitments C₅

And if a precaution against one sort of rights violation threatens another kind of rights violation, the Rights-Meta-PP will again demand action—i.e., every threat gets addressed through an iterative application of PP-versions. This allows for rights being hierarchical, too, and, e.g., giving more priority to avoiding threats to very fundamental rights without making threats of violations of more “minor” rights irrelevant. An example would be a case where a threat to a fundamental right is addressed by a precautionary measure that threatens a more minor right. This latter threat that is caused by the precautionary measure does not itself meet the harm- and knowledge condition combination of the PP-version used to justify the precautionary measure, so it does not cause a problem for consistency. However, the Rights-Meta-PP demands that also with respect to this other threat of a rights violation, uncertainty must not lead to inaction.¹¹

Simplicity The TPA does not need additional criteria for reasonable outcomes because this is addressed as a part of proportionality—i.e., it emerges organically from the candidate system. Even though the current version of the Maximin-PP does not have such a reasonable outcomes criterion and we therefore cannot assess how simple it would be, from the structure of the Maximin-PP it is hard to imagine that such a criterion could be similarly integrated. I thus rank the Rights-TPA as simpler than the Rights-Maximin-PP.

8.4.3 Overall Comparison: *Rights-Maximin-PP vs. Rights-TPA*

The Rights-TPA can account for more commitments than the Maximin-PP. It also does not require an additional criterion for “reasonable outcomes”, since this is built into the proportionality criterion of the TPA: “reasonable outcomes” are those against which we still can take precautionary measures that do not themselves meet the harm and knowledge condition of the threat. This makes an additional criterion superfluous.

On this basis, I adopt the Rights-TPA as the new current system.

¹¹ And if taking an action that involves some more minor threat is the only way to address a more severe threat, then it seems plausible to argue that the reason for inaction with respect to the minor threat is not uncertainty.

8.5 Step B₆: Adjusting Commitments to the Rights-TPA

Commitments are adjusted to increase their agreement with the Rights-TPA (Sect. 8.5.1). First, a commitment that was already adjusted in Step B₃ is again adjusted in a different way. Second, the commitments concerning individual risk-taking are not accounted for by the Rights-TPA. It is argued that these commitments can defensibly be adjusted to be in agreement with the Rights-TPA: to meet the objective of formulating a defensible moral precautionary principle, it is more important to give a satisfying answer to what precaution requires in other-regarding contexts, than to formulate a more unifying approach that covers both classes of situations. The resulting set of commitments is summarized in Sect. 8.5.2.

8.5.1 *Trying to Increase Account*

One of the commitments the current system S₆, the Rights-TPA, cannot account for (but is consistent with) is the following:

C 4 The claim that the measles/mumps/rubella (MMR) vaccine might cause autism does not constitute a plausible threat. [medium] [replaced IC 12 at Step B₃]

This commitment is an adjustment of the following input-commitment:

IC 12 The claim that the measles/mumps/rubella (MMR) vaccine might cause autism is not a reason not to vaccinate your child. [medium]

I argued that it is unclear exactly what IC 12 expresses, and proposed to interpret it in the manner of C 4. However, in light of the current position, given the Rights-TPA, another interpretation is more convincing:

C 13 Not vaccinating your child is not a proportional precautionary measure against the alleged threat that the measles/mumps/rubella (MMR) vaccine might cause autism. [medium] [replaced C 4 as a replacement for IC 12 at Step B₆]

This is still closely connected to the claim expressed in IC 12, but at the same time in agreement with the Rights-TPA.

Adjusting the Subject Matter: Excluding Individual Risk-Taking Next, we have a whole subset of commitments that are not accounted for by the Rights-TPA. These are commitments concerning individual risk taking, like the “Job-Offers” example (see also the discussion in Sect. 7.5):

Case 9, Job Offers Suppose you live in New York City and are offered two jobs at the same time. One is a tedious and badly paid job in New York City itself, while

the other is a very interesting and well-paid job in Chicago. But the catch is that, if you wanted the Chicago job, you would have to take the plane from New York City to Chicago (e.g., because this job would have to be taken up the very next day). Therefore there would be a very small but positive probability that you might get killed in a plane accident (example from Harsanyi 1975, 595).

IC 11 In case 9, *Job Offers*, you should choose the job in Chicago. [medium]

However, it makes sense that the commitment concerning Job Offers is actually a weaker one than the one expressed by IC 23, i.e., the commitment that is relevant for the subject matter should rather be:

C 10 In Case 9, *Job Offers*, the target system should not tell you to choose the job in New York. [high] [replaced IC 11 at Step B₆]

C 10 is implied by IC 11, though much weaker. But it is enough to capture the main function that IC 23 was intended to have: to make sure that the target system does not lead to clearly irrational decisions (where I am committed to that, all else being equal, choosing the job in New York would be irrational).

I argue that similar commitments about individual risk-taking can be adjusted in the same way: they are now, as a result of this RE process, no longer a part of the application set of the current system, and thereby are excluded from the relevant subject matter. This is not to say that precaution is not required or not possible when taking individual decisions that affect only oneself. But it expresses that precaution requires something *different*, something *more*, when making decisions that will (potentially) affect others and not just oneself. And these other-regarding contexts were the specific focus of this pragmatic-epistemic project. To meet my objective, it is thus more important to give a satisfying answer to what precaution requires in other-regarding contexts, than to formulate a more unifying approach that covers both classes of situations and unifies them under one systematic approach.

Thus, the other current commitments concerning individual precaution can be replaced analogously to IC 11:

C 11 The target system should not tell you not to wear protective clothing when making soap. [high] [replaced IC 9 at Step B₆]

C 12 In Case 11, *Worst Case Being Shot*, the target system should not tell you to choose option A. [high] [replaced IC 10 at Step B₆]

8.5.2 *The Adjusted Set of Current Commitments, C₆*

The current commitments at the end of Step B₆ are summarized in Fig. 8.4. By re-adjusting IC 12 from C 4 to C 13, and by excluding situations concerning individual risk-taking from the subject matter, the account value of the Rights-TPA could be increased from 152.5 to 156.5.

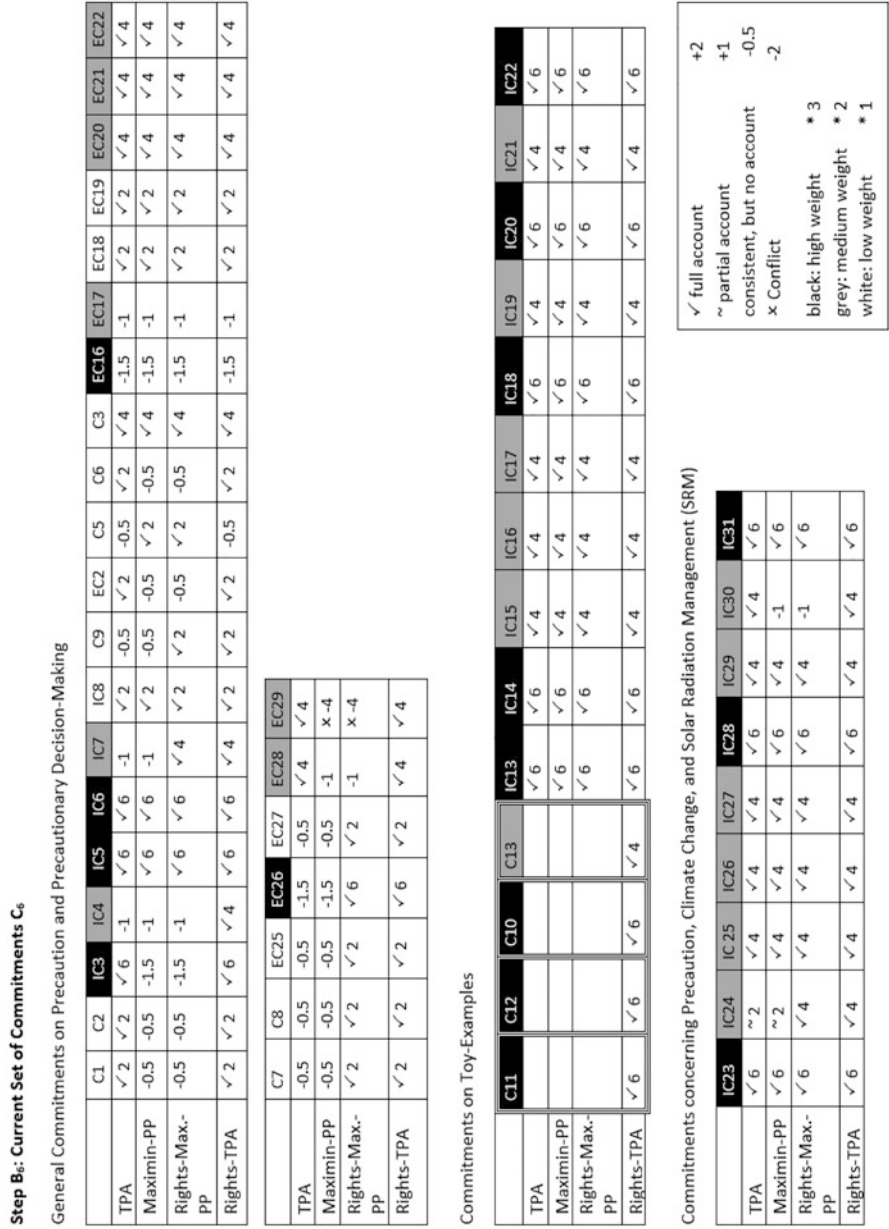


Fig. 8.4 Step B₆: current set of commitments C₆

8.6 Step A₇ and B₇: Reaching Equilibrium?

In Steps A₇ and B₇, no adjustments to the position are made: the Rights-TPA remains the most convincing candidate from the available alternatives, and it is in agreement with the current commitments. This brings the reflective equilibrium process to a (preliminary) end point, and I analyze whether we have reached a justified position that is in a state of reflective equilibrium. I argue that contingent on the stipulations and simplifications made for the sake of the case study, the RE criteria are approximated.

Given the adjusted set of commitments, the Rights-TPA might not reach the highest ranking with respect to the RE criteria that would be *hypothetically* possible, but it reaches a high ranking, and since there is no plausible competitor available anymore, I argue that it is the best candidate for the target system. I am thus not making any adjustments to the system in Step A₇.

This leads us to another step of adjusting commitments, Step B₇. But the set of current commitments, C₆, was already ideally adjusted with respect to the Rights-TPA, which was S₆ and is also the current system, S₇. Thus, there are no further adjustments to be made that would increase the agreement between commitments and system.

In Chap. 3, I suggested that the RE process comes to an end when neither of the two steps brings any improvements with respect to the RE criteria. This is the **stopping rule**. It then has to be assessed whether a full RE state was reached by asking the following questions:

- Are the resulting commitments and the system in agreement?
- Can the position be supported by background theories?
- Does the system do justice to theoretical virtues?
- When comparing input commitments and resulting commitments, is it plausible that we have not abandoned the subject?
- Do (at least some of) the resulting commitments have independent credibility?
- Is the resulting position at least as plausible as available alternatives?

In the following, I discuss the answers to each of these questions in turn.

Agreement between Resulting Commitments and Resulting System? There are no conflicts between the resulting commitments and the resulting system. However, there are some commitments that are not accounted for, namely EC 17 and EC 16.

EC 17 The price of a precautionary measure consists of—compared with the course of action entailing the threat it is supposed to address—foregone bene-

fits,¹² foregone opportunities, and additional threats. [medium] [emerged at Step B₂]

The (Rights-)TPA demands that in cases where more than one course of action can be consistently recommended, the least costly one should be chosen. However, what the “cost”, or price, of a course of action is remains unspecified, and thus, while not conflicting with EC 17, the (Rights-)TPA cannot account for it. A possible way to change this would be to add the content of EC 17 to the system.

EC 16 The costs and responsibilities for precautionary measures should be distributed in a morally sound way. [high] [emerged at Step B₂]

While the Rights-TPA will prohibit some ways of distributing costs and responsibilities (if they threaten to violate rights), it does not provide a more general framework for the distribution of costs and responsibilities. With this commitment, it is possible to argue that it does not really belong to the subject matter of precaution and precautionary decision-making (as already hinted at in Sect. 6.6), but should rather be systematized by a theory of distributive justice or something similar. Most likely, the theory of rights that we already have to stipulate in the background for the Rights-TPA will have implications for these distributive questions, too.

Very importantly, the agreement between resulting commitments and resulting system is conditional on certain stipulations and simplifications that were made for the sake of the case study. The most important stipulation is the one that there is a sufficiently fleshed-out theory of rights in the background, that allows us to evaluate possible outcomes etc. in a way that fits with the evaluations in my commitments, and that allows the Rights-TPA to account for them.

Additionally, it would be necessary to search more systematically for potentially conflicting commitments, since only a small subset could be explicitly considered.

Thus, even if this criterion is fulfilled given the context of the case study, I am cautious not to assert that it is fulfilled all things considered.

Is the Position Supported by Background Theories? Whether or not there are conflicts with background theories, or respectively whether the resulting position can be supported by them, is something that still would have to be explored in depth. I am not doing this as part of the case study and thus can only point towards questions one could ask in order to assess it, e.g.: does the way that “rights” are used in the Rights-TPA fit with how it is used in other (moral) theories? Can threats be assessed in the way the Rights-TPA demands, i.e., does this fit with theories of risk assessment, epistemic theories about possibilistic knowledge, and similar? Even though I cannot address these questions here, initial work done on the connection between precaution and human rights suggests there is a good chance that these

¹² I take it that “foregone benefits” also includes direct monetary costs of precautionary measures that are spent, e.g., on installing safety measures, since the money used there cannot be spent for other purposes.

questions could be answered in a positive way in future work (see in particular Caney 2009; Roser 2020).

Does the System have Theoretical Virtues? Theoretical virtues have been extensively assessed during the case study, and we can conclude that the Rights-TPA does justice to the theoretical virtues that were selected as relevant in Chap. 5. This does not exclude the possibility that its virtuousness could be improved, or that further theoretical virtues may be relevant. But, currently, it seems to fulfill the criterion to a satisfying degree, given the pragmatic-epistemic objective.

Input Commitments Respected/Subject Not Abandoned? Input commitments (initial and emerging) are IC 1–IC 31 and EC 1–EC 29. Resulting commitments are C 1–C 3, C 5–C 13, IC 4–IC 8, IC 13–IC 31, EC 2, EC 16–EC 22, EC 25–EC 29. Differences between the two are that in the resulting commitments

1. input commitments concerning what does or does not count as a precautionary measure—EC 5–EC 14—have been moved to the background as being explicated by *ExplicPrec*.
2. input commitments to specific actions in cases concerning individual risk-taking have been excluded, i.e., IC 9–11 have been replaced by C 10, C 11, and C 12.
3. some vague input commitments have been re-interpreted, i.e., from IC 1, IC 2, and IC 12 to C 1, C 2, and C 13.
4. several input commitments have been adjusted with respect to the current system (at that time), namely EC 15, EC 3, EC 4, EC 23, EC 24, and EC 1 to C 3 and C 5–C 9.

When comparing the input and the resulting commitments, is it plausible that the subject matter was not abandoned, and that we did end up with a systematization of what we did set out to systematize?

I argue that, yes, this is plausible: each adjustment is defensible in light of the independent credibility of the adjusted commitment, the resulting position, and the pragmatic-epistemic objective.

- (1) It is reasonable that what does or does not count as a precautionary measure is in the background to, but not part of, a position that concerns morally warranted precautionary actions and decisions. The resulting system, the Rights-TPA, does recommend measures that meet the criteria of being a precautionary measure, while not requiring the explication itself to be applicable.
- (2) Excluding individual risk-taking, i.e., situations where only the agent themselves is affected by the threats they impose on themselves, can be defended with the argument that we are concerned with the question of what (other-regarding) morality demands of us in terms of precaution. Thus, there is an argument

referring to a plausible difference between those cases and other situations, that can be used to defend excluding them.¹³

- (3) IC 1 and IC 2, the Rio and the Wingspread formulation of a PP, were already adopted as commitments with a low initial credibility, because I was aware that they are both vague and often contested. Thus, it was partly an expectation of the RE process that it would help to find an interpretation of these commitments that does them justice while being more plausible. Arguably, C 1 and C 2 fulfill these goals. The clarification from IC 12 to C 13 has a similar motivation and can be seen as providing an interpretation of the claim that a threat (autism from a vaccine, IC 12) is “not a reason” to avoid taking an action (vaccinating): namely, that not taking the action cannot be defended as a proportional precautionary measure (C 13).
- (4) As for the other adjustments, only one of them consisted in a direct rejection of an input commitment (from EC 1 to C 9). The rest of them consisted in slight adjustments in order to increase account with the system, e.g., changing “irreversible” to “incommensurable” harm when replacing EC 3 by C 5, spelling out in a bit more detail what it means for a threat to be *plausible* when replacing EC 4 through C 6, or clarifying that threats to human health or the environment have lexical priority for precaution *insofar* as they are threats of rights violations when adjusting EC 23 and EC 24 to C 7 and C 8. None of these adjustments seems in danger of leading to a change of subject.

Lastly, that a substantial number of input commitments remained unchanged also lends support to the claim that the subject matter is still, in the relevant sense, “the same”.

Independent Credibility of Resulting Commitments Independent credibility was not assessed in detail: from the start, I only assigned rough weights of *low–medium–high* to the commitments, loosely based on my reasons for adopting them. A substantial number of the input commitments “survived” the process—and since all the credibility that input commitments have is by definition independent of the RE process (because we hold them before the process starts), at least those resulting commitments that are also input commitments will have independent credibility.

At Least as Plausible as Available Alternatives? As part of the case study, alternatives were not developed and assessed in detail. To really defend the resulting position, it would be necessary to test it in further cases in order to explore whether we are willing to commit to its implications, and also to develop real alternatives, e.g., including another moral normative basis than rights, and to compare in detail which of them fulfills the RE criteria to a higher degree. But this is outside the scope of the current project, which in the first place is a case study for the application of reflective equilibrium. Such a study would also be beyond the powers of any single

¹³ If we adopt the TPA as a broader approach to precautionary decision-making, and see the Rights-TPA as the relevant specification for other-regarding morality, we would also cover the individual risk-taking cases. This is not implausible.

epistemic agent to achieve, and thereby suggests that philosophy, and other cognitive practices, ultimately has to be seen as a collective project.

Contingent on the stipulations and simplifications made for the sake of the case study, I argue that the RE criteria are approximated at this point, and that a preliminary reflective equilibrium is reached.

8.7 Recapitulation Phase 3

The results of the steps of phase 3 are summarized in Fig. 8.5. I started by comparing different candidates for a normative threshold of lexical priority, and selecting the rights threshold to supplement the Maximin-PP (Step A₅). When commitments were adjusted with respect to the Rights-Maximin-PP (Step B₅), two emerging commitments destabilized the Rights-Maximin-PP as the current system, which led to the adoption of the Rights-TPA at Step A₆. After commitments were adjusted with respect to the Rights-TPA at Step B₆, the latter was again selected as the current system at Step A₇. Since adjusting commitments at Step B₇ did not result in any changes, the question was asked whether a reflective equilibrium was reached.

In the remainder of this section, I discuss the results of phase 3 with respect to reflective equilibrium in Sect. 8.7.1, and with respect to precautionary principles in Sect. 8.7.2.

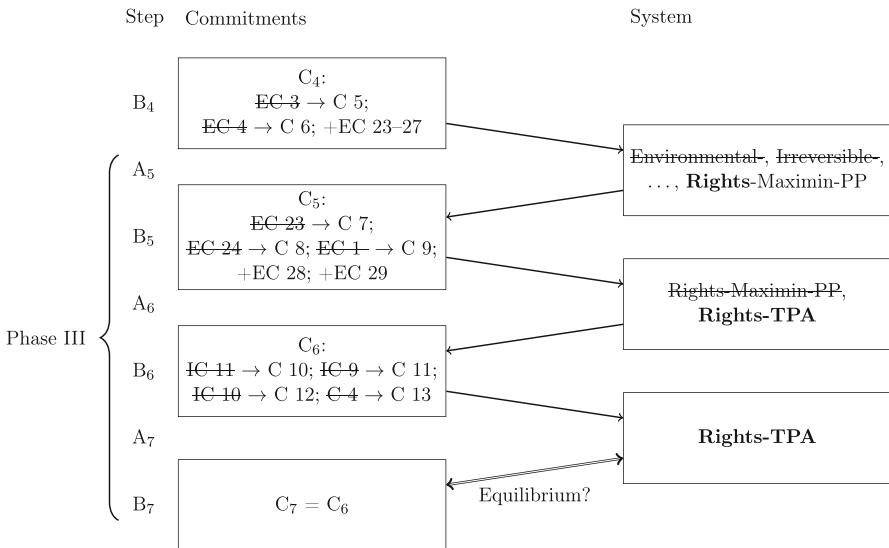


Fig. 8.5 Schematic overview of the steps of Phase 3

8.7.1 *Results for Reflective Equilibrium*

Main results from phase 3 for reflective equilibrium are:

- Working with stipulations and placeholders is sometimes unavoidable;
- Emerging commitments can play a decisive role, which is not a problem for the RE process;
- Fleshing out the position and making further relevant considerations explicit can be an important result of an RE process;
- It can be necessary to re-adjust already adjusted commitments;
- Whole subsets of commitments can be assessed and potentially excluded from the subject matter.

In phase 3, a preliminary RE state was reached. This equilibrium is contingent on certain stipulations in the background. While some of these stipulations are quite substantial—stipulating that there is a criterion for “reasonable outcomes” as was done in phases 1 and 2, or stipulating that there exists a suitable theory of rights—it does not seem unusual that at least *some* such stipulations and assumptions have to be made in an RE process: we have to start somewhere, which means that **sometimes we will just have to work with stipulations and place-holders** in the background in order to work out one position. Afterwards, of course, we should move on to address these stipulations—and depending on the outcome, this might again destabilize the position we reached. In the context of this RE implementation, one sensible way to continue would be to spell out the relevant sense of “uncertainty”, since the assessment of theoretical virtues of the (Rights-)TPA has shown that the lack of a clear concept of “uncertainty” impairs the determinacy of the (Rights-)Meta-PP.¹⁴

In any case, assessing the resulting position with the RE criteria forces us to put the cards on the table, to admit weaknesses and unresolved issues, but also allows us to argue for why we see this position as defensible (see the analysis in Sect. 8.6). This is a positive result in favor of RE as a method of justification.

As further results from phase 3, **emerging commitments did play a decisive role**: that emerging commitments destabilize the Maximin-PP and support the Rights-TPA shows how RE is relative to those commitments that are explicitly considered. The process would most likely have taken a different path if those commitments had been made explicit from the beginning. The question is whether

¹⁴ For example, (Steel 2015, chapter 5) develops a specific conception of “scientific uncertainty” to supplement his PP proposal.

this is a problem. I argue that it is not, because, firstly, the resulting set of commitments as a whole has to respect input commitments as a whole. So this is something that always has to be assessed with respect to the input commitments that are explicit at a current point in the RE process. This might mean that an adjustment that before could be reasonably seen as respecting input commitments is no longer defensible given further emerging commitments. But for the resulting commitments, it does not matter at which point an input commitment entered the process: they have to be respected in a way that makes it plausible that the subject was not abandoned, and that their independent credibility was not unwarrantably discarded. Thus, maybe we will take some “loops” that are in some sense “unnecessary”, because adjustments that were made with respect to a subset of the input commitments later turn out not be defensible. But at the same time, such “loops” might be necessary to uncover further relevant commitments. **Fleshing out our set of commitments**, and becoming aware about further relevant considerations, **can also be an important result of an RE process**. It just also means that at an RE endpoint it is especially relevant to consider whether all relevant input commitments have been made explicit and are respected—and that there is always the possibility that further emerging commitments might destabilize our position. But this is in line with the general notion of justification via RE being preliminary.

That **respect for input commitments can depend on how the position develops** is demonstrated by the re-adjustment of IC 12, which at Step B₃ was replaced by C 4, but at Step B₆ this replacement got re-assessed and C 4 as a replacement for IC 12 was replaced by C 13.

IC 12 The claim that the measles/mumps/rubella (MMR) vaccine might cause autism is not a reason not to vaccinate your child. [medium]

C 4 The claim that the measles/mumps/rubella (MMR) vaccine might cause autism does not constitute a plausible threat. [medium] [replaced IC 12 at Step B₃]

C 13 Not vaccinating your child is not a proportional precautionary measure against the alleged threat that the measles/mumps/rubella (MMR) vaccine might cause autism. [medium] [replaced C 4 as a replacement for IC 12 at Step B₆]

This shows how the adjustment of an input commitment can be re-adjusted in light of the current position: the important point is that we are not simply going on to adjust C 4, but rather we go back to IC 12 and search for a better interpretation of this commitment in light of the current position.

Similar to phase 2, the **exclusion of a subset of commitments from the subject matter** was discussed at Step B₆. Contrary to commitments concerning cases where probabilities are available, the class of commitments concerning individual risk-taking ended up being excluded from the subject matter. However, this is defensible

with respect to the pragmatic-epistemic objective, which is to formulate a moral precautionary principle, i.e., a principle for *other-regarding* decisions.¹⁵

8.7.2 *Results for Precautionary Principles*

Main results from phase 3 for precautionary principles are:

- A rights-based precautionary principle supplies a substantial justification for precautionary action, which is independent of whether or not there is a history of failed precaution;
- A rights-based precautionary principle can explain why some, but not all, threats to the environment or human health warrant lexical priority;
- However, the Tripartite Precautionary Approach (TPA) in its broader form can be acceptable independently of a specific moral theory, which might make it more suitable as a principle for public policy.

In the input commitments, I started out being committed to the claim that no class of threat takes lexical priority insofar as it is a threat to a specific entity. I committed to this because giving lexical priority to, e.g., harms to the environment seemed unduly narrow, and could lead to unacceptable trade-offs, e.g., accepting huge economic loss to avoid even insignificant damage to the environment (cf. Gardiner 2006, 45; Steel 2015, 84).

EC 1 The target PP is neither restricted to threats to specific entities (e.g., the environment and/or human health), nor is there a category of threat that takes lexical priority for the application of a PP insofar as it is a threat to specific entities. [low] [emerged at Step B₁]

By adopting the Maximin-PP, I accepted that there can be outcomes values that are incommensurable with other outcomes. This does not yet constitute a conflict with EC 1, since it leaves open whether harms that are incommensurable all concern harms to a specific entity. However, when continuing the process, giving lexical priority to threats of rights violations turned out to be a successful candidate for systematizing commitments—so successful that it made it defensible to reject EC 1. One can also debate whether giving lexical priority to avoiding rights violations

¹⁵ One could also support this exclusion by adopting the Tripartite Precautionary Approach (TPA) as a broader approach to precautionary decision-making, which also covers individual risk-taking, and the Rights-TPA as a specific variant of the TPA for substantial moral decisions.

actually constitutes a conflict with EC 1, i.e., whether threats to rights are threats to a specific “entity” in the same way as threats to the environment or human health.

That the Tripartite Precautionary Approach to Threats of Rights Violations (Rights-TPA) turned out to be the most convincing candidate also supports the original approach of Steel (2015), which is shown to be a very comprehensive and systematic formulation of a precautionary principle. Making it a *Rights*-TPA is a possible way to make it more substantial as a moral principle, but we also have to acknowledge that this was not Steel’s pragmatic-epistemic objective when formulating the TPA: throughout his book, Steel seems to conceive of the TPA as a principle for (regulatory) policy making, especially concerning the environment and human health (cf. Steel 2015, xi–xii, or the examples discussed on pp. 71–73). This makes it also comprehensible why Steel thinks that the harm condition is not something that can be determined by the TPA itself, but depends on value judgments:

Decisions about the desired level of safety ultimately depend on value judgments that, ideally, would be generated from a deliberative democratic process that is sensitive to concerns of those who would be impacted by the decision. (Steel 2015, 201)

If the objective is to formulate and defend a principle for policy-making, then avoiding commitment to substantial moral values or theories is advisable because it makes the resulting system more broadly acceptable.¹⁶

Thus, the TPA might be more suitable as a basis for policy-making than a principle that is based on substantial moral commitments. However, it also leaves it open to a significant degree how the harm condition is set. By basing his Meta-Precautionary Principle on an historical argument referring to an historical pattern of significant errors in regulatory decisions at the expense of the environment and human health (Steel 2015, chapter 4), Steel avoids commitment to a specific ethical theory and achieves a principle that might be broadly acceptable. But this argument fails to explain *why* we should take precautionary action to protect the environment and human health *even if* no such history should exist. By adapting the Meta-PP to the Rights-Meta-PP, the justification of the resulting position is made independent of the historical argument. This does not mean that learning from history becomes irrelevant: the historical argument can still be relevant as background information when, e.g., threats are assessed—for example, because we have learned that threats to the environment often have long latent periods and might lead to almost irreversible system changes.

Compared with the Meta-PP, the *Rights*-Meta-PP is based on a substantial moral claim:

The Meta Precautionary Principle (MPP) Uncertainty must not be a reason for inaction in the face of serious (environmental) threats.

¹⁶ Cf. Steel (2015, 93): “The argument for PP I develop here, then, has the attraction of avoiding reliance on debatable assumptions about ethical theory.”

The Rights Meta Precautionary Principle (Rights-MPP) Uncertainty must not be a reason for inaction when there are threats of rights implications.

The reference to threats of rights implications serves at the same time as a powerful unifying rationale to explain why some, but not all, threats to the environment or human health warrant lexical priority. It can explain why rational choice theory with its indifference about risk-taking and risk-imposing situations often fails to capture the important normative basis for taking precautions (cf. Roser 2020).

It is noteworthy that the TPA and the Rights-TPA can to some degree coexist: unless the harm-condition of a PP-version of the TPA is set in a way that conflicts with the Rights-Meta-PP, they will not lead to conflicting verdicts. And if the harm condition of the TPA is defined in the way that Steel imagines—in a deliberative democratic process that is sensitive to the concerns of those affected by the decision—then it seems likely that it will typically be “triggered” at least by threats of grave rights violations.

But they both differ in the sense that the TPA can be acceptable independently of a specific moral theory or respectively that it is possible to supplement it with different moral theories like consequentialism or other deontological theories—whereas the Rights-TPA expresses (given an adequate theory of rights) determinative value judgments about which measures should be taken given which threats. Both can be defensible, depending on the input commitments and the pragmatic-epistemic objective of the epistemic agent.

Next, Chap. 9 discusses what we can learn from the case study for applying reflective equilibrium as a method.

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