Imagined, supposed and impossible ways: a dialogue[1]

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> Where the Sea and Herself wonder how to make a paper crane and find themselves debating the nature of ways. The Sea defends that ways are possibilities, whereas Herself suggests that there can also be impossible ways.

The Sea asked Herself: 'How does one make a paper crane?'

And Herself replied: 'I don't know. Let's try to figure it out.'

Sea: 'But how?'

Her: 'Well, you go and look for a guide, of course! You can read, can't you?'

Sea: 'Of course I can!' The Sea didn't like Herself's condescending tone. 'But if you haven't noticed, there are no guides around. Or anyone that we can ask, for that matter.'

Her: 'Since most of the things I've learned how to do I've learned from others, either by reading, or listening to them, or by looking at them while they did them, that seems like an issue.'

Sea: 'That is why I asked you, in case you already knew how to make a paper crane.'

Her: 'It is an interesting question, though! I've always liked paper cranes, but I never considered how to make them.'

Sea: 'So, how do we figure it out?'

Her: 'Well, maybe we can deduce how to do it from other knowledge that we might have. But I don't think I know anything that is directly related to the task at hand. I have never thought about paper folding at all. Maybe we can derive those from other facts? Facts about paper, and geometrical facts could be handy, I guess. But I don't think neither of us has this knowledge.'

Sea: 'The next best thing would be to try to make a crane with paper ourselves, breaking down the problem in smaller problems and then figuring out a way to combine those solutions. For example, we can start by figuring out how to make a wing, and a beak, and so on, and then figuring a way to combine those pieces… But we don't have paper here.'

Her: 'Maybe we don't need to try, however. You just came up with something like the schema of a way to make a paper crane. I'm guessing you imagined that a procedure like the one you just

described would lead us to obtain a way to make a paper crane. Maybe we can just fill that schema with more details. For example, couldn't we imagine how to make a wing by folding paper? Or how to make a beak?'

Sea: 'Are we sure that my schematic procedure really yields a way to make a paper crane, though? I just applied the heuristic that problems can usually be broken into smaller problems, and then combined in some way. It might be true that the heuristic applies in our case, but are we really sure that, even if we know how to make a paper wing and a paper beak, and all the rest, we can know how to make a paper crane? There *is* a sense in which a generic procedure like this "divide and conquer" strategy is a way to do *something*, sure, but there is also a sense in which it is not necessarily a way to do *the particular thing we need to do*.'

Her: 'The problem is that we haven't filled in the details.'

Sea: 'Yes, that is *one* aspect of the problem. *Another* aspect of the problem is that even if we fill in all the details for solving the sub-problems, there might not be a way to combine them all in one thing. It could be that we have to come up with a solution of the whole thing at once.'

Her: 'Couldn't we treat the possibility of combining the solutions of the sub-problems as a conjecture and try?'

Sea: 'And how do you suppose we try? We don't have paper.'

Her: 'In our imagination, I mean.'

Sea: 'Fair enough. But how do we check that the solutions we come up with are *really* solutions to our problem?'

Her: 'That question would arise even if we had the means to actually try making a paper crane. For suppose we came up with a solution, and we tried and failed. We would be justified in thinking that what we imagined was not a way to make a paper crane, even if before the fact we could have had some justification that it was a way to make a paper crane. And that justification we would have had before the procedure would have failed is the same that we would have if the procedure would have succeeded, I think.'

Sea: 'I'm not so sure about this last point. If we succeed, our justification pays off. If we fail, our justification is undermined.'

Her: 'Right, but we could also fail for accidental reasons that do not need to undermine our justification. You could succeed in some other case, and see that the reasons for thinking that you would succeed are the same you considered when it failed. There might be reasons why it failed, but there are reasons why it could have succeeded.'

Sea: 'I'm still not convinced that our justification would be the *same* in both cases, but I can see your point. In any case, the original problem remains: if we have an imaginary procedure to do something, how can we be sure that it is a way to do that, if we haven't even tried?'

Her: 'Exactly: if we don't have successes, nothing obvious seems to witness that our imaginary procedure is a way to do the thing we wanted to do.'

Sea: 'What could even be a witness to that other than success? Maybe the question to ask is not whether we can be satisfied that it is a way for us to do the thing we want to do, but whether something related can be witnessed.'

Her: 'I am guessing you have an idea.'

Sea: 'Yes. Maybe the question is whether we *can* achieve our goal, namely, make a paper crane, by doing the procedure that we imagined.'

Her: 'Ah! Couldn't you say, in that case, that we know that something is a way to do something by knowing that it is possible in some sense for us to do it in that way? I think you took a hint from my suggestion that even if we fail, we might have reasons to think that we could have succeeded.'

Sea: 'You got me there.'

Her: 'And how do we know that something of the sort we need is possible?'

Sea: 'Earlier we suggested that we could imagine it.'

Her: 'Yes, but is that enough? I mean, I can imagine myself in the moon, but I doubt that is possible.'

Sea: 'Agreed, but surely in some cases you wouldn't doubt that what you imagined is possible. If I asked you to imagine yourself wearing different clothes, you wouldn't hesitate.'

Her: 'True. And I would probably say that I imagined *how* I could wear different clothes. So that is promising.'

Sea: 'Couldn't you say that you imagined how you could be in the moon as well?'

Her: 'Yes, but I could also say that how I imagined it was not how it could happen. So it seems like imagining these possibilities is not really the same as imagining a way for things to be like we imagine. We can have the second without having the first.'

Sea: 'I think that is going too fast. Maybe you can say that the way you imagined is a way in which it could have happened, just not one that could have happened given some other facts. For example, if your past had been different, maybe you would have come closer to have been in the moon, and maybe in some alternative course of events, you could have been in the moon already. Maybe it comes naturally to you to imagine something like that, instead of something that is more grounded on reality.'

Her: 'And you say that whenever I imagine something, I imagine how it could have been the case, a certain possibility? That can't be right, because then imagination would always be a guide to possibility. You could imagine yourself with the body of a zebra, but that is surely impossible.'

Sea: 'Right, but that is because in cases like that, if I have convinced myself that I have imagined myself with the body of a zebra, I couldn't have imagined how I could have had that body. In cases like that, if one tries to imagine *how*, one quickly realizes that there is no way for things to happen like that. You can come up with *the image* of something all at once, as it were, without

knowing of a way in which things could have been like that. For example, you could imagine something very much like a car, but which couldn't be a car, or couldn't function like a car, and so on. You can imagine something unicorn-like, but not a way for unicorns to exist.'[2]

Her: 'If so, when we use our imagination we have to be always alert to the possibility that we fail to imagine what we aim to imagine.'

Sea: 'Yes, but I think that is true only in some cases. Often you can imagine without much control and still get results that you can confirm as correct. For example, in the cases where you imagine how to do something, and it turns out that you succeed in doing it the way you imagined.'

Her: 'The whole question is if there is any other way to be sure other than by checking that we succeed if we try, though. Maybe in cases where we succeed after imagining in a relaxed way, we do so *accidentally*'.

Sea: 'Well, let's suppose that we engage in the deliberate kind of imagining that is constrained in the way we just described. In those cases, I think we have justification to think that what we are really considering when we say that there is a way for us to do something is that there is a knowable possibility where we succeed in doing what we imagine by executing the procedure we imagine.'[3]

Her: 'Well, there would be a way even if we didn't know that there was. Indeed, there would be even if we couldn't know that there was.'

Sea: 'Fine, but it couldn't be a way for us if we couldn't know that it is a possible way to do it. The point is that *we* couldn't *say* that there was unless we *knew* that what we just described is possible.'

Her: 'We could think that there *must* be a way without knowing what that was.'

Sea: 'Sure. That is exactly our presupposition about there being a way to make a paper crane that we don't know. But even in those cases it is presupposed that it is possible to do what we are thinking about.'

Her: 'And how do we come to make that presupposition?'

Sea: 'I think it's just a default way of thinking; when we worry about how things are done, we worry about how they could have been done, not how they couldn't. And if we consider ways that couldn't work, we explicitly mark them as ways that we could not do those things. Imagine yourself looking out the window to the street, at a passing car. That is *at best* a way for you to see a passing car. It is not a way for me to do it. It is important for me to realize this: if not, I could

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2 Cf. Kripke (1981), 156–158.
3 The Sea is endorsing what we may call *Possibilism* about ways and about knowledge of ways. According to Possibilism in its more general form, ways just are possibilities, and knowledge of ways just is knowledge of possibilities. Schematically:
Possibilism
  X is a way for S to Y iff it is possible for S to Y by X-ing.
Possibilism seems to be the standard view about ways.

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feel entitled to make you observe from the window out to the street whenever I felt that would be the best way for me to see if cars passed by. But that entitlement would be wrong: if I put you there as a lookout, that by itself would not allow me to see cars passing by. I would act in ways that would run against my interests.'

Her: 'In normal circumstances, yes. But what if there was some way for me to see that would also be a way for you to see?'

Sea: 'If there was, that would only show that my judgment about there not being a way for you to look out the window that is also a way for me to look out the window is wrong. It wouldn't show anything about the idea that knowing ways is knowing possibilities, and for good reason: knowing that it would be possible for me to look at passing cars by means of having you looking out the windows would be a way to know that there are ways for that to happen. I don't even need to grant that, though: that possibility is very doubtful, and you haven't done anything to defend it. And even if such thing was possible, it might be irrelevant to the question of how I could *actually* look at cars passing down the street.'

Her: 'Aren't you saying now that it is not sufficient for there to be a way to do it that there is a possibility? I think you have to change your previous idea about ways and knowledge of ways (that they are possibilities and that knowledge of them is knowledge of possibilities). From what you just said I gather that what you really want to argue for is that ways are "close" or "close enough" possibilities, possibilities that are more similar to the actual situation than not, at least in some respects.'[4]

Sea: 'No matter how you put it, a close possibility is a possibility, so this is not terribly troublesome for my proposal. Besides, there might be different ways for something to count as a way of the sort that's relevant to a task. When we look for ways that we can actually do things, we look close; when we are not concerned on their feasibility, we look further away.'

Her: 'That is fine, but it seems to me that in some cases close possibilities will never include cases where there is a way for us to do something. For example, we are now debating what is a way, and what not, and it seems to me quite clear that this takes us further away from the possibility that we manage to fold a paper crane. Surely, our assumption that there was a way for us to do that didn't take into account how closely possible it was for us to do that, since in absolute terms we don't know how far from doing it we are. In this case we are concerned with the feasibility of the task, but also we cannot look for close situations where we can do it. It seems like

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4   The modified possibilist view here can be called *Close Possibilism* (ways are close possibilities):
    Close Possibilism
         X is a way for S to Y iff it is a close possibility for S to Y by X-ing.
    A close cousin of the view is *Counterfactualism* (ways are possibilities that make true counterfactuals of the form 'if X were to happen, Y would follow'):
    Counterfactualism
         X is a way for S to Y iff if S X-ed, they would Y.
    Counterfactualism is probably the most common form of Possibilism, and it has been used in the analysis of several concepts with modal features. Thus, for example, Vihvelin (1996) argues that *ability* requires counterfactual success. Similarly, Hawley (2003) argues that *knowing how* requires counterfactual success: one cannot know how to ϕ unless one would succeed in ϕ-ing in counterfactual conditions.

we have to extend our gaze all the way to the limits of what we can imagine or judge.'

Sea: 'Again, that only requires some minor adjustments to the proposal. The task we are dealing with here requires that individuals like us, who are in a state of ignorance and are incapable of actually doing what they want (in our case, folding a paper crane), consider a very broad sphere of possibilities, as it were. But we can imagine that for individuals who knew more, and were more capable, those possibilities would form a narrower sphere. It is more demanding for us than for them, but we can think that there are ways for us to become like them, and to be in their situation.'

Her: 'What you are proposing is that we form our judgements about how we can do things on the basis of judgements about how certain proxies could do these things. And surely, I grant you that if there are such proxies, then we can know through them that we can do those things. But how are we supposed to know that there are? You need to show two things: that there are individuals who can do the things we aim to (to fold a paper crane, and so on), and that those individuals stand on a very specific relation to us: that there is a path of actions (a way!) that leads from our position to theirs. You broke down the problem in two instances of itself. Bravo!'

Sea: 'Well, I think it is clear that there *are* such proxies in our predicament. People *do* fold paper cranes–where else would *we* even get the idea to do it? And we know that if we knew what they knew, and if we had paper, we could fold paper cranes too. What we need to know ourselves is what they know about folding a paper crane. Using your way of putting it, we need a path to know what they know.'

Her: 'But this cannot be a general procedure for knowing ways to do things, for it is clear that not every thing one might want to do is something that someone else has already done.'

Sea: 'I think you fail to realize that these proxies can be imaginary.'

Her: 'Then the problem of the justification of our imaginings comes back.'

Sea: 'Sure. We want to imagine proxies that we have reasons to think could be real. But this is a problem that we have to deal with anyway, since it seems that in our situation we can only rely on the imagination and our capacities to reason. I mean, maybe the best we can arrive at isn't infallible knowledge that we can fold a paper crane in a certain way, but merely a reasonable estimate that we could fold it in such or such way. I dare to say that most of our knowledge of how to do things that we haven't tried is like this. We act on less than infallible knowledge, and maybe sometimes we act on something that is not knowledge at all.'

Her: 'Now you are lowering the stakes. I agree, to be fair, that it might be unreasonable to demand the justification for our judgements about how to do these things to be definitive. However, I don't think we should *start* by lowering the standards for justification even before we have any better idea about how to tackle the problem. Besides, I am not convinced we are going in the right direction in any case.'

Sea: 'And why is that?'

Her: 'I am not sure that the assumption of possibility is necessary for thinking of ways. First, because through our conversation I have been thinking a bit on how I think about how to do things ordinarily, and I don't think I ever explicitly reason about whether how to do those things is possible. Second, because I have been wondering if we couldn't come up with counterexamples to the idea that ways are possibilities.'

Sea: 'Oh, it would be interesting if there were counterexamples! Do you have any in mind?' the Sea replied, and before Herself could reply, continued 'First, I think I need to address your first worry, because I must admit I also had that impression when thinking about the case of looking out the window. If I think 'looking out the window is a way for me to see cars that pass by', I don't think I need to consider whether there are possibilities involved, or anything like that, and 'way-talk' or 'way-thought' (to give it a name) seems fairly independent of 'possibility-talk' or 'possibility-thought'–at least, it does not seem to be dependent on it in any special way (I can always use possibility-talk for any subject: I can talk of possible ways, or something that is possibly a way, but I can just as well talk about possible birds, or about something that is possibly a bird, and so on).'

Her: 'That is, more or less, my point.'

Sea: 'This is all superficial, though: the concept of a way may not be primitive. What I mean by this is that perhaps if we had an analysis of it, we would find that expressions that contain way-talk are made true by conditions that must be expressed in possibility-talk. So the fact that way-talk seems independent of possibility-talk does not show that ways are not conceptually or metaphysically dependent on possibilities, but on the contrary, it can be explained by the fact that it presupposes our understanding of what a possibility is. We don't need to be explicit about the relevant possibilities because they are assumed.'

Her: 'That would solve my issue, *if* we had an analysis of the concept of a way that we could agree on. You have shown that for some cases, there is an analysis for the concept (or maybe it is better to say that there is an account of the concept) that makes ways a type of possibilities. You haven't shown that the concept *must* be accounted for in that way.'

Sea: 'The burden is on you to show that there is any other possible account.'

Her: 'Actually, I only need to show that your account does not work. And I think I just came up with some cases that should be problematic for it.'

Sea: 'I would be delighted to hear it.'

Her: 'Let me start with something that your account should handle without problems.'

Sea: 'Go ahead.'

Her: 'Suppose that you wanted to prevent something; let's say, you have a friend who needs to travel somewhere, but is running a bit late. You would like them to avoid missing their trip, so you hurry them and drive them to the train station as quickly as you can, and you manage to arrive in time. I think we could say that that was a way for you to prevent your friend from missing their train, right?'

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Sea: 'Yes, absolutely.'

Her: 'Now, suppose that you (or someone else, it does not matter here) are a time traveller from the future, and it turns out that if your friend doesn't miss the train, you will never be born (a fact that you have no knowledge of or even suspect–you travelled to the past for reasons that have nothing to do with your friend, whom you met after you time-travelled). But you were born, so it is impossible for you to avoid your friend from missing their train.[5] Now, I think that even in this case we shouldn't say that hurrying your friend and driving them to the train station as quickly as possible is not a way for you to prevent them missing their trip. This is the gist of my first coun-terexample to your analysis of ways as possibilities.'

Sea: 'I'll need to think about this. Before I say anything else, would you be so kind as to tell me precisely why do you think we should say that there is a way for the time traveller to prevent her friend from missing her trip?'

Her: 'Wouldn't it be strange if the fact that there is a way for you to prevent your friend from missing the train depended on whether you are a time traveller from the future or not? The idea is that the situations that you end up in the ordinary case and in the time-travelling case are suffi-ciently similar that any reason to say that there is a way in the ordinary case is also a reason to say there is a way in the time-travelling case. Let me adjust the scenario so this is even more ob-vious. Suppose you have two friends who need to go to the train station. The way for you to take one can be the same as the way for you to take the other; let's say that it is. In the ordinary case it is clear that this way will exist, given certain prerequisites that we can simply stipulate. In the time-travelling case, this way should also exist if there is a way for you to take the friend, the one that your existence does *not* depend on, to the train station.'

Sea: 'Now I am less sure that your counterexample is genuine.'

Her: 'Why?'

Sea: 'In this variation of your thought experiment there is a way that is a possibility: not a possi-bility for me to take the friend I am dependent on to the train station, but a possibility for me to take the other friend to the train station. So instead of serving as a clear counterexample, it seems to me that it confuses the subject of our judgements; this is what happened before when we con-sidered the unicorn case.'

Her: 'It seems obvious to me that if there is a way for me to take any friend to the station, there will be a way for me to take the other to the station, though. What do you say to that?'

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5   This is a variation of the well known grandfather paradox. In Lewis (1976), an individual named Tim travels back in time and is put in a position to kill his own grandfather before his own father is conceived. Tim lives, so he couldn't have killed his grandfather in the sense that it is impossible that he kill him, yet seems *able* to kill him. Lewis explanation is that judgements about ability are context-sensitive in the sense that the relevant factors that one keeps fixed to evaluate whether one has an ability or not depend on the context. In the context of the thought experiment, the only relevant factors concern whether Tim has what it takes to kill his grandfather in the situation he is in. Contrast with Vihvelin (1996) who argues that there is no genuine sense of ability in which Tim is able to kill his grandfather.

Sea: 'That begs the question, since it means that the impossibility that I take my friend to the station is a possibility after all.'

Her: 'No, *that* begs the question in favor of the analysis of ways in terms of possibilities.'

Sea: 'I don't see a way to resolve this stalemate. Let's scratch the variation and focus on the original thought experiment, at least for now.'

Her: 'Fair enough.'

Sea: 'Earlier you said that it seemed to you that we have the same reasons to say that there is a way for you to take the friend to the station in the ordinary case and in the time-travelling one. We have stipulated that the circumstances are identical, and we are not assuming that anything changed in us other than our histories. So it seems that your proposal is that in two circumstances A and B, if the local circumstances (that is, excluding history) are sufficiently similar or identical, for every individual S in those circumstances, the ways for S to do something in A are ways for S to do the same in B, and vice versa.'

Her: 'I don't understand why you talk like a logician all of a sudden.'

Sea: 'Precision was needed.' Herself rolled her eyes.

Her: 'In any case, you are right about my proposal.'

Sea: 'I still think this is compatible with the idea that ways always relate to possibilities. A way for some S to do some X is a procedure that could lead do the satisfaction of X if S could do it. So you can say that there is a way for you to take your friend to the station in time, because if you could perform a certain procedure, you could take her to the station.'[6]

Her: 'I see the appeal of something along those lines. However, it won't work, because if performing the relevant procedure is impossible, it will trivially be true that there is a way for you to do something. For example, it is impossible for me to compress the moon to the size of a tennis ball. But if your proposal is right, that witnesses that there is a way for me to take my friend to the station, namely, compressing the moon. That can't be right, since compressing the moon seems completely irrelevant to whether I can take my friend to the station.'

Sea: 'Do you think that the conditional "if I could compress the moon, I could take my friend to the station" is true?'

Her: 'It is trivially true, if we assume that it is a material conditional with a false antecedent.'

Sea: 'Is it not, however, an irrelevant conditional? As you just said, we might want to rule out irrelevancies.'

Her: 'Are you suggesting we should treat it as false?' Before the Sea could answer, Herself con-

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6 *More* precisely, taking p(a,b) to mean "a performs b" and s(a) as 'the condition a is satisfied':
   Conditional Ways
   For any x, subject s and way y, y is a way for s to x iff $\Diamond p(s,y)$ and $\Diamond p(s,y) \rightarrow s(x)$
   The conditional here could be a counterfactual.

tinued: 'Wait a second. Before, you criticized the variant of the thought experiment because it was supposed to treat an impossibility as a possibility. Are you not doing the same thing here? What do you mean when you say "if you could…"?'

Sea: 'Oh! I see the problem. If I say 'If I could X' when actually I couldn't X, I'm implicitly taking out of the equation the fact that I couldn't X out of the equation, as it were. And then I am treating the impossibility as a possibility. I think this is what we do when we assume for the sake of argument something that we know is false. For example, in a *reductio* argument.'

Her: 'Exactly. In the context of a *reductio* argument that starts by assuming something we don't just reintroduce the negation of what we assume to produce a contradiction. We wait until we derive contradiction from the interaction of the assumption with other things, that we assume independently. So in the context of assuming something, we exclude its negation from the background of things that we keep fixed in order to reason on that assumption, and we avoid its explicit introduction. If I said "let's assume that we were in their position", and you replied "but we are not", your reply would be missing the point.'

Sea: 'Agreed. We cannot just say that when we introduce the assumption we presuppose that it is true. We can assume things that we know are false, as you just pointed out. Maybe that way of thinking about the connection between ways and possibilities is not the right one. But it doesn't mean that there is no connection between ways and possibilities.'

Her: 'If there is, it seems to be significantly weaker than you initially supposed.'

Sea: 'What about the problem of the irrelevancy of the conditional? Even if you don't want to say that ways are possibilities, you also don't want to say that irrelevant procedures can be ways for someone to do something. If you think there must be a connection between ways and possibilities, there is a simple criterion of irrelevancy: a procedure is irrelevant to doing something if it couldn't lead or contribute to doing it.'

Her: 'I think that will lead to problems: for example, oracles seem impossible. But a Turing machine plugged to an oracle would have procedures available that could be used to solve problems that a Turing machine couldn't solve, like the halting problem. Those procedures are not irrelevant to the solution of those problems just because they are impossible.'

Sea: 'But they are not impossible, are they? An oracle might be *physically* impossible, depending on how it is supposed to work, but it nevertheless seems perfectly possible *logically*.'

Her: 'That won't do, since you have already objected to the impossibility of cases which are not logically impossible. What was logically impossible about me taking my friend to the station? Yet you did not want to admit that there was a way to do it because it seemed to be physically impossible. It is even worse if you think that ways are close possibilities, because I don't know how you would claim that the existence of oracles is a close possibility. You can bounce around giving different criteria in each case, and you can justify doing that saying that the context determines how close the relevant possibilities are, and what kind of possibility has to be considered, but this constant retreat seems very suspicious.'

Sea: 'True, when it comes to identifying ways, the relevant possibilities depend on the context. I

think this is something that any account will have to accept. But I want to insist that only possibilities are relevant. This is what you wanted to reject, and I find the kind of examples that you have presented so far unconvincing, to say the least. Time travel and oracles are too exotic, and I don't think we can fully trust our intuitions about exotic cases. Do you have other supposed counterexamples?'

Her: 'As a matter of fact, I do. But just to avoid unnecessary disputes, let me ask you some things first. Do you think that it is possible for a world to be fully deterministic, that is, that the state of things at any point in the worlds' history is determined by the initial state of the world and the laws that govern the world?'

Sea: 'I think so; for all I know, the actual world might be fully deterministic.'

Her: 'Alright, then. Here's the case: suppose that in a fully deterministic world, it is possible to know the laws that govern that world, and its initial state. Indeed, many individuals in this world *do* know the conjunction of the laws and the initial state of the world. Let's call this conjunction S. Now, suppose that there is an individual who is exactly like those individuals in terms of cognitive setup and who has proven cognitive competence to the same degree as any of their peers. Because of lack of opportunity, this individual has not learned S, and never will. Because the world is fully deterministic, there is no possibility where this individual learns S: in any world where he learns the initial state of the world and the laws that govern it, he learns something different from S. Now, it seems to me that even in this case, there are ways for this individual to learn S, namely, the same ways, broadly speaking, in which the individuals who did learn S learned S.'[7]

Sea: 'This is intriguing, I admit. Nevertheless, I still find the case somewhat exotic. You are asking me to suppose, not only that the relevant world is fully deterministic, but that in that world it is possible to learn something like S.'

Her: 'It is true that sustaining that assumption is not trivial, but I don't see the problem with thinking something along these lines: the set of laws in this world could be simple, and the information about the initial state of the world could be much easier to come by than in our world. The fact that the world is fully deterministic seems to even facilitate something like this. I don't see how this would prevent the possibility of knowledge of the laws and the initial state of the world. On the contrary.'

Sea: 'But determinism is compatible with the both possibilities that the worlds are simple or that they are complex. I don't know how you could argue that a deterministic world has to be simpler than an nondeterministic one. Imagine a fully deterministic world that looked nondeterministic,

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7   This example is a variation on a case from Spencer (2017). Spencer uses this setup to argue that it is possible to be able to do the impossible: while it is impossible for the individual in this situation to learn S, he is nonetheless able to do it. What is the connection between abilities and ways? At least the following seems plausible:
  AW
     For some S to have an ability to X, there must be a way for S to X.
  This suggests that if one rejects that abilities require possibility, one must also reject that ways require possibility (for if there could be abilities that didn't depend on possibilities, they couldn't satisfy AW if abilities depended on ways which were possibilities). A different set of questions concerns the relation between ways and abilities: is the existence of ways is sufficient for the existence of abilities?

but only to a certain approximation. I would expect the laws of a world like that to be complex, not simple.'

Her: 'Fair enough. Still, my point stands. It is not necessary that a fully deterministic world forbids knowledge of its laws and initial state. This is all you need to grant.'

Sea: 'Fine, I will grant you the possibility.'

Her: 'So, do you think there is a way for this individual to learn S?'

Sea: 'You seem fairly certain that there is. I am not so sure. Isn't the case analogous to the second variant of your thought experiment about taking your friend to the station? It seems to me that one may judge that there is a way for this individual to learn S because one can judge that there is a way for his peers in that world to learn S. So once again, you are pumping intuitions from a part of the case to a different part.'

Her: 'I don't think so. To push an analogy: ways are like roads, like this road we are walking on now, and they exist more or less independently of the people who walk through them. Roads exist because people make them, but they make them in the places that they do because going there is a way for someone to arrive at some destination further ahead. The way would exist whether people walk it or not.'

Sea: 'I don't see why we need to ascribe so much *reality* to ways. Maybe ways are just abstractions that people use to indicate possible courses of action. Perhaps in some cases people are justified to say that there are ways for people to do things that they cannot do. But they are justified because it is possible for people to do those things. And when I say people, I don't mean anyone in particular.'

Her: 'So your proposal is that we might be justified in saying that there is a way for the individual in the thought experiment to learn S because we are justified in thinking that it is possible for somebody who is similar to that individual to learn S?'[8]

Sea: 'Yes. I think that implicitly you are reasoning inductively, precisely in this way. I am not saying you are not justified, but I think you are actually thinking of ways in terms of certain possibilities.'[9]

Her: 'I don't think so. I am quite certain that my judgment is about the individual, not about his peers. *He* is in a certain way that allows that there is a way *for him* to learn S. That this is the way in which his peers also could learn S is besides the point. But because it is impossible for this in-

8 To this epistemic theory corresponds a distinct metaphysical version of Possibilism:
   Counterpart Possibilism
       X is a way for S to Y iff there is a set Σ of counterparts to S, for whom it is possible to Y by X-ing.
   Note that Σ does not need to include all counterparts to S.
9 Roca-Royes (2017) suggests something like this as a source of justification for judgements about *de re* possibility of concrete entities. In her proposal, our main source of knowledge of possibility is via the inference from actuality to possibility. We know that glasses can break because they have broken. When it comes to particular cases of unrealized possibilities, we draw inductively from the possibilities that we know from similar cases. Thus, for example, I know that the glass of water in my desk can break because I know that similar glasses *have* broken.

dividual to learn S, my judgment about him is not directly about possibilities.'

Sea: 'As long as the story about attributing ways inductively is available, you cannot simply dismiss the idea that ways are possibilities.'

Her: 'Are you really sure that story will always be available?'

Sea: 'I don't see why it shouldn't be.'

Her: 'Well, here's a counterexample to that: suppose that the individual who fails to learn S is entirely exceptional, so that he doesn't have any peers in terms of his cognitive capacities. After all, it is very implausible (as you yourself suggested) that S is something that can be very widely known, *contra* the presupposition of your previous example. Even in that scenario, someone must have learned S at some point, and it seems contingent whether anyone else learns it. Now we can imagine that the individual in question is about to learn S, but fails for some ordinary reason (they run out of resources, or have an accident, or something of the sort). Now, at least in some cases like this, it is plausible to think that there are ways for this individual to learn S, although it is impossible for them to do so.'[10]

Sea: 'Hm… Your point is that in this case there are no available counterparts, I take it? Couldn't you just say that the relevant individuals' possibilities that support your judgment are more dissimilar than the possibilities that support it in the previous case?'

Her: 'But if the relevant individuals are so dissimilar, why even think that there is a way for them to learn S? Maybe an exceptional individual like the one we imagine in this case also fails to be able to do ordinary things, like riding a bike, which other individuals in that world might be able to do, but that doesn't mean that for every thing that they fail to do there will be someone who will succeed. Certainly, that is implausible in the case of learning S. Besides, if we are willing to enlarge the pool of candidates for the inductive basis, we have to have some criterion for deciding how large the pool should be. This is the same problem as before: mere possibility is not sufficient, even for your standards.'

Sea: 'To the last point I would answer that in some cases mere possibility is sufficient; that will depend on the features of the case at hand. However, I don't see how to solve the first problem.'

Her: 'So we have genuine counterexamples to the idea that ways depend on possibilities.'

Sea: 'Not so fast. What if, instead of reasoning inductively from what ways are available for certain individuals, we reason from ways that are available from certain procedures?'

Her: 'What do you mean?'

Sea: 'Essentially, before I was thinking about counterpart individuals: there are ways for someone to do some X because it is possible for them or someone else to do something in a way that leads to X. Now I am thinking about counterpart procedures: there is a way for someone to some X because there is some possible procedure that would lead to X, whether it is available for the

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10 This case is also derived from Spencer (2017).

relevant individual or not.'[11]

Her: 'I see. That should be able to handle my last counterexample, if there were procedures that could handle the task, because then we could just reason inductively from the procedures that this exceptional individual has been able to execute.'

Sea: 'That's the idea. For example, maybe this individual fails to learn S because they fail to learn a part of whatever S consists of. Of all the laws of nature, they haven't learned one, or they haven't learned part of the initial state of the world. Since they learned the rest, we could reason inductively that there is a way for them to learn S in its entirety.'

Her: 'Actually, maybe we can even construct the way from the procedures that they have performed. We can think of a procedure as a sequence of actions. If you perform an action after having performed a procedure, you have performed a procedure that consists of the first procedure *and* the action. If you have reasons to think that you can construct the full procedure, then you can reason inductively from your knowledge that there are ways to do procedures which would be parts of the full procedure to the judgment that there is a way to do it.'[12]

Sea: 'You don't even have to think that the possibility to construct a procedure entails that there is a way to which it corresponds. Since the procedure cannot be performed, its performance is not a possibility, and thus not a way.'

Her: 'Surely, the possibility to construct a procedure does not entail that the procedure is possible. But I would argue that if you can construct the procedure there is a corresponding way, at

11 Contrast to David-Hillel Ruben's (2018, 137–139) conditional account of *trying*. According to this, one tries to F in a circumstance c if (i) if it is metaphysically possible to do actions of type F, then in the closest possible worlds where one is able to F, has the opportunity to F, knows how to F and is not prevented from F-ing, one Fs, or (ii) if it is metaphysically impossible to do actions of type F, but it is metaphysically possible to do a range of actions that one believes to be ways to F, and one does (or tries to do) some of those actions (Ruben's condition is slightly more complicated, but this paraphrase captures the general gist). A crucial difference between Ruben's approach and the Sea's proposal is that Ruben requires that one believes that the counterpart procedures are believed to be ways some X, where the Sea's proposal does not require it; indeed, it is compatible with one believing that the counterpart ways are *not* ways to X.

12 Treat procedures as types. Define a procedure A as a part of another procedure B iff every procedure-instance distinct (disjoint, not non-identical) from any procedure-instance of B is also distinct from any procedure-instance of A (cf. Lewis (1991, 72)). The relevant 'part-of' relation is transitive, antisymmetric and reflexive. This allows a procedure to be a part of itself, which can be useful to account for recursive procedures.
The principle that Herself appeals to is
PW
    If there is a way that corresponds to a procedure P which is a partial procedure of a procedure P*, there is a way that corresponds to procedure P*.
In an epistemic key:
PWK
    One is justified in believing that there is a way to ϕ in so far as one is justified in believing that there is way to partially ϕ.
For example, one might imagine some procedure that one has reason to believe is part of a procedure to ϕ, and thereby have justification that there is a way to ϕ. Some complications are needed here because, as it it pointed out later by the Sea and Herself, not all parts of procedures and knowledge of these parts might appear to be sufficient for the existence of ways and for knowledge of the existence of ways.

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least in some cases. So I don't think this necessarily leads in the direction of your idea that ways are possibilities. As you said before, maybe our talk of ways is just an abstraction, and what we care about is whether it might be reasonable to try to do something in a certain way, that is, along certain lines. At the end of the day, we don't care about ways as much as in succeeding to do whatever we want to do, and since we are not omniscient, we act on guesses and hypotheses often. Or maybe what matters isn't so much the possibility or impossibility, but in some sense the *procedural* structure.'

Sea: 'Whether it is reasonable to try to do something seems to require deciding first whether there is a way to do it. How else are we supposed to know whether it is reasonable or not to try? We might be in a situation where we know that we *have* to do something, but where we do not know whether doing it in any way is reasonable.'

Her: 'Fair enough. We cannot account for whether something is a way to do something in terms of whether it is reasonable to do try to do it. In any case, I think there might still be problems with the idea of referring to counterpart procedures.'

Sea: 'And what are those?'

Her: 'I just think the account cannot be generalized. Surely, there are many procedures that, even though they can be constructed from possible procedures, are impossible. I already said that this doesn't necessarily mean that there are no ways that correspond to those procedures. Now, however, I'm thinking that not all of those 'partial' procedures can provide an adequate inductive base for judging that there is a way. Or maybe we don't even need to say that the induction is not adequate, but that it nonetheless the judgment that there is a way is not well-supported. Not enough for claiming that there is a way. So the problem isn't that you end up *under*-generating ways; on the contrary, you might end up *over*-generating them.'

Sea: 'Do you have an example of this?'

Her: 'Yes. Well, *maybe*. I'll have to be somewhat schematic, I hope you won't mind.'

Sea: 'That is fine.'

Her: 'We had assumed that procedures are sequences of actions, so that you can build complex procedures out of simpler ones, and that any sequence of actions can compose a procedure. But this last point is not obviously true. Suppose that doing something, call it X, requires a long series of steps. Once you take the last action in that series of steps, the thing is done. But if you skip some intermediate steps, performing that action would not have the same result. Indeed, it could result in something that could prevent reaching the wanted result in any other way–for example, it might not be possible to try again. Now, the procedure that misses steps is a possible procedure. Applying the inductive procedure that you proposed, we could say that it gives inductive support for the thought that there is a way to X. But intuitively, I think this rather suggests that there is no way to do X, not that there is a way to X. So I don't think you would be entitled to say that there is a way, at least not for these reasons.'

Sea: 'This is similar to what we said at the beginning of our conversation, about how come we have justification that there is a way to do something if our tries have failed.'

Her: 'Exactly. The kind of reasoning is the same. And the problem generalizes: if not all partial procedures allow inductive inferences that there are ways to do things, what kinds of partial procedures can work? How do we decide? I can run 10, 20, and 100 meters without stopping well enough, but is there a way for me to run 100 kilometres without stopping? Maybe there has to be a good enough ratio of potentially successful procedures vs potentially failed ones, but that only seems to defer the issue further.'

Sea: 'Put in those terms, the problem isn't with the *kind* of solution, but with the vagueness of the criteria for saying that there is a way. And the first problem you raised about the procedure missing steps is importantly different from the case or running: in the first the procedure fails. I think that would immediately discount that procedure as even a partial way to do X, so I don't think it should even belong in the inductive base for our judgment that there is a way. This is not the case with the second class of examples. In any case, I just realized there might be a different way to base the induction.'

Her: 'And what is it?'

Sea: 'Let's go back to the case of the exceptional individual who fails to learn the initial state of its world and the laws that govern its world, the conjunction that we called S. If they learned S, they presumably would have learned it either by either deductive reasoning, or inductively, or empirically, and so on. Those are *generic* ways for him to learn anything. We might be in a position that there is a way for them to learn S if we know that it is possible for them to learn anything in those ways.'

Her: 'But wouldn't that mean that if we knew that they could learn something through some of those means, there would be a way for them to learn anything that could be learned in any of those ways? And if those means exhausted all the ways in which anyone could learn anything, wouldn't that mean that there is a way for them to learn anything that there is to be learned? Don't you find that odd?'[13]

Sea: 'Hm… I think in this case the problem of over-generation of ways really becomes prominent.'

Her: 'Yes! It wouldn't only grant you possible omniscience, but also possible omnipotence! For if there was a possibility for someone to *do* any *particular* action, there would be a way for them to do anything *at all*.'

Sea: 'I am at a loss, then.'

Her: 'I don't see other adjustments that you could make to your account, so that it doesn't fall into these problems. I am not going to claim that there is no way to do it…' Herself smirked.

Sea (groaning at the pun): 'And what is *your* proposal, then?'

Her: 'I'm not sure, but I think we could take some parts of what we discussed and come up with

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13 Worse: if the possibilist argues that if there is a way for someone to do something, then there is a possibility for them to do it, it then follows that it is possible for anybody to learn anything that can be learned. While this does not amount to full omniscience, some might find possible omniscience similarly implausible.

a different solution. Something you just said suggests that we might not disagree on the most fundamental things.'

Sea: 'Something I said?'

Her: 'Yes. When you described the case of the exceptional individual again, you said something that caught my attention. You said "if they learned S, they presumably would have learned it either by either deductive reasoning, or inductively, or empirically, and so on." The antecedent of that conditional is impossible, as we have agreed, and yet you seem to think that it is true in a way that would exclude other conditionals like "if they learned S, they would have learned it by looking at that wall really intently", or "if they learned S, they would have learned it by pushing a button". Am I right?'

Sea: 'I must admit I am more willing to claim the first conditional.'

Her: 'But all of those conditionals have impossible antecedents! Typically, that means that we should treat them all as vacuously true. So how do you distinguish between them?'

Sea: 'I hadn't considered this.'

Her: 'Well, my proposal is to take that kind of inclination to distinguish between counterfactuals with impossible antecedents seriously. And that means to distinguish between impossibilities. So, instead of trying to clarify the idea of a way in terms of possibilities, we should clarify them in terms of both possibilities and impossibilities. When we worry about actual ways, we limit ourselves to possibilities. But in other cases, like in the examples I gave, it might be simpler to extend our notion to handle the impossibilities as if they were possibilities.'

Sea: 'So basically your proposal is the same as some variation of one of mine, but dropping the condition that we are only dealing with possibilities.'

Her: 'Pretty much.'[14]

Sea: 'But impossibilities are not as easy to deal with as possibilities, are they? How to make sense of the idea that we can distinguish impossibilities? Concretely, I mean.'

Her: 'I don't know. But it seems like we are forced to go in a direction like this, if we are to handle all the problem cases we raised when we tried to make sense of the notion of a way. And independently, the inclination to make judgements like the one you expressed about how the exceptional individual would learn S has to be accounted *somehow*.'[15]

☾

They had gone down a path through a valley covered in aspen trees. In a bend of the road there

14 Herself proposes what we might call *Impossibilism* about ways. In particular, we might want to ascribe her with a version of Impossibilism that makes the existence of ways dependent on the truth of counterfactuals, which are to be evaluated in a way that allows for their truth-value to differ in the case where the antecedent is impossible (*contra* what can be called the orthodoxy about counterfactuals). We might call this *Counterfactual Impossibilism*. Nolan (1997) and Berto et al (2018), among many others, offer examples of theories of counterfactuals that allow for this.

15 On whether there is objectual quantification over ways, see Yablo (1996).

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was a thistle, and she taught them how to make a paper crane. As they thanked her, she drew a symbol in the ground, and a bright violet light appeared in front of her. She held her hand out to touch it, and disappeared as the light was cast in radiant white against the trees. The face of the Sea Herself then turned dark and full of stars, blending with the night.

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