Ability's Two Dimensions of Robustness

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The actions of able agents are often reliably successful. I argue that their success may be modally robust along two dimensions. The first dimension helps distinguish the exercise of abilities, which requires *local control*, from lucky success. The second concerns the *global availability* of acts: agents with the ability to φ can φ across a variety of circumstances. I introduce a framework that captures the two dimensions and their interaction, and show how it bears on a disagreement about the modal force the robustness of ability requires: while *local control* involves a kind of local necessity, *global availability* does not.

I

Robust Abilities. If I, a novice, happen to solve a Rubik's cube while blindfolded and balancing on one leg, there is a sense in which I was able to do so. Following Mele (2002), I will call this a 'simple ability'. There is also another sense of ability, for which success once is insufficient. When we attribute the ability to read Urdu or play the saxophone to someone, we take such abilities to be robust. We don't just mean that it is possible for the agent to perform these acts, but that they can do so reliably. This paper concerns ability in the second sense. I will argue that there are two dimensions along which abilities can be modally robust.

Truth conditions for robust ability commonly appeal to the agent's modal success rate. If an agent *S* has the ability to φ, the idea is that she will φ successfully across a range of possible scenarios. Which scenarios are relevant and in which proportion of them *S* must φ successfully is controversial. I propose that it depends on the sense of robust ability we're after. To explain why, it will be helpful to first introduce a widely accepted distinction between 'general' and 'specific' abilities. Whittle (2010, p. 2) describes the distinction as one between 'what an agent can do in a large range of circumstances' and 'what she is able to do now, in particular circumstances'. Thus, a pianist may have the general ability to play *Clair de Lune* but lack the specific ability now that she's injured. Jaster (2020, p. 114) adds that while success in a single scenario might be sufficient for specific ability, it is never sufficient for general ability. This might be thought to imply that abilities are robust along a single dimension: the more

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general the ability, the higher the agent's success rate across relevant scenarios. However, as Kittle (2015) points out, we ought to demarcate two interpretations of the general–specific distinction. First, we may contrast what an agent can do as things stand (specific ability$_1$) with what an agent can do in hypothetical scenarios, but not actually (general ability$_1$). Second, we may differentiate between abilities to perform some act across a narrow set of circumstances (specific$_2$) and abilities to perform that act across a wider set of circumstances (general$_2$). For instance, someone may lack the rather specific$_2$ ability to speak-Spanish-just-after-reading-French but have the more general$_2$ ability to speak Spanish. These issues are orthogonal: abilities to act as things stand (specific$_1$) may be abilities to act across a rather wide range of circumstances (general$_2$).

We have arrived at a picture that allows for two ways in which one agent can be more able than another. Imagine two surgeons, *A* and *B*. *A* is, in general, more reliably successful when performing operation *O*. She is in this sense more able than her colleague. But *B* has a higher success rate across a narrower set of scenarios, namely, when operating on patients of type *T*. There is thus also a sense in which surgeon *B* is more able. Despite this, the current picture does not yet clearly support the claim that abilities can be robust along two dimensions. While, on this view, the relevant set of scenarios to assess the agent's success rate depends on the sense of ability we're after, the modal structure of robust abilities is always the same: a higher degree of ability corresponds to a higher success rate across relevant scenarios. In what follows, I argue that this picture runs into trouble when we consider not just what it takes to *have* an ability, but also what it takes to *exercise* it. The exercise of an ability involves a structurally different type of robustness from that discussed so far.

II

Ability Exercise and Close Risk. Success-rate views of ability exercise (Carter 2021) and related phenomena such as skilful performance[1] (Beddor and Pavese 2020) and achievement (Von Kriegstein,

[1] I understand skilful performances as a subset of all exercises of ability, with a shared modal structure.

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2019) aim to capture an important distinction between instances of φ-ing the agent can be credited for and those that are lucky. The accounts mentioned share the idea that truth conditions for ability exercise (or achievement, or skilful performance[2]) involve some modal anti-luck condition: if an instance of φ-ing is an exercise of ability, the agent would succeed across nearby scenarios too. Some have noted an analogy between the robustness of ability exercise and the safety condition in epistemology. Safety is often considered a necessary condition for knowledge: *S* knows that *P* only if her belief that *P* is not just actually true, but true across nearby worlds where she forms the same belief as well. Since the structure of safety has received significant attention, a closer look at this notion can provide insight into the structure of ability exercise.

Of particular interest is Williamson's (2009) discussion of small-risk and no-risk conceptions of safety. On the small-risk conception, a belief is safe only if it is true in a high proportion of nearby worlds where the agent believes it. On the no-risk conception, the belief must be true in *all* nearby worlds where the agent holds it. Prima facie, the no-risk conception is very demanding. But on the small-risk conception, even if *P* is true in a high proportion of nearby worlds, there might be an extremely nearby world where *S* believes falsely. The problem is that 'many acceptably small risks of error can add up to an unacceptably large one' (Williamson 2009, p. 3). Consequently, on the small-risk conception, knowledge doesn't add up: *S* may know some set of propositions without knowing their conjunction.

To illustrate, consider an acrobat walking on a tightrope:

(1) *S* safely believes she won't fall at L_1.
(2) *S* safely believes she won't fall at L_2.
(3) *S* safely believes she won't fall at L_n.

(C) *S* safely believes she won't fall.

On the small-risk conception, *S*'s belief that she won't fall at a particular location L_i is safe even if in a small proportion of nearby worlds where she forms that belief she falls. But if *S* is at a small risk of falling at many different locations, the conclusion that she is only at a

[2] Hereafter I mention 'ability exercise' only, and trust the reader to keep in mind that some of the accounts mentioned concern related phenomena instead.

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small risk altogether doesn't follow. Her belief that she will not fall at all need not be safe. Intuitively, however, if one safely believes (or knows) some set of premisses, and competently deduces their conclusion, then one safely believes (or knows) that conclusion. In response to, on the one hand, the finding that small-risk safety violates this principle, and on the other, the observation that no-risk safety is too demanding, Williamson adopts a 'no-close-risk' conception of safety: a belief is safe only if it is true in *all very nearest* worlds where *S* holds it. This view is less demanding than no-risk safety, and unlike small-risk safety, ensures that safe belief distributes over conjunction.

Let's return to ability exercise. I propose that a similar argument applies: a no-risk conception, on which *S* must successfully φ in *all* nearby worlds to have exercised her ability to φ is very demanding. But a small-risk conception, which only requires success in a high proportion of nearby worlds, causes trouble for complex abilities: abilities that can only be manifested by exercising a range of simpler abilities. Consider a translator who exercises her ability to translate each sentence of a text:

(1) *T* exercises her ability to translate S_1.
(2) *T* exercises her ability to translate S_2.
(3) *T* exercises her ability to translate S_n.

(C) *T* exercises her ability to translate the text (consisting of S_1–S_n).

On a small-risk conception, exercising the ability to translate every sentence doesn't entail exercising the ability to translate the entire text. Small risks of failure to correctly translate each individual sentence may add up to a large risk of failure altogether. If there are many nearby worlds where the agent makes a mistake, her correct translation of the entire text becomes too lucky to be an exercise of ability. We thus have good reason to think that, like safety, the robustness involved in ability exercise behaves like a kind of local necessity, at least across the *very nearest* scenarios.

This conclusion reveals an interesting tension. As detailed in §1, ability possession is commonly thought to require success across some proportion of relevant scenarios. But §11 shows that proportionality views of ability exercise are problematic: for an act to be an exercise of ability, the agent must succeed robustly across all very nearest scenarios. Moreover, if one accepts the plausible principle

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that having a specific$_1$ ability entails that exercising that ability is accessible to the agent, it follows that the proportionality view can't be correct when it comes to specific$_1$ ability either. After all, it doesn't follow from an agent's successful φ-ing across a high proportion of relevant worlds that any of those instances of φ-ing are robustly successful across all very nearest worlds.

III

Two Dimensions. To resolve this tension, I propose to distinguish two types of robustness: one to capture the agent's *local control* over the performance of an act, another to represent the act's *global availability*. As indicated in figure 1 below, representing these types of robustness along two dimensions provides us with four kinds of ability attributions.

The first ($\Diamond\varphi$) captures that φ-ing is accessible to an agent. Plausibly, several interpretations of accessibility are compatible with the idea that abilities can be robust along two dimensions. It should thus suffice for now to specify a rough, pre-theoretical notion of accessibility that is compatible with multiple accounts. I suggest we understand accessibility along the following lines: accessible acts are (at least) those an agent ends up performing or can objectively choose to perform. If someone cycles to work, then earlier, when she decided between cycling or taking the bus, cycling must have been accessible.[3]

Not every accessible act is under the agent's *local control*. Consider agent *S*, who rolls a six with a fair die: a paradigm example of luck. According to the rough definition outlined above, if *S* succeeds in its performance, that act was accessible to her. This is sufficient to attribute an ability of the first kind ($\Diamond\varphi$), but not of the second ($\Diamond\mathbf{R}\varphi$). The latter captures that it is an option[4] for *S* to exercise her ability to φ. The **R**-operator behaves, in accordance with the argument presented in §II, as a kind of local necessity. For an agent to have *local control* over the performance of an act, it must be an

[3] This assumption is not uncontested, but features in several recent accounts (see Mandelkern, Schultheis and Boylan 2017; Maier 2018; Boylan forthcoming).

[4] Following Maier (2018), I use 'option' as a term of art, synonymous with 'accessible act'.

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option for her to φ such that her success is robust across all very nearest scenarios.[5] The more distant the nearest scenario in which the agent fails, the higher her degree of *local control*.

That brings us to the second dimension. The third kind of attribution ($Gen\Diamond\varphi$), read as 'generally has the option to φ', captures an act's *global availability*. The more generally an agent has the option to φ, the more globally available the act is. To illustrate when *local control* and *global availability* come apart, consider a learning driver who parks a car at time *t* with *local control*. She has the option to park in such a way that in all very nearest scenarios, where circumstances differ just slightly, she'd succeed. Yet parking may not be an option for her across a wide range of circumstances: it's not very *globally available*.[6] It is important to note that while having *local control* entails that the act is at least somewhat *globally available* to the agent, it does not follow from an act being *globally available* that the agent ever has *local control* over its performance.

To see this, let us turn to the fourth kind of attribution, $Gen\Diamond\mathbf{R}\varphi$. This attribution combines both types of robustness to capture that an agent generally has the option to exercise her ability. Note that an act φ may be *globally available* to an agent, without her successful performances being robust across all very nearest worlds. Rolling a number lower than six with a fair die, for instance, is *globally available* to me: the odds that I succeed are generally pretty good, and so the act is accessible across a variety of scenarios. But that doesn't mean that I can generally (or ever) exercise the ability to roll numbers lower than six. This would require more than lucky success with good odds.

[5] Brown (1988) and Horty and Belnap (1995) have defended structurally similar views of ability. A common objection to these views is that having an ability isn't a guarantee of success: even agents with the ability to φ sometimes fail (Maier 2018). My view supports a two-pronged response to this objection. First, the framework individuates another sense of ability that is clearly compatible with the agent's failing to φ as things stand. Second, my view is less demanding than Brown's, which requires that the agent φs successfully in all scenarios where she performs some other act *A*. On my view, the agent's success must be robust only across the very nearest scenarios (qualified further in §IV).

[6] One may now recall Kittle's (2015) distinction between general$_2$ and specific$_2$ abilities, and note that the learner driver *does* have a high success rate across a narrow range of circumstances. Although global availability is not relative to a range of scenarios in the way success rates are, we may incorporate Kittle's insight as follows: the act of parking is not very globally available, but the more narrowly individuated act of parking-in-circumstances-C is more globally available to her than to others. It isn't more globally available than the act of parking *simpliciter*, however, since, per definition, more narrowly defined acts are accessible across a smaller set of scenarios.

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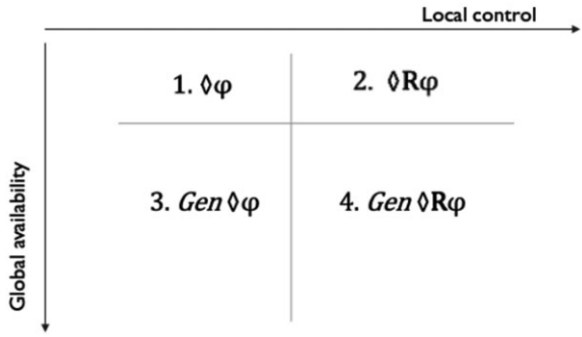

Figure 1. *Two Dimensions of Robustness.*

IV

A Challenge. Some argue that whether someone has exercised an ability is not a matter of whether she succeeds robustly, but of whether the successful performance 'manifests' an ability (Sosa 2007, 2015; Broncano-Berrocal 2018), or is explained by ability (Greco 2009). If one of these alternative views is correct, modal robustness might not be a necessary condition for ability exercise. The horizontal dimension introduced in figure 1 would then be superfluous. This view is usually supported by cases like the following (adapted from Pritchard 2009, p. 26):

> Artemis, practising her archery skills, aims at a target and hits it. Unbeknownst to Artemis, Apollo holds a grudge against his sister and has used his divine powers to bewitch all other practice targets. Whenever an arrow comes near a bewitched target, a force field protects it from being hit.

The case is supposed to elicit the intuition that ability exercise is compatible with environmental luck. Even though Artemis finds herself in a modally inhospitable environment, her successful performance is a manifestation of her archery ability.

In response, note that the judgement that Artemis's success isn't robust rests on an assumption about what the nearest worlds are. The assumption is that they are those in which she aims at other targets in the same unusual environment. Consequently, she could easily have failed. But what exactly makes a world a near world? One proposal is that the nearest worlds are those that are overall most

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similar to actuality. However, it is not straightforward how to spell out what makes one world more similar than another independent of one's aim of enquiry. An alternative proposal that has gained traction in the literature on knowledge (Littlejohn and Dutant 2020; Goldstein and Hawthorne forthcoming) and skilful performance (Beddor and Pavese 2020) is that the nearest worlds are those that are 'normal' in certain respects. This looks exactly right when it comes to abilities.

If we want to know whether someone is able to hit fastballs, Greco (2007, p. 60) explains, it doesn't count against their ability if they cannot do so in the dark, or with sand in their eyes. What matters is that they succeed in circumstances that are normal for the performance of the task. Some agents can exercise their abilities in relatively abnormal circumstances: while John has the ability to swim a mile, Jane has the ability to swim a mile in very cold water. The question now is which possibilities matter when assessing whether an act performed in rather abnormal circumstances is an exercise of ability. Surely, when considering Jane's exercise of the ability to swim in very cold water, it doesn't matter whether she would still succeed if there were also extremely high waves.

Following Beddor and Pavese, I conclude that the nearest worlds in the context of ability exercise are those that are at least as normal as actuality with respect to the performance of the task under consideration. It follows that Artemis hasn't exercised her ability to hit-targets-in-bewitched-environments. Within bewitched environments, there are scenarios at least as normal as actuality where she would fail to hit the target. But she has exercised another ability, namely, the ability to hit targets *simpliciter*. The relevant worlds to assess the exercise of *that* ability are those in which she aims at non-bewitched targets (such as the one she hits). Given her divine skill as an archer, we should expect that her success is robust across those worlds. In sum, the case doesn't demonstrate that Artemis's success isn't robust (and that robustness isn't a necessary condition for ability exercise) without further qualification. It depends on the ability under consideration.

V

Conclusion. When we attribute an ability to someone, we express that they are, in some sense, reliable. Sometimes the reliability we

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care about concerns the extent to which someone keeps risk at bay when exercising their ability; at other times we're interested in how someone manages variant circumstances. The two-dimensional framework I have presented captures both in terms of the agent's modal success rate.[7]

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