

DE RE MODALITY

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The study of *de re* modality is concerned with facts about the modal profiles of individuals—facts about what could have been true of them and what could not have failed to be true of them—and with the roles of individuals in the theory of possible worlds. What follows is a selective overview of issues that arise in this part of the philosophy of modality.

1. Conceptualist skepticism about *de re* modality

Some philosophers have doubted that it makes sense to talk about the modal profiles of individuals. One of the best-known sources of such skepticism is a view about modality that we may call “conceptualism.” Roughly speaking, conceptualists maintain that all modal facts in some sense ultimately derive from features of our concepts, or of the descriptions we use to single out the things we talk about, or from our rules for describing reality. This view was supposed to contrast with “essentialism,” the thesis that modal facts about an object sometimes derive from the fact that the object is more firmly tied to some of its features (those that are “essential” to it) than to others (the “accidental” ones), where this difference is unrelated to our concepts or descriptive practices. Although the distinction between the two views is impressionistic, it has been influential in philosophical thinking about *de re* modality.

Conceptualists sometimes equated—some would say “confused”—necessity with analytic or conceptual truth. This view made it natural to think that, if a sentence of the form

(1) If a exists, then a is P

(where “ a ” picks out a specific individual) expresses a necessary truth, then that must be so because some definite description d is part of the meaning of “ a ,” such that \ulcorner If d exists, then d is P \urcorner is a conceptual or analytic truth. On such a view, all necessary truths of the form (1) must be like the following sentence (the conditional scopes over both occurrences of the definite description):

(2) If the bachelor next door exists, then the bachelor next door is unmarried.

Now, the descriptions “the bachelor next door” and “the carpenter next door” might both pick out the same person. Yet, even if (2) is an analytic or conceptual truth, the same is clearly not true of “If the carpenter next door exists, then the carpenter next door is unmarried.” From a conceptualist perspective, it might therefore seem as if we could make no sense of the idea that it is true or false of the person himself, independently of how we describe him, that he is necessarily such that, if he exists, he is unmarried. Necessary connections can hold between concepts, contents, and expressions, but not between individuals and specific properties they have or conditions they satisfy. Quine (1953) concluded from considerations along these lines that quantification into modal contexts, as in (3), was dubious.

(3) $\exists x \Box (\text{If } x \text{ exists, then } x \text{ is human})$

The truth of (3) would require that the open sentence “ $\Box x$ is human” be true under some assignment of an object to the variable “ x .” But it makes no sense to say that this open sentence is true under such an assignment, since a variable under an assignment is not associated with any specific description that picks out the object assigned to it. To make sense of it, so it seemed, we would need to be able to draw an intelligible distinction between the essential and the accidental properties of an object, so that we could ask whether there is an object that is essentially human. But that is anathema to the conceptualist.

Conceptualism stands in an old tradition that encompasses such famed moments in the history of philosophy as the Humean denial of necessary connections in the objects and Wittgenstein’s dictum that “essence is expressed in grammar” (Wittgenstein 1953: sect. 371.) However, the philosophical mood shifted against this position under the influence of work on quantified modal logic and its philosophical foundations (Barcan 1947; Kripke 1963) and the development of the theory of direct reference. In *Naming and Necessity* (Kripke 1980), Kripke presented influential arguments for the view that some claims like (4) and (5) are necessary.

(4) If Socrates exists, then Socrates is a child of Phaenarete and Sophroniscus.

(5) If Socrates exists, then Socrates is human.

At the same time, his discussion seemed to show that a name like “Socrates” does not have a descriptive content that could explain the fact that (4) and (5) are necessary.

Conceptualists can respond by trying to give novel descriptivist accounts of names that are immune to Kripke’s anti-descriptivist objections, and that allow us to explain the necessity of sentences like (4) and (5) by appealing to the descriptive content of “Socrates” and to certain non-modal facts. (Perhaps “Socrates” is associated with a description of the form *the organism that is a member of the same species and has the same parents and . . . as the actual φ -er actually does*. Combined with facts about the

actual species membership and parentage of the actual φ -er, this might be held to explain the necessity of (4) and (5).) However, such a view by itself would not allow us to make sense of a sentence like (3), which does not contain proper names. To explain quantification (over individuals) into modal contexts, the account would need to be supplemented with some additional apparatus. Some conceptualist options (by no means all) will be discussed in section 3. But first we need to turn to another important question about how to understand *de re* modal claims.

2. Haecceitism and anti-haecceitism

Haecceitism is the thesis that there are, or could have been, two possible worlds that are qualitatively alike—in the sense that the same qualitative claims are true at them—but that differ in how things stand with specific individuals.¹ As an illustration, consider a symmetrical possible world w_0 in which no material objects exist except for two qualitatively indistinguishable and eternal particles, A and B . It seems plausible that the following claims are possibly true at w_0 :

- (6) Everything is the way it is at w_0 before t , then A disappears at t while B continues to exist forever.
- (7) Everything is the way it is at w_0 before t , then B disappears at t while A continues to exist forever.

Assuming that a claim is possibly true iff it is true at some possible world, it follows that it is true at w_0 that there is a possible world where (6) holds and a possible world where (7) holds. Haecceitists and anti-haecceitists can agree on this much but will disagree about whether the (6)-worlds are the same as the (7)-worlds. The (6)-worlds are qualitatively indistinguishable from the (7)-worlds. If there is a difference between them, it can only concern the question of which particle disappears and which particle continues to exist. Since anti-haecceitists deny that worlds can differ only in this way without differing qualitatively, they will say that the (6)-worlds are the (7)-worlds. Haecceitists, by contrast, can say that the (6)-worlds are different from the (7)-worlds.

If anti-haecceitists want to make sense of the idea that a claim about a specific individual i can be true at a given world w , they have to say that what is true of i at w is determined by the qualitative features of i and the qualitative claims that are true at w . The standard anti-haecceitist account of how this works appeals to the notion of a counterpart. Let $\varphi(x)$ and $\varphi(x_1, \dots, x_n)$ be formulas whose sole free variables are x and x_1, \dots, x_n , respectively. Moreover, let $\varphi(a)$ be the result of replacing all free occurrences of x in $\varphi(x)$ with a name for a , and let $\varphi(a_1, \dots, a_n)$ be the result of replacing all free

¹ This definition is essentially David Lewis's (1986: sect. 4.4). The term "haecceitism" is due to David Kaplan (1975: 722–3).

occurrences of x_1 in $\varphi(x_1, \dots, x_n)$ with a name for a_1, \dots , and all free occurrences of x_n with a name for a_n . On one possible way of formulating the counterpart-theoretic account (Lewis 1986: 8–12):

- (8) (i) a satisfies $\varphi(x)$ at w iff w contains a counterpart c of a that satisfies $\varphi(x)$.²
- (ii) $\langle a_1, \dots, a_n \rangle$ satisfies $\varphi(x_1, \dots, x_n)$ at w iff w contains individuals c_1, \dots, c_n such that $\langle c_1, \dots, c_n \rangle$ is a counterpart of $\langle a_1, \dots, a_n \rangle$ and $\langle c_1, \dots, c_n \rangle$ satisfies $\varphi(x_1, \dots, x_n)$.

$\varphi(a)$ ($\varphi(a_1, \dots, a_n)$) is true at w iff a ($\langle a_1, \dots, a_n \rangle$) satisfies $\varphi(x)$ ($\varphi(x_1, \dots, x_n)$) at w . a satisfies $\ulcorner \diamond \varphi(x) \urcorner$ (and $\ulcorner \diamond \varphi(a) \urcorner$ is true) iff a satisfies $\varphi(x)$ at some possible world; $\langle a_1, \dots, a_n \rangle$ satisfies $\ulcorner \diamond \varphi(x_1, \dots, x_n) \urcorner$ (and $\ulcorner \diamond \varphi(a_1, \dots, a_n) \urcorner$ is true) iff $\langle a_1, \dots, a_n \rangle$ satisfies $\varphi(x_1, \dots, x_n)$ at some world. “ \square ” is the dual of “ \diamond .”³ Whether a given individual c at w is a counterpart of a depends on the qualitative similarities that hold between a and the different individuals at w . For example, Lewis (1973: 39) proposes that c at w is a counterpart of a iff c has a certain minimal degree of qualitative overall similarity to a and w contains no individual that is more qualitatively similar to a overall than c is. A similar account can be given of the conditions under which one n -tuple is a counterpart of another.⁴

A single individual or n -tuple can have more than one counterpart at a given possible world. Consider the two-particle example again. Let w_1 be a possible world that is qualitatively like w_0 before t . Suppose that w_1 contains two particles, C and D , and that C disappears at t while D continues to exist. Anti-haecceitist counterpart theorists can say that $\langle C, D \rangle$ is a counterpart both of $\langle A, B \rangle$ and of $\langle B, A \rangle$ (where A and B are the two particles at w_0). That explains how each of (6) and (7) can be true at w_1 . (However, the conjunction of (6) and (7) is not true at w_1 . By (8)(ii), the truth of the conjunction at

² Lewis uses the phrases “ w represents a as being F ” (Lewis 1986) or “ a vicariously satisfies “ Fx ” at w ” (Lewis 1973) to mean that a satisfies “ Fx ” at w .

³ For the sake of simplicity, I have sketched a version of counterpart theory that presupposes Lewisian realism about possible worlds, i.e. the view that non-actual possible worlds are, to simplify somewhat, spatio-temporally extended individuals (like the universe we inhabit) that are spatio-temporally isolated from the actual world (Lewis 1986: ch. 1). (To see that the account assumes Lewisian realism, consider “You could have had a six-foot-tall chartreuse horse.” That sentence is true. On the account I sketched, it follows that (35) holds.

(35) Some possible world w contains a counterpart of you who has a six-foot-tall chartreuse horse.

(35) entails that there is a chartreuse horse. However, there does not actually exist such a horse, nor is there such a horse at any spatio-temporal distance from us. So, how could (35) be true unless there were some non-actual possible world containing a six-foot-tall chartreuse horse? This world would have to be a spatio-temporally extended object and be spatio-temporally disconnected from us.) A suitably modified version of the counterpart theory I described is, however, compatible with non-realist accounts of possible worlds. See Kment 2012: 584–5.

⁴ For Lewis’s version of counterpart theory, see Lewis (1968, 1971, 1973, 1986). For other versions, see Forbes (1982, 1987, 1990), Ramachandran (1989, 1990a, 1990b). For discussions, see Hazen (1979), Dorr (2005), M. Fara and Williamson (2005), D. Fara (2009), and Russell (2013).

w_1 would require that there be objects a and b at w_1 such that $\langle a, b \rangle$ is a counterpart of $\langle A, B \rangle$ and a disappears while b continues to exist and b disappears while a continues to exist. Obviously, there are no such objects. Truth at a world is not closed under conjunction.)

3. Some forms of anti-haecceitist and haecceitist conceptualism

Anti-haecceitist counterpart theorists can give a conceptualist account of the necessity of claims like (4) and (5) and of how to understand claims like (3). The explanation appeals to constraints on how to correctly *describe* the possibilities that exist. For example, the rules defining the relevant concept of a counterpart might tell us that nothing at any possible world counts as the counterpart of an actual organism o unless it exemplifies the same species as o at the actual world. Combined with the fact that Socrates is human, this determines that no world contains a non-human counterpart of Socrates. (5) comes out necessary. Moreover, there is something (namely, Socrates) of which no world contains a non-human counterpart. So, (3) is true. In this manner, conceptualism concerning modal claims about individuals can be defended without denying the Kripkean insights that presented problems for the version of conceptualism described in Section 7.1.

Haecceitists, too, could defend conceptualism about *de re* modality by appealing to rules or conceptual constraints on how to describe modal space. There are different possible ways of doing that. For example, they could start with the notion of a world, i.e. of a maximally specific scenario or way for reality to be. (Perhaps a world is just a maximally detailed description of reality that uses both qualitative predicates and individual constants.) Some worlds are possible while others are impossible. The notion of a *possible* world is defined by a list of conditions that are individually necessary and jointly sufficient for a world to qualify as possible, including the following condition: the world does not describe any actually existing organism as belonging to a species different from its actual species. No scenario in which Socrates is anything other than human counts as possible by this definition. This explains the necessity of (5) and the truth of (3).⁵

4. Arguments for and against haecceitism

Some anti-haecceitist counterpart theorists have tried to support their view by arguing that it allows us to accommodate the apparent context-dependence and vagueness of *de re* modal talk in an elegant way, and that it helps us to dissolve a number of modal puzzles (see, e.g., Lewis 1971, 1986: ch. 4). Haecceitists in turn have given examples

⁵ See Cameron (2009). Also cp. Sider (2003, 2011: ch. 12). For another defense of conceptualism in the face of the data unearthed by Kripke, see Sidelle (1989).

that seem to support the existence of qualitatively indistinguishable possible worlds that differ in facts about specific individuals. Robert Adams imagines a world that will be symmetrical until tomorrow, at which point either your planet or its doppelganger at the opposite end of the universe will be destroyed (Adams 1979). It is natural to think that there is a difference between the possibility that your planet will be destroyed and the qualitatively indiscernible possibility that its doppelganger will be destroyed. Some anti-haecceitists have responded by granting the difference between the possibilities, but denying that it is a difference between possible worlds (maximally specific ways reality could be). Instead, there is a difference between two ways that your planet and its doppelganger could be, but these two possibilities correspond to the same possible world (Lewis 1986: ch. 4). (This account resembles the “world description theory” discussed at the end of section 4.)

There are other data that can be used to argue against anti-haecceitism. Let us consider some examples.

Actuality. It seems plausible that $\ulcorner \text{Actually, } \varphi \urcorner$ is true iff φ is true at the actual world. But this creates problems for anti-haecceitist counterpart theory (Hazen 1979). Suppose that some individual at some possible world w has two different counterparts, a and b , at the actual world, and that a has while b lacks the qualitative property F . Then it follows that the following sentence is true: $\Diamond \exists x(\text{Actually, } Fx \text{ and Actually, } \sim Fx)$. (Fara and Williamson 2005) But that seems absurd. Anti-haecceitist counterpart theorists also face other, related difficulties concerning the notion of actuality, and of course there are also proposals for how to fix these problems.⁶

Counterfactuals. Kment (2012: sect. 4) The standard account of counterfactuals tells us, roughly speaking, that $\ulcorner P \Box \rightarrow Q \urcorner$ is true at a possible world w iff Q is true at the possible worlds closest to w at which P is true (Stalnaker 1968; Lewis 1973). Moreover, most proponents of this view accept the following thesis, which is arguably needed to obtain an attractive logic of counterfactuals (Lewis 1973):

Weak Centering. A possible world is at least as close to itself as any other possible world is to it.⁷

However, these assumptions are hard to square with anti-haecceitist counterpart theory.

Some preliminaries are required before this can be shown. Consider once more the possible world w_1 described at the end of Section 2. w_1 contains the two particles C and D . w_1 is qualitatively like the symmetrical world w_0 before t . At t , C disappears while D continues to exist forever. Anti-haecceitist counterpart theorists have good reason to think that C is a counterpart of D . To see why, let P_C and P_D be the conjunctions of all of C 's and D 's (relational and non-relational) qualitative properties, respectively. Note that

⁶ For further discussion of this problem, related difficulties, and possible solutions, see the works cited in note 3.

⁷ Weak Centering is not completely uncontroversial. See Briggs (2012).

the claim that something has P_C necessitates every qualitative claim that holds at w_1 , and the same is true of the claim that something has P_D . Consider:

(9) D has P_C

(9) is surely metaphysically possible at w_1 . For, all it would have taken for D to have P_C is for D to disappear at t while C continues to exist, and it seems to be true at w_1 that that could have happened. There must therefore be a possible world w at which (9) holds. Moreover, w must be qualitatively indistinguishable from w_1 . By anti-haecceitist lights, that means that all claims that are true at w also hold at w_1 , including (9). According to counterpart theory, w_1 must therefore contain a counterpart c of D that has P_C . Since C is the only individual at w_1 that has P_C , it follows that C is a counterpart of D .⁸

Now suppose that what happens to one of the two particles at t does not causally affect what happens to the other at t . Then it should be true at w_1 that if D had disappeared at t , then C would still have disappeared at t . The following should therefore be true at w_1 as well:

If D had disappeared at t , then two particles would have disappeared at t .

It follows that, of all the worlds where it is true that D disappears at t , those where two particles disappear at t are closer to w_1 than those where only one particle disappears at t . But given counterpart theory, that contradicts Weak Centering. Since C is a counterpart of D (as we saw before) and C disappears at t , the counterpart theorist has to say that it is true at w_1 that D disappears at t . Moreover, by Weak Centering, w_1 is at least as close to w_1 as any other world is to w_1 . w_1 is therefore one of the worlds closest to w_1 where it is true that D disappears at t . And yet, at w_1 only one particle disappears at t .

Chance. Anti-haecceitist counterpart theory also seems to yield problematic consequences about physical chance. Note that it seems plausible that the sample space of the chance distribution at time t at a possible world w is the set of possible worlds that are like w up to t and conform to the natural laws of w after t . Call these worlds the “possibilities that are open at t ” (at w) or the “open _{t} possibilities” (at w). Moreover:

(10) The chance of P at t ($ch_t(P)$, for short) equals the chance measure of the set of open _{t} possibilities at which P is true.

Now consider possible world w_0 once more. To recall, w_0 contains no material objects except for the two particles A and B , both of which exist forever. Let t_0 and t_1 be times in

⁸ According to Lewis, x at w is a counterpart of y only if no individual at w is more qualitatively similar to y overall than x is. Presumably, D at w_1 is more qualitatively similar to D overall than C is. So, does the claim that C is a counterpart of D contradict Lewis’s account? No. The overall similarity between two things is determined by some method of weighing their similarities and dissimilarities against each other. This method might assign zero weight to the similarities that D has to itself but not to C , so that C comes out as being as similar to D overall as D is to itself.

the history of w_0 , with t_0 being earlier than t_1 . It seems that the following could be true at w_0 :

- (11) $\text{ch}_{t_0}(\text{A will disappear at } t_1) = .5$
- (12) $\text{ch}_{t_0}(\text{B will disappear at } t_1) = .5$
- (13) Whether A disappears at t_1 is probabilistically independent of whether B disappears at t_1 .
- (14) Any two open $_{t_0}$ possibilities where exactly one particle disappears at t_1 are qualitatively indistinguishable from each other.

Let D_A be the claim that A disappears at t_1 while B continues to exist, let D_B be the claim that B disappears at t_1 while A continues to exist, and let 1P be the set of all open $_{t_0}$ possibilities where exactly one particle disappears. (11)–(13) appear to entail:

- (15) $\text{ch}_{t_0}(D_A) = .25$
- (16) $\text{ch}_{t_0}(D_B) = .25$
- (17) $\text{ch}_{t_0}(\text{Exactly one particle disappears at } t_1) = .5$.

However, (15)–(17) seem to conflict with the anti-haecceitist counterpart theorist's view. By (10) and (15), D_A is true at some of the worlds in 1P. Moreover, given (14), anti-haecceitists have to say that the same claims about A and B are true at any two worlds in 1P. It follows that D_A is true at *all* worlds in 1P. By analogous reasoning, D_B is true at all worlds in 1P as well. In other words, the open $_{t_0}$ D_A -possibilities are the same worlds as the open $_{t_0}$ D_B -possibilities—they include all and only the worlds in 1P. (Where w is any world in 1P, and where E is the particle at w that disappears at t_1 and F is the particle at w that continues to exist, $\langle E, F \rangle$ is a counterpart both of $\langle A, B \rangle$ and of $\langle B, A \rangle$.) Given this conclusion, it follows from (10) and (15), and also from (10) and (16), that 1P has a chance measure of .25 at t_0 . But that contradicts (10) and (17), which together entail that the chance measure of 1P at t_0 is .5.

Needless to say, the dialectic does not end here. There are several possible anti-haecceitist replies to these objections and possible haecceitist countermoves. I will only consider one response that anti-haecceitists might give. They could introduce entities that are more fine-grained than possible world, and which we may call “world descriptions.” A *world description relative to a base world w^** (a *world description $_{w^*}$* , for short) is an ordered pair of a world w and a partial function from the individuals in w to individuals in w^* of which they are counterparts. (Consider the possible world w_1 where exactly one particle disappears. There are two world descriptions $_{w_0}$ involving w_1 : $w_1^{(a)}$, which maps the disappearing particle in w_1 to A and the non-disappearing particle in w_1 to B , and $w_1^{(b)}$, which includes the opposite mapping.) Where $\phi(x)$ is a formula

containing x as its sole free variable, a is an individual at world w^* , and $\langle w, f \rangle$ is a world description _{w^*} , a satisfies $\varphi(x)$ at $\langle w, f \rangle$ iff w contains an object that satisfies $\varphi(x)$ and to which f assigns a . $\varphi(a)$ is true at $\langle w, f \rangle$ iff a satisfies $\varphi(x)$ at $\langle w, f \rangle$. Analogous accounts can be given of satisfaction of a formula by an n -tuple of individuals at a world description, and of truth of a formula containing multiple individual constants at a world description. Even when the same qualitative claims hold at two world descriptions, they can differ in the claims about specific individuals that are true at them. (For instance, D_A is true at $w_1^{(a)}$ but not at $w_1^{(b)}$, while D_B is true at $w_1^{(b)}$ but not at $w_1^{(a)}$.) Anti-haecceitists might decide to replace worlds in their accounts of modal operators, actuality, chance, and counterfactuals with world descriptions. If this is done in the right way, it will yield an account (which we might call “world description theory”) that does not face the difficulties described above.⁹

World description theory might make the right predictions, but one may wonder whether it is more adequately understood as abandoning anti-haecceitism than as vindicating it (Kment 2012: 601; also see Skow 2008). What made the debate about haecceitism interesting in the first place was the central role that possible worlds play in various philosophical theories, including theories about modality, actuality, counterfactuals, and chance. Philosophers were wondering:

- (18) What are the entities like that figure in (the best versions of) these theories? If the same qualitative claims are true at two of these entities, does that mean that the same claims about specific individuals are true at them as well?

If the dispute about haecceitism is supposed to address this question, anti-haecceitism has to be understood as the thesis that the answer to question (18) is “yes” and haecceitism as the thesis that the answer is “no.” However, on this way of understanding the debate, world description theory is a form of haecceitism. For it entails that the best theories of the modal operators, actuality, counterfactuals, and chance are formulated in terms of world descriptions; and it is *not* true that the same claims about specific individuals are true at two world descriptions whenever the same qualitative claims are true at them.

5. Modal contingentism

The rest of this chapter will consider two influential lines of argument leading from reflections on *de re* modality to one or the other of the following forms of modal contingentism.

⁹ Strategies along these lines for solving the aforementioned problems (sometimes called “cheap haecceitism”) are discussed in Lewis (1986: ch. 4), Skow (2008), Kment (2012: sect. 5), and Russell (2015), among others.

World-existence contingentism. Some possible worlds are contingent existents.

Modal-operator contingentism. Some claims of the forms $\Box P$ and $\Diamond P$ are contingently true.

Modal-operator contingentists reject at least one of the following schemata of the modal logic S5, while their opponents accept both.

4 $\Box P \rightarrow \Box \Box P$

5 $\Diamond P \rightarrow \Box \Diamond P$

While some philosophers are happy to jettison S5, others have argued that S5 is the most attractive propositional modal logic and should be retained if possible (see, e.g., Williamson 2013).

The contingent existence of worlds. The first line of argument for modal contingentism (Fine 1977, 1985; Adams 1981; Stalnaker 2011; Kment 2014: sect. 4.5) starts from the following two assumptions.

- (19) Many individuals exist contingently (for example, material objects).
- (20) A possible world existentially depends on every individual that exists at it, i.e., if individual i exists at possible world w , then w fails to exist at possible worlds at which i fails to exist.

(19) and (20) can be used to motivate world-existence contingentism. Consider a contingently existing individual, such as yourself, and a world at which that individual exists, such as the actual world, @. By (20), @ does not exist at any possible world where you do not exist.

Those who accept (19) and (20) often differentiate between two notions of a claim's being true with respect to a possible world (Fine 1977, 1985; Adams 1981; Turner 2005; Stalnaker 2011: sect. 2.6; Kment 2014: sect. 4.6.2), which Robert Adams calls "truth in a world" and "truth at a world." On one way of explaining the distinction, the proposition that P is true *in* possible world w iff the proposition that P would have had the property of truth if w had been actualized. The proposition that P is true *at* w iff it is *actually* true that the proposition that P gives a correct partial description of what would have been the case if w had been actualized, i.e. iff it would have been that P if w had been actualized. One argument for the claim that the two notions can come apart starts from two further theses.

- (21) A singular proposition about an individual existentially depends on that individual.

- (22) It is impossible to have a property or stand in a relation to other things without existing.¹⁰

Let Q be the proposition that you do not exist and let w be a possible world where you do not exist. If w had been actualized, then (by (21)) Q would not have existed and therefore (by (22)) would not have had the property of truth. So, Q is not true *in* w , or *in* any other possible world where you fail to exist. (And since Q is the proposition that you do not exist, Q is not true in any possible world where you exist either. There is simply no possible world *in* which Q is true.) However, Q is true *at* w : if w had been actualized, then you would not have existed. These reflections also show that possibility cannot be defined as truth *in* all possible worlds but only as truth *at* all possible worlds. For, Q is possible but not true *in* any possible world.

If truth at a world is a relation between propositions and worlds, then the view outlined in the previous paragraph yields the result that sometimes a proposition is contingently true at a world (Kment 2014: 90). Let w be a possible world at which you do not exist and that does not existentially depend on you. The proposition that you do not exist (i.e., Q) is true at w . Let w^* be a possible world where w exists but you do not. (21) entails that at w^* , Q does not exist. Given (22), it follows that at w^* , Q does not stand in the truth-at relation to w . So, while Q is true at w *at the actual world*, Q is not true at w *at* w^* .

It is controversial whether modal-operator contingentism is a consequence of the form of world-existence contingentism motivated by (19) and (20). The answer is arguably “yes” if we accept the following account of possibility:

- (23) What it is for it to be possible that P is for there to be a possible world at which it is true that P .

For, (23) seems to commit us to (24).

- (24) Necessarily, (it is possible that P iff there is a possible world at which it is true that P).

We saw that the form of world-existence contingentism motivated by (19) and (20) entails that it is contingent whether there is a possible world at which you exist. From that claim and (24), it follows that it is contingent whether it is possible that you exist.¹¹ (At the actual world, it is possible for you to exist, but at a possible world where you do not exist, it is not possible.) Modal-operator contingentism therefore comes out true. World-existence contingentists can avoid this conclusion by denying (24) and saying

¹⁰ This principle is closely related to what Williamson (2013: sect. 4.1) calls the “Being Constraint” and what Plantinga (1983) calls “serious actualism.”

¹¹ For discussions of arguments along these lines, see Adams (1981: 28–32), McMichael (1983), Armstrong (1989: 56–63), Fitch (1996: 63–5), Bennett (2005: sect. 7), and Kment (2014: 105).

instead that, necessarily, $\Diamond P$ iff there *actually* exists a possible world at which P (Stalnaker 2011). This account requires us to abandon (23).

The argument from (19) and (20) to world-existence contingentism can be resisted by rejecting one of its premises. Alvin Plantinga (1976, 1983) denies (20): The existence of a possible world w does not require the existence of the individuals that exist at w . It requires only the existence of the haecceities of these individuals (the haecceity of an individual is the property of being that individual). Moreover, he holds that an individual's haecceity does not existentially depend on that individual—haecceities can exist uninstantiated. Other philosophers reject (19) (Linsky and Zalta 1994, 1996; Williamson 1998, 1999, 2013). They argue that you could not have failed to exist. At best, you could have existed without being a concrete object.

Contingent modal profiles. The following argument for modal-operator contingentism is due to Hugh Chandler (1976) and Nathan Salmon (1979, 1982: 238–40). A table called “Ed” is made from the three equally large parts A , B , and C . Plausibly, Ed could not have been made from completely different parts. To fix ideas:

(25) Necessarily, if Ed exists, he is made from at least $\frac{2}{3}$ of ABC .

However, Ed could surely have been made from *slightly* different parts, e.g. from ABC minus a few particles. Let us again fix ideas:

(26) Possibly, Ed is made from parts that include no more than $\frac{2}{3}$ of ABC .

It is natural to think that (25) and (26) are instances of some general truths like the following:

Necessity. Necessarily, where x is any table and the ys are x 's parts, it is necessary that if x exists, x is made from at least $\frac{2}{3}$ of the ys .

Tolerance. Necessarily, where x is any table and the ys are x 's parts, it is possible that x is made from parts that include no more than $\frac{2}{3}$ of the ys .¹²

Given Tolerance, there might be objects D and E that do not overlap ABC , such that:

(27) \Diamond Ed is made from BCD

(28) \Box (If Ed is made from BCD , then \Diamond Ed is made from CDE)

Let us suppose that such objects D and E exist. Given standard assumptions in modal logic, (27) and (28) entail (29).

(29) $\Diamond \Diamond$ Ed is made from CDE .

¹² The name “Tolerance” is borrowed from Forbes (1985).

However, assuming that “ \square ” and “ \diamond ” are duals, we can infer (30) from Necessity and the assumption that Ed is made from *ABC*.

(30) $\sim\diamond$ Ed is made from *CDE*.

(29) and (30) constitute a counterexample to the schema $\diamond\diamond P \rightarrow \diamond P$, which (if “ \diamond ” and “ \square ” are duals) is equivalent to **4.5** is violated as well: by Tolerance, \diamond Ed is made from *BCD*. However, there are possible worlds where Ed is made from *EAB*, and it follows from Necessity that at these worlds, $\sim\diamond$ Ed is made from *BCD*. Therefore, $\sim\square\diamond$ Ed is made from *BCD*.

The form of modal-operator contingentism motivated by Necessity and Tolerance arguably faces a problem usually associated with Humean frequentism about physical chance (Kment 2018). Frequentists believe that the chances at *t* are determined by the frequencies of different patterns of events throughout history. Since these global frequencies depend in part on the outcomes of post-*t* chance processes, it might be chancy at *t* what the chances at *t* are. For example, it could be that $\text{ch}_t(P) = x$, but that there is a non-zero chance at *t* that $\text{ch}_t(P) \neq x$. We can describe such cases by saying that the chances at *t* “undermine themselves.” Allowing for the possibility of undermining yields a number of implausible consequences (Lewis 1994; Thau 1994; Hall 1994).

Necessity and Tolerance might also give rise to the possibility of undermining. For, once we accept that Ed was contingently made from the parts he was in fact made from, it is a small step to the conclusion that there could at some time have been a non-zero chance that he would be made from different parts. Suppose that there was some time *t* just before Ed was made from *ABC* such that (31) and (32) hold.

(31) $\text{ch}_t(\text{Ed will be made from } BCD) = .1$

(32) $\text{ch}_t(\text{Ed will be made from } EAB) = .1$

Necessity entails that at possible worlds where Ed is made from *BCD*, $\sim\diamond$ Ed is made from *EAB*. Therefore:

(33) At possible worlds where Ed is made from *BCD*, $\text{ch}_t(\text{Ed is made from } EAB) = 0$.

(31) and (33) entail:

(34) $\text{ch}_t(\text{ch}_t(\text{Ed will be made from } EAB) = 0) = .1$

(32) and (34) together entail that the chances at *t* undermine themselves. Such undermining cases yield problematic consequences similar to some of those that beset frequentism.

The argument from the Ed example to modal operator contingentism can be rejected without abandoning (25) or (26), provided one resists the generalization from (25) and

(26) to Necessity and Tolerance. If one rejects Necessity and Tolerance, one can say that (25) and (26) are necessary truths: even at possible worlds where Ed is made from *BCD* rather than from *ABC*, it is not possible for him to be made from *CDE* (contrary to Tolerance), though it *is* possible for him to be made from *EAB* (contrary to Necessity). (28) and (29) are therefore false and there is no violation of 4 or 5. If one rejects Necessity and Tolerance, one needs another general and systematic account of the modal profiles of objects like Ed that is consistent with (25) and (26). One such account is ‘maximal multi-thingism,’ the view that, necessarily, for any material object *x* and any set of *x*’s non-modal properties that meets certain minimal conditions, there is an object co-located with *x* that has all and only the properties in this set necessarily (Leslie 2011: 287–90, Kment 2014: 194–7).¹³ On this view, Ed is only one of countless table-shaped objects that occupy the same location but differ in their modal profiles.

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¹³ It is difficult to formulate this view precisely. For discussion, see Fairchild (2019).

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