Possible Worlds as Indices

Roberta Ballarin does an admirably concise and accurate job of summarizing my complex views on worlds as modal indices and related issues. I would like to make one correction and offer a few clarifications. Ballarin thinks that I take the notion of impossibility (or possibility) as primitive. I do not. For any kind of possibility, to say that \( P \) is \( K \)-possibly true is to say that \( P \) is true at some world at which the \( K \)-proprietary constraint on worlds holds (e.g., the appropriate laws are true); and impossibility is defined as the denial of possibility. In these definitions, the heavy lifting is done by the notions of world, truth, and proprietary constraint.

Ballarin is right in saying that I am motivated by taking temporal cases as central and developing a theory of worlds by analogy. As she puts it, very few people feel uneasy about times as entities. Like spatial regions, times are relativizers of things-being-thus-and-so. We have an intuitive and immediate understanding of times and spatial regions as such relativizers. I propose the same for worlds. They are a third kind of relativizers of things-being-thus-and-so, and we intuitively and immediately grasp the difference between this kind and the other two kinds. It is the intuitiveness and immediacy that give an appearance of mysteriousness Ballarin attributes to times. I doubt that we can go beyond the intuitive and immediate understanding of times, or of worlds.

Ballarin coins a wonderfully vivid term “double soul” to characterize my position. She is right in viewing my project as that of combining two apparently opposite views. She thinks that this results in a position that is doubly plagued with the disadvantages of the two views, whereas I naturally think that my position is doubly blessed with their advantages. The primitiveness of actuality, presentness, and hereness is unavoidable, and the popular “indexical” theories of these notions, which I heartily accept, do not eliminate it. A context of utterance in the technical sense of the “indexical” theories is not always a context in which an utterance occurs. Take the context of utterance, <Roberta Ballarin, @, Stockholm, 12:00 noon on the twenty-third of June 2011>. The sentence type, “I am not actually uttering any of these words here now,” expresses a certain proposition, \( P \), as evaluated for propositional expression with respect to this ordered quadruple (and an appropriately reflexive interpretation of the phrase “these words”), and \( P \) is true iff Roberta Ballarin was not uttering any of the words “I am not actually uttering any of these words here now” at @ in Stockholm at 12:00 noon on the twenty-third of June 2011.
And $P$ is, in fact, true. We are unable to respect this fact if we understand the relation between the word type “actually,” “here,” and “now” and the quadruple’s world element, place element, and time element, respectively, as the relation of being-uttered-at(in). Note that Ballarin, or anyone else, need not utter at any time or place any sentence expressing $P$, in order for $P$ to be expressed. Thus, a context of utterance and a circumstance of evaluation are not conflated. Note also that all this is perfectly compatible with saying that in every context of utterance in which “I am not actually uttering these words here now” is uttered (with “these words” interpreted appropriately), the expressed proposition is false when evaluated with respect to the same context. I am merely pointing out that with respect to some context of utterance, such a sentence type does express a proposition which is true when evaluated with respect to the same context.¹

The primitiveness of the three notions does not imply that reality itself is “indexical,” that is, that the actual world, the present time, and this place are objectively or metaphysically special. The notion of oneself, “me,” is primitive, but I am not objectively or metaphysically special.

Transworld Identity

Accepting only one universe throughout modal space does not imply completely rejecting the problem of transworld identity as spurious. It implies rejecting the problem of transworld identity for the universe as spurious, but not the problem of transworld identity for individuals like you and me. One and only universe might or might not contain me as opposed to someone else who shared some properties with me. I hasten to add that I accept the Kripkean method of stipulating which individual(s) one chooses to discuss with respect to nonactual circumstances. We are free to stipulate that we speak of, say, Hubert Humphrey when discussing an alternative course of history. I even go further than Kripke in allowing a stipulation that it is indeed Humphrey himself we speak of when we consider the circumstances under which Humphrey is a poached egg,² or that it is indeed Hesperus itself and Phosphorus itself we speak of when we consider the circumstances under which Hesperus is not Phosphorus.

I am not burdened with modal ways of the universe in addition to worlds. For each way the universe could be or could not be, the universe is that way at some world. There is no need for modal ways. We may just speak of worlds.

1. Notice that this does not stand in the way of the logical truth (in indexical logic) of the sentence “I am actually here now.” The proposition this sentence expresses with respect to the ordered quadruple in question is true as evaluated with respect to the same quadruple; Ballarin was actually in Stockholm at 12:00 noon on the twenty-third of June 2011, uttering these words. Contexts of utterance in the technical sense deserve careful and sustained attention. I offer a more detailed discussion in the “Now Actually” manuscript.

Existence is not primarily a relation to a metaphysical index. It is primarily a relation to a collection. For $x$ to exist relative to a collection $C$ is for $x$ to belong to $C$. Existence at a world (or a time or a spatial region) is secondary; to exist at a world $w$ is to belong to the collection of things at $w$, where the collection of things at $w$ is not to be understood as the collection of things which exist at $w$. The collection of things at $w$ is instead to be understood in terms of spatiotemporal relations at $w$.\(^3\) Take an egg and a refrigerator. For the egg to exist in the refrigerator is for it to belong to the collection of things in the refrigerator. It is important to distinguish two relations here: being in the refrigerator and belonging to the collection. Existence is the latter relation, whereas the former is a physical relation of spatial occupation: $x$ is in the refrigerator iff $x$ occupies the interior space of the refrigerator. An egg’s existence at a world is like its existence in a refrigerator (even though a world is not like a refrigerator). Both are examples of existence in a derivative sense. For an egg to exist in a refrigerator is for it to belong to the collection of things occupying the interior space of the refrigerator. For an egg to exist at a world is for it to belong to the collection of things occupying the space–time of the universe at the world.

Why do I bother with the collection at all? Why do I not simply say that an egg exists in the refrigerator iff it occupies the interior space of the refrigerator, and that an egg exists at a world iff it occupies the space–time of the universe at the world? The answer is that occupation of space–time is not sufficiently general to cover all cases of existence. The following are examples of statements of existence in which no spatiotemporal relation is involved: there are thirty-one days in January; there is exactly one prime number between 5 and 11; there are possible semantically primitive restricted quantifiers that are at least as natural as the unrestricted quantifier;\(^4\) things other than spatiotemporal things actually exist; there are at least denumerably many physically possible worlds.

Existence is a relation to a collection of things. For any truth-evaluable existence claim, there is always a collection that is explicitly or implicitly assumed. The statement, “There are no eggs,” may be made with the implicitly assumed collection of things in a given refrigerator in mind. The statement is then true iff no eggs belong to that collection. It seems intuitively clear that in such a case, eggs are under discussion irrespective of whether the statement is true. The speaker is speaking about, or discussing, eggs, whether or not there are any eggs in the refrigerator. Perhaps, he or she is in desperate need of making an omelet. Perhaps, he or she just wants to paint eggshells. In any case, eggs are on his or her mind. No particular eggs, but eggs nonetheless. This seems to be a clear case of the speaker discussing eggs, that is, eggs being under discussion by the speaker. Thus, the collection relative to which the statement

\(^3\) This is for concrete objects. Complications are unavoidable for nonconcrete objects, but vicious circularity is avoidable. Details are given in my “A Deflationary Theory of Existence,” manuscript.

of nonexistence is to be judged is not the collection of things under discussion, whatever label we may attach to it. I am proposing that we understand the non-de-re sense of “discussing eggs” in terms of eggs that are not actual but are real nonetheless.

2. Reply to Hayaki

Relativization of Truth to Indices and Identity across Indices

Reina Hayaki finds my spatial examples less natural than the temporal examples. Let me try to motivate the spatial examples intuitively. Suppose that someone asserts, “China is tropical.” Is this assertion true? I think there are a number of different but more or less natural intuitive responses. One of them is, “It is not entirely true, but not entirely false, either.” Another is, “It depends on which particular part of China is in question.” Yet another is, “It isn’t true at all, for not most of China is tropical.” The first response makes use of partial truth, the second makes truth relative, and the third does neither and insists on an all-or-nothing absolute notion of truth. I prefer the second response, while Hayaki prefers the third. Intuitively, I find the third response stark. Even though it is not the case that most of China is tropical, it seems wrong to say that “China is tropical” is 100% and absolutely untrue. It seems more natural to say that the assertion is at least a little true or that it is true when certain regions of China are considered but untrue when other regions are considered.

Imagine a circular pond with clear water. Imagine a batch of bright red dye being poured into the pond slowly through a narrow pipe from a fixed point on the shore. The dye spreads slowly and uniformly, coloring the water accordingly. When about one-third of the surface of the pond has turned red, I ask you, “Is it true that the pond is red?” The answer may depend on the specifics of the context in which the query is issued, but generally, your most likely answer will be “It is not entirely true, but not entirely false, either” or “It depends on which particular part of the pond is in question” or something along those lines, rather than “It isn’t true at all, for not most of the surface of the pond is red.” It seems natural to say that the pond is red over here but not over there (pointing at different parts of the surface of the pond).5

You extend in time. You were four-feet tall at a certain time $t_1$ and were five-feet tall at a later time $t_2$. This is so in virtue of your temporal part at $t_1$ and temporal part at $t_2$ being four-feet tall and five-feet tall, respectively. China is tropical at Guangdong but not at Heilongjiang. This is so in virtue of China’s spatial part at Guangdong and spatial part at Heilongjiang being tropical and nontropical, respectively. The temporal and spatial cases are parallel. They do not diverge so as to encourage stage theory in the case of space, as they do not diverge...

5. I go back and forth freely between the relativity of the truth of “The pond is red” and the relativity of the pond being red. The difference between them is not relevant to the issue Hayaki raises.
encourage the identification of China with Guangdong or with Heilongjiang. I hold the modal analog of perdurantism—with a twist of modal tense.6

**Alethic Relativization and Specifically Metaphysical Indices**

The sentence “I buttered the toast this morning” may be understood in two different ways. The first is to read an invisible existential quantifier into it: “I buttered the toast this morning with something.” The sentence is true under this reading if I buttered the toast this morning with a knife. The second reading of the sentence is devoid of any such quantifier. It says exactly what the words say collectively as they are put together in this grammatical way and nothing more; I buttered the toast this morning, period. The sentence read this way has different truth values with respect to different instruments. I do not count relativity to an instrument, a comparison group, or a standard of precision as relativity to a metaphysical index. These items are too parochial or not objective enough as metaphysical relativizers.

**Actualism**

I agree with Hayaki that actualists maintain that the only things that exist are actual things. Not only that but I also agree with actualists that the only things that exist are actual things—when what I have just said is understood with the right collection of things to which the existence claim is relativized. For me, any existence claim is a claim of the existence relation, which is a relation between a thing and a collection of things. I can say something true by saying that the only things that exist are actual things, provided that my statement is to be interpreted in such a way that the collection is a collection of nothing more than the actual things. Thus, to those philosophers who say that the only things that exist are actual things, I can say, “You are right, but for philosophical purposes we should not confine our attention to those things which exist but should consider things which are real.” By saying this, I do not mean to be a Meinongian. “Subsistence” is not in my vocabulary. Existence and reality are the only two metaphysical concepts in operation here.

I agree with Hayaki that realism about mere possibilia is simply not a desideratum for most actualists. Likewise, austere confinement to what is actual is not a desideratum for me. Things are things, whether they are actual or not. Such is the robust sense of modal reality I theorize with.

As for de re modality, my broadly Lagadonian representation is more realist than either Lewisian representation by counterpart or actualist representation by language. Lewisian representation works by means of similarity, which does not bind world stages together into a transworld individual, whereas my broadly Lagadonian representation works by means of transworld individuals, whose identity is underwritten by similarity. Linguistic representation

6. On modal tense, see Kim’s comments and my response to them.
is representation by courtesy, for its representational properties are entirely due to the representational capacities of the users of the language in question.

“Actually”

The sentence “Sherlock Holmes lived on Baker Street” may be interpreted in three different ways: (1) according to the Sherlock Holmes stories, Sherlock Holmes lived on Baker Street; (2) at the actual world, Sherlock Holmes lived on Baker Street; (3) Sherlock Holmes lived on Baker Street. Think of the third reading as that part of the first reading which comes after “according to the Sherlock Holmes stories,” or as that part of the second reading which comes after “at the actual world.” Under the reading (1) or (3), it is perfectly consistent to say that Sherlock Holmes lived on Baker Street but did not actually live there. A larger picture is this. I understand (1) in terms of the Sherlock Holmes worlds: (1) is true iff Sherlock Holmes lived on Baker Street at the Sherlock Holmes worlds. Reading (3) is the world-neutral mode of predication that underlies any predication with respect to specific worlds.7

Fictional Objects

My main point of the Coyle example is to highlight the difficulty of saying exactly what is involved in creating a fictional object. Mythical objects do not seem to me to be any better off. Fictional objects and mythical objects are both objects that do not actually exist. Creating them would make them actually exist. That is at the heart of my complaint against creationism. We do not need them actually existent. They are already real and fully available in our metaphysical and other philosophical theorizing anyway.

A fictional name is a name introduced into a language by a fiction writer in the course of naming a fictional object. Mutatis mutandis with a mythical name.

Prefixed and Unprefixed Fictional Discourse

The sentence “Sherlock Holmes lived on Baker Street” may be used as an abbreviation for the explicitly prefixed sentence or as a sentence whose truth value is relative to unspecified indices. When it is used in the second way, particular indices may be salient and relevant, depending on the environment in which it occurs. For example, when the sentence occurs in the longer sentence “Sherlock Holmes lived on Baker Street but didn’t actually live there,” the salient indices may well be the Holmes worlds. In that case, the longer sentence is true iff Holmes lived on Baker Street at the Holmes worlds but not at the actual world. This gives us a natural reading of the longer sentence.


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Hayaki is right in suspecting that I am presupposing a substantive theory of truth in fiction. I am indeed operating under a more or less Lewisian conception of truth in fiction. As Hayaki remarks perceptively, when combined with my impossibilist outlook, the Lewisian account can be defended from the standard objections.

3. Reply to Kim

Soft Reductive Analysis of Modality

Metaphysical indices are indices to which matters of truth are relativized. By this, I do not mean anything more substantive than that metaphysical indices are indices relative to which things are a certain way. The notion of truth is not the focus. I certainly do not mean to suggest that the notion of a metaphysical index is conceptually posterior to the notion of truth. For if it were, since propositions are understood to be the primary bearers of truth values, propositions cannot be defined in terms of metaphysical indices like worlds; but I want to define propositions in terms of worlds. The direction of analysis is this: truth is a property a proposition has at a world; a proposition $P$ is a collection of two collections of worlds $C_1$ and $C_2$, and for $P$ to be true (false) at a world $w$ is for $w$ to belong to $C_1$ ($C_2$); a world is a metaphysical index, that is, an index relative to which things are thus-and-so.

Seahwa Kim says that Gideon Rosen’s fixed fictionalism does not make a distinction between a world and a thing that occupies it. But you are my worldmate, whereas the actual world is not my worldmate. So Rosen’s fictionalism does seem to make a distinction between the actual world and you. A system of worldmates is not the worldmates themselves. Or so it seems to me. More importantly, Kim’s main point is that Rosen’s fictionalism accommodates so-called “island universes” nicely, and I agree with her. My qualm is about Rosen’s primitive. He takes the worldmate relation as a primitive. Any theorist has a number of primitives, but not all primitives are equal. For example, I do not think siblinghood is a good relation to have as a primitive. Likewise, worldmatehood does not seem like a good relation to have as a primitive; it should instead be analyzed as being of the same world.

On the distinction between a world and the universe: I agree that it is a world’s being a modal index that gives me the advantage in question over Lewis. At the same time, I see no plausible way to hold that a world is a modal index without distinguishing it from the universe. I need some entity that is thus-and-so at modal indices, and that is the universe. Rosen also needs a system, which is distinct from those individuals of which it is a system.

8. In the book, I give a more general and complicated characterization, which involves more than two collections, $C_1$ and $C_2$, but the core idea is contained in this two-collection exposition.
It is true that Lewis could say what I say in response to Quine’s query without modal tense. But Lewis would be hard-pressed to reformulate Quine’s original query without imposing his own heavy modal-realist outlook, thus marring the Quinean spirit, whereas I can transform Quine’s original query minimally, just by adding modal tense to it. Just as tensed talk about the past does not prejudge many metaphysical issues about the past, modal-tensed talk about possibilia and possibilities does not prejudge many metaphysical issues about them.

My discussion of Christopher Peacocke’s following argument is perhaps more revealing of the advantage of modal-tensed talk than the Quine example:

Let \( \alpha \) be a non-actual possible human being. Nothing non-actual and possible is physical. If a thing is not physical, it is not physical at any possible world. So, \( \alpha \) is not physical at any possible world. On the other hand, since \( \alpha \) is a possible human being, \( \alpha \) exists and is a human being at some possible world. If any human being exists at a possible world, s/he is physical at that world. So, \( \alpha \) is physical at some possible world. This is a contradiction. Therefore, it is false that there could be a non-actual possible human being.\(^9\)

This would be a devastating argument against the merely possible if sound. I deny its soundness.\(^10\) Compare this argument with the following temporal analog:

Let \( \beta \) be a non-present past dinosaur. Nothing non-present and past is physical. If a thing is not physical, it is not physical at any time. So, \( \beta \) is not physical at any time. On the other hand, since \( \beta \) is a past dinosaur, \( \beta \) exists and is a dinosaur at some past time. If any past dinosaur exists at a past time, it is physical at that time. So, \( \beta \) is physical at some past time. This is a contradiction. Therefore, it is false that there was a dinosaur in the past.

So much for a priori paleontology. The defect of this argument against a merely past dinosaur is obvious from the outset, thanks to the presence of tense in English. Nothing nonpresent and past is physical, for nothing nonpresent is any way. But many things nonpresent and past were physical, for example, \( \beta \). \( \beta \) is not physical but was physical at some past time. \( \beta \) does not exist, nor is it a dinosaur. It existed and was a dinosaur. I advocate a parallel approach to Peacocke’s argument by means of modal tense. Nothing nonactual and possible is physical, for nothing nonactual is anyway. But many things nonactual and possible are \( \alpha \) physical, for example, \( \alpha \). \( \alpha \) is not physical but is \( \beta \) physical at

\(^9\) This is my summary of Peacocke’s argument. See his “Principles for Possibilia,” *Nous*, 36 (2002), pp. 486–508: 505.

\(^10\) Bernard Linsky and Edward Zalta’s well-known view denies the second premise: being nonphysical is essential to everything nonphysical. See their “In Defense of the Contingently Non-Concrete,” *Philosophical Studies*, 84 (1996), pp. 283–94. Whether their view is plausible or not, Peacocke’s argument suffers from an independent problem.

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some possible world, $\alpha$ does not exist$_\alpha$, nor is$_\alpha$ it a human being. $\alpha$ exists$_\alpha$ and is$_\alpha$ a human being. I think that the judicious use of modal tense in theoretical discourse on worlds and individuals will eliminate loose talk, which is often misleading and which sometimes leads us astray as in this case.

In footnote 8, where she discusses my treatment of van Inwagen on actuality, Kim says, “...’We inhabit$\rho$ many worlds’ is false because at each world, we inhabit, only one world.” I am not certain what she means. If she means to suggest that speaking at @, we cannot truthfully say, “We inhabit$\rho$ many worlds,” then she is mistaken. There are many nonactual worlds at which we exist. So we do inhabit$\rho$ many worlds. If she is interpreting the mere-possibility tense as linked to a specific world each time it is used, then it is correct to say that with respect to a given world, we inhabit$\rho$ that given world and no other. But that is not my intended interpretation. My intended interpretation does not make inhabiting, linked to a specific world. We can say perfectly well that one inhabits$\rho$ a world or does not inhabit$\rho$ a world, period; it need not be linked to any particular world. To see how it is true to say that we inhabit$\rho$ many worlds, consider a temporal analog. Speaking now, at the present moment, we can truthfully say, “We inhabited many time periods.” We inhabited last Sunday. We inhabited last Saturday. We inhabited last Friday. And so on. Analogously, we can truthfully say that we inhabit$\rho$ a world at which donkeys talk, we inhabit$\rho$ a different world at which pigs fly, and we inhabit$\rho$ yet another world at which Humphrey won.

**Impossible Worlds**

Against what I say about the Russell–Quine–Lewis argument on impossible worlds, Kim says, “After all, a world at which $P$ and not-$P$ are true and also not true seems like a typical logically impossible world.” This is a good point. In response, I deny (5) (if not-$P$ at $w$, then it is not the case that $P$ at $w$) for impossible worlds of the kind in question, and I deny (3) ($P$ and not-$P$, at $w$) for the other impossible worlds. For any impossible world $w$ of the kind in question, if $P$ at $w$, then no matter what else, it is incorrect to say that it is not the case that $P$ at $w$. This is so, even if not-$P$ at $w$. To say that if not-$P$ at $w$, then it must be that it is not the case that $P$ at $w$, is to assume that $w$ is like logically possible worlds in this regard. A logically impossible world that is like logically possible worlds in this regard causes a problem at @, as the R–Q–L argument shows. But we do not need such impossible worlds for our theoretical purposes.\(^{11}\)

\(^{11}\). According to me, any impossible world, whether or not it is of the kind susceptible to the R–Q–L trouble, is real. So something real brings about logical impossibility of @; here, the verb “brings” should be understood with a special modal tense attached to it, where that modal tense goes beyond the local metaphysical–space tense, “brings$_{\lambda\rho}$. This is a complication I do not address squarely but only vaguely hint at it in the book when I mention alternate logical spaces and modal tenses. I plan to deal with it more explicitly and extensively elsewhere.
What if Dave realizes that he is looking at the same patch? Will he be irrational to affirm (3) and (4) but deny (5)? My first reaction is to say that if he realizes that they are the same patch, he will not deny (5). If he denies (5), then there is some disconnect between his belief state and his expression of his belief state. This situation is not to be accommodated by a theory of belief content but by a theory of belief expression. For example, Dave may be simply lying, or there may be a mechanical malfunction within his mind’s functional architecture. Neither of these cases makes him irrational.

Even if (3) and (4) in his mouth express two different propositions, if Dave realizes that he is looking at the same patch, then he realizes, on the basis of his perceptual evidence, that the two different propositions both include @ in their respective truth collections, and he cannot coherently disbelieve (5). Remember that in Dave’s case, to believe that this patch is that patch is to believe that this patch is actually that patch.

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I am grateful to Roberta Ballarin, Reina Hayaki, and Seahwa Kim for reading my book closely and offering thoughtful and helpful comments. Although some parts of the book are left untouched, their comments address most of the key topics of the book. I tried to respond to each comment separately, doing my best to be as clear and thorough as I can within the limitations of space.