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DISCUSSION

NOTE ON DEFINITION AND IMPOSSIBILITY

ALISABETH AYARS
Princeton University Department of Philosophy

I

Rosen's account of real definition requires an addendum to exclude spurious definitions of impossible properties (Rosen 2015; n. 17). Steward's purports to have identified two sorts of cases in which Rosen's proposed criterion misfires, in the first by rejecting bona fide definitions of impossible properties, and in the second by admitting bogus ones. With respect to the first problem, I argue Steward errs in his application of Rosen's test; in fact, it correctly identifies the candidate definitions as correct. Rosen's filter indeed fails to handle the second problem; but a straightforward fix is available, which I supply. Thus, I submit, the complications imposed by impossible properties are no great obstacle to Rosen's account of definition.

II

Rosen's preliminary account of real definition has the inconvenient consequence that every impossible property is defined by every impossible condition. The preliminary account holds that a property F is defined by a condition ϕ if and only if, necessarily, whenever something is F or ϕ, it is F in virtue of being ϕ. In symbols:

Rosen's Definition of Definition:
Def(F,ϕ) iff:

(a) $\Box\forall x\ ((Fx \lor \phi x) \rightarrow (Fx \leftarrow \phi x))$

Unfortunately, when F and ϕ are impossible, (1) is vacuously satisfied; thus, we get bogus definitions of impossible properties in terms of impossible conditions. (For example, the account implies that to be a square circle is to be a massless duck.)

To exclude the spurious definitions, Rosen proposes an additional condition: in a correct definition, the necessitated conditional (a) must have at least one full ground that does not invoke the fact that F's are impossible or that ϕ's are impossible (Rosen 2015, n. 17). That is, the truth of the necessitated conditional must be fully grounded in at least one set of facts that does not include the fact that F's are impossible or the fact that ϕ's are impossible. Or, less formally: It must not merely be *in virtue* of the impossibility of F's or ϕ's that the candidate definition obtains.

In the example, it is certainly true that necessarily, if something is a square circle or a massless duck, this is so in virtue of the fact that it is a massless duck; however, the conditional fact obtains *only because* square circles and massless ducks are impossible. The criterion thus excludes this spurious definition.

III

Steward first objects that Rosen's criterion rejects legitimate definitions of impossible properties, in addition to spurious ones. Massless duck is a bogus definition of square circle. However, consider the following definition of square circle:

(1) x is a square circle $=_{df}$ x is an equilateral rectangle $\wedge$ x is the set of all points equidistant from a point.

This definition is legitimate. But, Steward contends, the associated conditional (of form (a)) obtains only in virtue of the impossibility of F's and ϕ's, and thus must be rejected according to Rosen's criterion:

> "[Rosens' theory requires that the candidate definition…] is true in virtue of something other than the impossibility of circular squares. Condition φ must also be impossible if it defines circular squareness. But then [the candidate definition] is vacuously true, and I see nothing that could ground its truth other than the impossibility of circular squares and φs" (pg. 2)

However, I contend that this analysis of the case is mistaken; the truth of the candidate definition is not reliant on the impossibility of F's or ϕ's. Take a structurally analogous case in which all of the relevant properties are possible. For any such case, if ϕ defines F and ψ defines G, then the conjunctive property F $\wedge$ G is defined by the conjunctive condition ϕ $\wedge$ ψ. And, the necessitated conditional is grounded in the facts just given concerning the definitions of F, G, and F $\wedge$ G.

And we may say the same in the case in which F $\wedge$ G is impossible. The necessitated conditional associated with (1) is grounded in the fact that *square* is defined by *equilateral rectangle* and the fact that *circle* is defined by *set of points equidistant from a point,* perhaps together with a principle to the effect that if φ defines F and ψ defines G, (F ∧ G)x is always grounded in φx ∧ ψx. That is, it is grounded in the conjunction of (2–4) below):

□∀x[((Square ∧ Circle)(x)) ∨ (EquilRect(x) ∧ SetofPtsEqui(x))) → (((Square ∧ Circle)(x)) ← (EquilRect(x) ∧ SetofPtsEqui(x))]

Is grounded in…

(2) Square $=_{df}$ Equilateral rectangle

(3) Circle $=_{df}$ Set of points equidistant from a point

(4) It lies in the nature of *conjunction* and *definition* that if φ defines F and ψ defines G, then:
□∀x [((F ∧ G)x ∨ (φx ∧ ψx)) → ((F ∧ G)x ← (φx ∧ ψx))]

And, the ground constituted by (2–4) does not involve the fact that F's or Φ's are impossible.

Supposing F's and ϕ's were possible, the candidate definition would also be grounded in this way.

Of course, the candidate definition *also* obtains (spuriously) in virtue of the impossibility of F and ϕ; their impossibility is an alternative ground of it. But this is just to say that it is *overdetermined* by both the impossibility of F and ϕ, and (2–4). On Rosen's proposal, a definition is vacuous only if *every* full ground of it includes the fact that F's or ϕ's are impossible. So this example is not a problem for Rosen's account.

IV

Second, the author contends that Rosen's filter erroneously approves bogus definitions formed by disjoining the definienda of legitimate definitions with impossible properties.

Consider the property of being a *triangle or a round square.* It is implausible this property is defined as being a *3-sided planar figure,* notes Stewards. However, the fact that x is a *triangle or a round square* is always grounded in x's being a *3-sided planar figure*, since x's being *a triangle or a round square* is always grounded in x's *being a triangle* (given that round squares are impossible), and *being a triangle* is in turn always grounded in being a *3-sided planar figure.* And, none of this is in virtue of the impossibility of F's or ϕ's, since neither F's nor ϕ's are impossible.

Rosen's test fails to exclude spurious definitions constructed via this route. However, the complication they present is not insurmountable; a tweak to the original filter will handle them. Consider the conditional associated with the spurious definition:

(5) □∀x[(triangle ∨ roundsquare)(x) → ((triangle ∨ roundsquare)(x) ← (3-sidedplanarfigure)(x))].

The first thing to note is that the conditional is true, but only because round squares are impossible. We ought to be able to exclude the spurious definition, then, by requiring that genuine definitions have a full ground that does not invoke the impossibility of something—only this time, we must be able to cite the impossibility of a *disjunct* of F. Let us expand the Rosen filter, then, as follows:

Amended account: Def (F, ϕ) iff

(a) $\Box\forall x\ ((Fx \vee \phi x) \rightarrow (Fx \leftarrow \phi x))$, and
(b) The fact (a) has at least one full ground that does not involve the fact that F is impossible, or that ϕ is impossible, or that any disjunct of F or ϕ is impossible.

This amendment may seem ad hoc. However, the concern is lessened by it having a transparent rationale (which Steward illuminates): Whenever Px is always grounded in ϕx, then if R is an impossible property, the disjunction (P ∨ R)x is also always grounded in ϕx, since (P ∨ R)x will never obtain in virtue of Rx obtaining. But the relationship between the property P ∨ R and the condition ϕ will not hold in virtue of there being an interesting definitional connection between P ∨ R and ϕ. Rather, its truth will be guaranteed merely by the absence of worlds in which (P ∨ R)x is in virtue of Rx but not Px, thus allowing P ∨ R to inherit the definition of P.[1]

Even if the modification invoking *disjunct of F or* ϕ is unacceptably ad hoc, it is likely the same effect could be achieved with a more general condition. For instance: Suppose we simply require of bona fide definitions that the associated conditional have at least one full ground that does not cite the impossibility of *anything*—not F, not Φ, not a disjunct of F or ϕ, nor any other property.[2] The intuitive idea is that the conditionals associated with correct definitions should affirm a connection between properties that would hold even if, per impossibile, every property involved were possible. (Rosen's formulation of the constraint in terms of grounding is meant to capture this idea: the conditional should not hold *only* because one of the properties involved is impossible.) The obvious risk, of course, is that a requirement of this generality will veto too much—but no obvious problem cases come to mind.

1 Note that we do not really need to specify the exclusion of definitions resulting from the impossibility of a disjunctive part of ϕ (in addition to F); candidate definitions cannot be generated via this route. That Qx is always grounded in Px does not imply that it is also always grounded in (Px ∨ Rx), even if R is impossible—the addition of the impossible disjunct in the definiens (in contrast to the definiendum) spoils the definition. Since grounding is an explanatory relation, it can be spoiled by the substitution of co-extensive properties; the disjoining of arbitrary disjuncts in the definiendum is kosher only due to the formal principle that disjunctions are always in virtue of their true disjuncts.

2 The suggestion of the more general requirement is due to [Rosen].

V

Thus, although impossible properties indeed make trouble for Rosen's account of definition, the complications they introduce are not intractable. Rosen's original filter is the right sort of strategy for containing them; tweaking it as indicated will take care of the problem cases Steward introduces. Moreover, even the suggested modification is unacceptably ad hoc, a more general condition will likely prove satisfactory.

Reference

Rosen, Gideon "Real Definition," *Analytic Philosophy* 56.3 (2015): 189–209.