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Hylomorphic Propositions*

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> We are led, by these considerations, to a picture of the material world that has much more in common with the abstract realms of sets or of propositions than with the realms of concreta envisaged by the mereologist or by his "three-dimensional" opponent.
>
> —Kit Fine, 'Things and Their Parts' (1999: 74)

20.1 Introduction

Consider some wood-and-metal ingredients: four legs, a top, and some hardware. On one view, it's because these wood-and-metal ingredients stand in a table-building relation that a table exists; and the resulting table is essentially connected to the wood-and-metal ingredients and the table-building relation. The wood-and-metal ingredients and the table-building relation are all parts of the table; it's composed of them.[1] In a way, the wood-and-metal ingredients are the *matter* of the table, and the table-building relation is its *form*. The table is thus a *hylomorphism*, in the sense that it's composed of its matter and its form.[2]

In this paper, we develop a parallel view about propositions. Consider the proposition that Rosa protests; call it 'PROTEST'. On this view, it's because Rosa and the property *protesting* stand in a proposition-building relation that PROTEST exists, and PROTEST is essentially connected to Rosa, *protesting*, and the proposition-building relation. Rosa, *protesting*, and the proposition-building relation are all parts of PROTEST; it's composed of them. Rosa and *protesting* are the matter of PROTEST, and the proposition-building relation is its form. PROTEST is thus a hylomorphism in the sense that, like the table, it's composed of its matter and its form.[3] Since any view that appeals to matter and form is at least vaguely Aristotelian, let's call this view *the vaguely Aristotelian view*.

In Section 20.2, we present some background. In Section 20.3, we present a vaguely Spinozistic view about triangles, as a model of things to come. In Section 20.4, we present the vaguely Aristotelian view. In Section 20.5, we extend the vaguely Aristotelian view to gappy propositions. And, in Section 20.6, we compare the vaguely Aristotelian view with some closely related views.

20.2 Background

20.2.1 Propositions, Truth-Conditions, and Parts

We assume that there are propositions, that they have truth-conditions, and that they have parts. For example, PROTEST is a proposition; necessarily, it's true if and only if Rosa has *protesting*; and it has Rosa and *protesting* as parts.[4]

Propositions are entities that play at least three theoretical roles. First, propositions are expressed by sentences. For example,

(1) Rosa protests.

in English expresses PROTEST, as does

(2) Rosa protesterer.

in Norwegian. Second, propositions can be true or false. For example, PROTEST is true. And, third, propositions can be asserted, believed, denied, doubted, and so on. For example, Coretta can assert PROTEST, and Martin can believe it.

20.2.2 Grounding and Essence

As we develop it, the vaguely Aristotelian view appeals to *grounding* and *essence*.

We take grounding to be a relation between facts.[5] For example, the fact that the singleton set {Rosa} has Rosa as a member and the fact that Rosa is rational together ground the fact that {Rosa} has a rational member; and, on its own, the fact that {Rosa} has Rosa as a member grounds the fact that {Rosa} has a member.

We also take grounding to be explanatory.[6] For example, if the fact that {Rosa} has Rosa as a member grounds the fact that {Rosa} has a member, then there's a sense in which the first fact explains the second. In other words, there's a sense in which the second fact obtains *in virtue of* the first fact, or the second fact obtains *because* the first one does.

Now to essence. To use a traditional example, Rosa is rational. The connection between Rosa and *being rational* isn't accidental; rather, it's essential. We can put this claim about Rosa's essence by saying that it lies in her essence to be rational.[7]

Properties and relations can also have essences. For example, just as it lies in Rosa's essence to have *being rational*, it might lie in the essence of *being rational* to be a universal with exactly one slot.[8]

We take essence to be *constitutive* rather than *consequential*.[9] Roughly, consequential essence is closed under logical consequence, whereas constitutive essence isn't. For example, it lies in Rosa's constitutive essence to be rational. But, even if in some sense *being either rational or law-abiding* is a logical consequence of *being rational*, it needn't lie in Rosa's constitutive essence to be either rational or law-abiding.

Kit Fine (2012: 79) and Gideon Rosen (2015: 195–96) propose to take consequential essence as primitive and use it to define constitutive essence. We think that this is a mistake.[10] We propose to take constitutive essence as primitive instead.[11]

20.2.3 Propria

The vaguely Aristotelian view also appeals to *propria*.[12] To use a traditional example, Rosa is rational, is an animal, and has a sense of humor. On the traditional view, it lies in her essence to be rational and to be an animal, but it doesn't lie in her essence to have a sense of humor. Although the connection

between Rosa and *having a sense of humor* isn't essential, it isn't accidental either. There's supposed to be an especially tight connection between *having a sense of humor*, on the one hand, and *being rational* and *being an animal*, on the other. (By contrast, there isn't supposed to be such a connection between *being a seamstress*, for example, and *being rational* and *being an animal*.) To use the traditional term, *having a sense of humor* is among Rosa's propria.[13] We can put this claim about Rosa's propria by saying that it flows from her essence that she has a sense of humor.[14] On this way of speaking, it *lies in* her essence to be rational, but it *flows from* her essence that she has a sense of humor.

This gives rise to a three-fold distinction among Rosa's properties: some are in her essence (e.g., *being rational*, *being an animal*); others, which are tightly connected to her essence, are among her propria (e.g., *having a sense of humor*); and yet others, which aren't tightly connected to her essence in that way, are accidental (e.g., *being a seamstress*).

Or, to use another example, a helium atom has exactly two protons in its nucleus, and it has exactly two electrons in its only electron shell. It lies in the helium atom's essence to have exactly two protons, but it doesn't lie in its essence to have exactly two electrons. Although the connection between the helium atom and *having exactly two electrons* isn't essential, it isn't accidental either. There's an especially tight connection between *having exactly two electrons* and *having exactly two protons*. It flows from the helium atom's essence that it has exactly two electrons; *having exactly two electrons* is among its propria.[15]

Speaking a bit loosely, propria are grounded in essence. For example, it lies in Rosa's essence to have *being rational*, and it lies in her essence to have *being an animal*. Together, the fact that she is rational and the fact that she is an animal ground the fact that she has a sense of humor. And *having a sense of humor* is among her propria. But grounding doesn't suffice for propria. For example, it lies in Rosa's essence to have *being rational*, and the fact that she's rational grounds the fact that she's either rational or law-abiding. But *being either rational or law-abiding* isn't among her propria.

Fine (1995: 57) suggests that the distinction between constitutive and consequential essence 'corresponds roughly to the traditional distinction between essence and propria'. But that seems incorrect, since (speaking a bit loosely again) propria needn't be logical consequences of essence. For example, it lies in Rosa's consequential essence to have *being rational* and to have *being an animal*. Consequential essence is closed under logical consequence. But *having a sense of humor* isn't a logical consequence of *being rational* and *being an animal*, so perhaps it doesn't lie in her consequential essence to have *having a sense of humor*, even if that property is among her propria.

We propose to take the relation between essence and propria as primitive.[16] (Readers who are skeptical are invited to read 'flows from' as 'is grounded in'.)

20.3 Triangle *ABC* and Δ-Builder

20.3.1 *Triangle ABC*

Intuitively, a triangle is a geometrical figure with three angles and three sides. More carefully, a triangle is a closed planar figure that has three edges that meet at three vertices. For example, triangle *ABC* is a closed planar figure that has three edges and that has the points *A*, *B*, and *C* as its vertices.

We can also think of a triangle as being determined by three non-collinear points. For example, given that *A*, *B*, and *C* are three non-collinear points, triangle *ABC* is determined by *A*, *B*, and *C*.

This gives rise to two different views about the essence of triangle *ABC*. On one view, its essence has to do with being a closed planar figure with certain properties. On another view, its essence has to do with being determined by *A*, *B*, and *C* when they're arranged in a certain way. It's this second view that we develop in this section. For reasons that we return to shortly, this second view is vaguely Spinozistic; let's call it *the vaguely Spinozistic view*.

On the vaguely Spinozistic view, it lies in the essence of triangle *ABC* to be determined by *A*, *B*, and *C* when they're arranged in a certain way. The determination in question here is grounding. Triangle

ABC is *essentially grounded* in the fact that *A*, *B*, and *C* are arranged in a certain way, in the following sense: it lies in the essence of triangle *ABC* to be such that the fact that it exists is grounded in the fact that *A*, *B*, and *C* are arranged in that way.[17]

Let's introduce 'Δ-builder' (pronounced 'delta-builder') as a name for the property that reflects the arrangement in question. One option is to take Δ-builder to be a plural property. On this option, Δ-builder is a universal with exactly one slot, and it lies in the essence of that slot to be filled in with several entities per occurrence.[18] *A*, *B*, and *C* instantiate Δ-builder if and only if they're non-collinear. Δ-builder might be the property *being three points such that none of them lies on the line between the other two*. (Three points are non-collinear if and only if none of them lies on the line between the other two.) Triangle *ABC* is essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder.

It doesn't lie in the essence of triangle *ABC* to be a closed planar figure with certain properties, but the connection between triangle *ABC* and being a closed planar figure with those properties isn't accidental either. Rather, it flows from the essence of triangle *ABC* that it's a closed planar figure with those properties; *being a closed planar figure*, *having three edges*, and *having A, B, and C as its vertices* are among the propria of triangle *ABC*.

In Letter 60, Spinoza (1675) says,

> a circle is the space described by a line of which one point is fixed and the other moveable. Since this definition now expresses the efficient cause, I know that I can deduce from it all the properties of a circle.

Spinoza's remarks inspire the thought that the essence of a circle ('this definition') has to do with its construction ('the efficient cause') and that, although its essence doesn't include familiar geometrical properties ('all the properties of a circle'), the fact that the circle has those properties nonetheless flows (can be 'deduced') from its essence. In the case of triangle *ABC*, the parallel thought would be that the essence of triangle *ABC* has to do with its construction (in particular, a fact about Δ-builder) and that, although its essence doesn't include *being a closed planar figure*, *having three edges*, and *having A, B, and C as its vertices*, having these properties nonetheless flows from its essence.

Intuitively, *A*, *B*, and *C* are parts of triangle *ABC*, as are the edges that connect those points. On the vaguely Spinozistic view, Δ-builder is also a part of triangle *ABC*. (This is one of several respects in which the vaguely Spinozistic view is only vaguely Spinozistic.) It doesn't lie in the essence of triangle *ABC* to have these parts, but the connection between triangle *ABC* and its parts isn't accidental either. Rather, it flows from the essence of triangle *ABC* that it has these parts; *having A, B, and C as parts*, *having the edges that connect A, B, and C as parts*, and *having Δ-builder as a part* are among its propria. We say more in the next subsection about why triangle *ABC* has these propria.

20.3.2 Δ-Builder

Triangle *ABC* has an essence: it's essentially grounded in a fact about Δ-builder. Δ-builder has an essence, too. The essence of Δ-builder tells us something about the essence of triangle *ABC*, among other things.

Speaking generally, it lies in the essence of Δ-builder to be such that (*i*) some entities instantiate it if and only if a certain condition is met and (*ii*), whenever some entities instantiate it, an additional entity exists. A little more precisely, it lies in the essence of Δ-builder to be such that the following principles are true.

Δ **Principle about Instantiation:** For any entities *xx*, *xx* instantiate Δ-builder if and only if *xx* are three points such that none of them lies on the line between the other two.

Δ **Principle about Grounding:** For any entities *xx*, if *xx* instantiate Δ-builder, then there's an entity that's essentially grounded in the fact that *xx* instantiate Δ-builder.

Δ-builder is *essentially governed* by Δ Principle about Instantiation and Δ Principle about Grounding in the following sense: it lies in the essence of Δ-builder to be such that those principles are true.[19]

Suppose that *A*, *B*, and *C* are three non-collinear points. In that case, none of them lies on the line between the other two. So, by Δ Principle about Instantiation, *A*, *B*, and *C* instantiate Δ-builder. And, by Δ Principle about Grounding, there's an entity that's essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder. Given a further assumption, there's only one such entity.

The further assumption is the following principle.

> **Uniqueness of Essential Grounding (1):** For any entities *xx*, any plural property *F*, and any entities *y* and *z*, if *y* is essentially grounded in the fact that *xx* instantiate *F*, and if *z* is essentially grounded in the fact that *xx* instantiate *F*, then *y* = *z*.

By Uniqueness of Essential Grounding (1), if something is essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder, then it's the only such entity. The unique entity that's essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder is triangle *ABC*.

As mentioned in the previous subsection, triangle *ABC* has propria: it's a closed planar figure that has three edges and that has *A*, *B*, and *C* as its vertices; and it has *A*, *B*, *C*, the edges that connect them, and Δ-builder as parts. We can now say something about why triangle *ABC* has these propria: Δ-builder also has propria, and they tell us about the propria of triangle *ABC*, among other things.

It flows from the essence of Δ-builder that the following principles are true.

> Δ **Principle about Spatial Extension:** For any entities *xx* and any entity *y*, if *y* is essentially grounded in the fact that *xx* instantiate Δ-builder, then the following facts flow from *y*'s essence: *y* is a closed planar figure, *y* has three edges, and *y* has *xx* as its vertices.

> Δ **Principle about Parts:** For any entities *xx* and any entity *y*, if *y* is essentially grounded in the fact that *xx* instantiate Δ-builder, then, for any entity *z* such that *z* is among *xx*, or *z* is an edge connecting two points that are among *xx*, or *z* is Δ-builder, the following fact flows from *y*'s essence: *z* is a part of *y*.

Triangle *ABC* is essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder. So, by Δ Principle about Spatial Extension, it flows from its essence that it's a closed planar figure that has three edges and that has *A*, *B*, and *C* as its vertices. And, by Δ Principle about Parts, it flows from its essence that it has *A*, *B*, *C*, the edges that connect them, and Δ-builder as parts.

Table 20.1 What flows from what on the vaguely Spinozistic view. '$x \rightarrow_f y$' indicates that y flows from x

Triangle *ABC* is essentially grounded in the fact that *A*, *B*, and *C* instantiate Δ-builder.	$\rightarrow_f$	Triangle *ABC* is a closed planar figure that has three edges and that has *A*, *B*, and *C* as its vertices.
		Triangle *ABC* has *A*, *B*, *C*, the edges that connect them, and Δ-builder as parts.
Δ-builder is essentially governed by Δ Principle about Instantiation and by Δ Principle about Grounding.	$\rightarrow_f$	Δ Principle about Spatial Extension
		Δ Principle about Parts

20.4 PROTEST and Π-Builder

20.4.1 PROTEST

On the vaguely Aristotelian view, PROTEST is essentially grounded in the fact that Rosa and *protesting* stand in a certain relation, in the sense that it lies in the essence of PROTEST to be such that the fact that it exists is grounded in the fact that Rosa and *protesting* stand in that relation.

Let's introduce 'Π-builder' (pronounced 'pi-builder') as a name for the relation in question. One option is to take Π-builder to be ordered, singular, and dyadic: dyadic, in the sense that it's a universal with exactly two slots; ordered, in the sense that there's a first slot and a second slot; and singular, in the sense that it lies in the essence of each slot to be filled in with exactly one entity per occurrence.[20] (We consider other options in Section 20.4.3.) On this option, some entities instantiate Π-builder if and only if the entity in the second slot is a property of the right sort: specifically, a non-paradoxical singular property.[21] (A singular property is a universal with exactly one slot, where it lies in the essence of that slot to be filled in with exactly one entity per occurrence.) PROTEST is essentially grounded in the fact that Rosa and *protesting* in that order instantiate Π-builder – or, as we will say, the fact that Rosa stands in Π-builder to *protesting*.

It doesn't lie in the essence of PROTEST to be such that, necessarily, it's true if and only if Rosa has *protesting*.[22] Rather, it flows from its essence that it has those truth-conditions; *being something that, necessarily, is true if and only if Rosa has <u>protesting</u>* is among its propria.

On the vaguely Aristotelian view, Rosa and *protesting* are parts of PROTEST, as is Π-builder. It doesn't lie in the essence of PROTEST to have these parts. Rather, it flows from its essence that it has these parts; *having Rosa as a part, having <u>protesting</u> as a part*, and *having Π-builder as a part* are among its propria. We say more in the next subsection about why PROTEST has these propria.

20.4.2 Π-*Builder*

PROTEST has an essence: it's essentially grounded in a fact about Π-builder. Π-builder has an essence, too. The essence of Π-builder tells us something about the essence of PROTEST, among other things.

Speaking generally, it lies in the essence of Π-builder to be such that (*i*) some entities instantiate it if and only if a certain condition is met and (*ii*), whenever some entities instantiate it, an additional entity exists. A little more precisely, it lies in the essence of Π-builder to be such that the following principle is true.

> Π **Principle about Standing:** For any entities *x* and *y*, *x* stands in Π-builder to *y* if and only if *y* is a non-paradoxical singular property.

(Given Π Principle about Standing, if some entities stand in Π-builder, at least one of them is a property. So, in what follows, we restrict principles to 'any property *F*' without loss of generality.) It also lies in the essence of Π-builder to be such that the following principle is true.

> Π **Principle about Grounding:** For any entity *x* and any property *F*, if *x* stands in Π-builder to *F*, then there's an entity that's essentially grounded in the fact that *x* stands in Π-builder to *F*.

Π-builder is essentially governed by Π Principle about Standing and Π Principle about Grounding in the sense that it lies in the essence of Π-builder to be such that those principles are true.

The singular property *protesting* isn't paradoxical. So, by Π Principle about Standing, Rosa stands in Π-builder to *protesting*. And, by Π Principle about Grounding, there's an entity that's essentially

Table 20.2 What flows from what on the vaguely Aristotelian view. '$x \rightarrow_f y$' indicates that y flows from x

PROTEST is essentially grounded in the fact that Rosa stands in Π–builder to *protesting*.	$\rightarrow_f$	Necessarily, PROTEST is true if and only if Rosa has *protesting*.
		PROTEST has Rosa, *protesting*, and Π–builder as parts.
Π–builder is essentially governed by Π Principle about Standing and by Π Principle about Grounding.	$\rightarrow_f$	Π Principle about Truth-Conditions
		Π Principle about Parts

grounded in the fact that Rosa stands in Π–builder to *protesting*. Given a further assumption, there's only one such entity.

The further assumption is the following principle.

> **Uniqueness of Essential Grounding (2):** For any entities x, y, z, and w, and any relation R, if z is essentially grounded in the fact that x stands in R to y, and if w is essentially grounded in the fact that x stands in R to y, then $z = w$.

By Uniqueness of Essential Grounding (2), if something is essentially grounded in the fact that Rosa stands in Π–builder to *protesting*, then it's the only such entity. The unique entity that's essentially grounded in the fact that Rosa stands in Π–builder to *protesting* is PROTEST.

PROTEST has propria: necessarily, it's true if and only if Rosa has *protesting*; and it has Rosa, *protesting*, and Π–builder as parts. We can now say something about why PROTEST has these propria: Π–builder also has propria, and they tell us about the propria of PROTEST, among other things.

It flows from the essence of Π–builder that the following principles are true.

> Π **Principle about Truth-Conditions:** For any entities x and y, and any property F, if y is essentially grounded in the fact that x stands in Π–builder to F, then the following fact flows from y's essence: necessarily, y is true if and only if x has F.

> Π **Principle about Parts:** For any entities x and y, and any property F, if y is essentially grounded in the fact that x stands in Π–builder to F, then, for any entity z such that z is among x, F, and Π–builder, the following fact flows from y's essence: z is a part of y.

PROTEST is essentially grounded in the fact that Rosa stands in Π–builder to *protesting*. So, by Π Principle about Truth-Conditions, it flows from its essence that, necessarily, it's true if and only if Rosa has *protesting*. And, by Π Principle about Parts, it flows from its essence that it has Rosa, *protesting*, and Π–builder as parts.

20.4.3 Proposition-Builder

Π–builder is limited to singular monadic propositions (roughly, atomic propositions that contain singular properties). One could supplement it with other proposition-building relations for other kinds of propositions. Or one could replace Π–builder with a single, overarching proposition-building relation; call it 'proposition-builder'.

Proposition-builder is variably polyadic: it can have two or more slots, as needed.[23] Rosa and *protesting* can stand in proposition-builder, but so can Rosa, *inspiring*, and Martin.

Complications aside, proposition-builder is essentially governed by something like the following two principles.[24] (When x_1, x_2, …, x_n, and y in that order stand in proposition-builder, let's say that x_1, x_2, …, x_n stand in proposition-builder to y.)

Principle about Standing: For any entities x_1, x_2, …, x_n, and any entity y, x_1, x_2, …, x_n, stand in proposition-builder to y if and only if y is a non-paradoxical property or relation with exactly n slots.

Principle about Grounding: For any entities x_1, x_2, …, x_n, and any property or relation R, if x_1, x_2, …, x_n stand in proposition-builder to R, then there's an entity that's essentially grounded in the fact that x_1, x_2, …, x_n stand in proposition-builder to R.

By Principle about Standing, Rosa and Martin stand in proposition-builder to *inspiring*, since it's a non-paradoxical relation with exactly two slots. So, by Principle about Grounding, there's an entity that's essentially grounded in the fact that Rosa and Martin stand in proposition-builder to *inspiring*. That entity is unique (given a suitably generalized principle about the uniqueness of essential grounding); it's the proposition that Rosa inspires Martin.

It flows from the essence of proposition-builder that the following two principles are true.

Principle about Truth-Conditions: For any entities x_1, x_2, …, x_n, any entity y, and any property or relation R, if y is essentially grounded in the fact that x_1, x_2, …, x_n stand in proposition-builder to R, then the following fact flows from y's essence: necessarily, y is true if and only if x_1, x_2, …, x_n in that order instantiate R.

Principle about Parts: For any entities x_1, x_2, …, x_n, any entity y, and any property or relation R, if y is essentially grounded in the fact that x_1, x_2, …, x_n stand in proposition-builder to R, then, for any entity z such that z is among x_1, x_2, …, x_n, R, and proposition-builder, the following fact flows from y's essence: z is a part of y.

The proposition that Rosa inspires Martin is essentially grounded in the fact that Rosa and Martin stand in proposition-builder to *inspiring*. By Principle about Truth-Conditions, that proposition is such that, necessarily, it's true if and only if Rosa stands in *inspiring* to Martin; and, by Principle about Parts, it has Rosa, Martin, *inspiring*, and proposition-builder as parts.

20.5 Gappy Propositions

20.5.1 *'Vulcan' and 'Is Non–Self-Instantiating'*

'Vulcan' is a name introduced by nineteenth-century astronomers who believed, falsely, that there's a planet between Mercury and the Sun. Consider the following sentences.

(3) Vulcan is a planet.

(4) Rosa is non-self-instantiating.

(5) Vulcan is non-self-instantiating.

It seems that (3)–(5) express something. In what follows, we assume that they do. Let's call whatever they express 'Content 3', 'Content 4', and 'Content 5', respectively.

Contents 3–5 can play at least some of our propositional roles.

First, CONTENTS 3–5 can be expressed by sentences. For example, (3)–(5) express CONTENTS 3–5, respectively, as do

(6) Vulcan er en planet.

(7) Rosa er ikke–selv-instansierende.

(8) Vulcan er ikke–selv-instansierende.

in Norwegian.

Second, it seems that at least some of CONTENTS 3–5 can be true or false. Perhaps CONTENT 3 is false, because there's no planet between Mercury and the Sun. Perhaps CONTENT 4 is true, because Rosa isn't a property, and only properties can be self-instantiating. And, although intuitions are less settled here, perhaps CONTENT 5 is also true, because 'Vulcan' doesn't pick out one of the self-instantiating entities.

And, third, CONTENTS 3–5 can be asserted, believed, denied, doubted, and so on. For example, Coretta can assert CONTENTS 3–5, and Martin can believe them.

20.5.2 Gappy Propositions

On one view, 'Vulcan' doesn't have any semantic content (that is, it doesn't contribute anything to what's expressed by sentences that contain it), but (3) still expresses something that can be represented as the would-be ordered pair picked out by the expression displayed below.[25]

(3a) <___, *being a planet*>

Let's call this view *the gappy view* about the semantic content of 'Vulcan', and let's call the entity represented as <___, *being a planet*> a *gappy proposition*.

Similarly, on one view 'is non–self-instantiating' doesn't have any semantic content (on pain of paradox), but (4) still expresses something that can be represented as the would-be ordered pair picked out by the expression displayed below.[26]

(4a) <Rosa, ___>

Let's call this view *the gappy view* about the semantic content of 'is non–self-instantiating'.

If the gappy views about the semantic content of 'Vulcan' and the semantic content of 'is non–self-instantiating' are both true, then (5) expresses something that can be represented as the would-be ordered pair picked out by the expression displayed below.

(5a) <___, ___>

David Braun (1993: 462) seems to describe the possibility of such a thoroughly gappy proposition when he says, 'a sentence might generate a propositional structure without generating basic semantic values to fill in that structure'.[27]

In what follows, we assume that the gappy views about the semantic content of 'Vulcan' and the semantic content of 'is non–self-instantiating' are both true, and we assume that CONTENTS 3–5 are the gappy propositions represented as <___, *being a planet*>, <Rosa, ___>, and <___, ___>.

20.5.3 Parts of Propositions

On the vaguely Aristotelian view, there are entities that are the gappy propositions represented as <___, *being a planet*>, <Rosa, ___>, and <___, ___>.

The gappy proposition represented as <___, *being a planet*> is a proper part of many propositions, including the proposition that Mars is a planet.[28] In effect, it's the mereological difference between Mars and the proposition that Mars is a planet: it's what you get when you remove Mars from that proposition.

Similarly, the gappy proposition represented as <Rosa, ___> is a proper part of many propositions, including Protest. In effect, it's the mereological difference between *protesting* and Protest: it's what you get when you remove *protesting* from Protest.

These proper parts of propositions are plausible candidates for being the gappy propositions represented as <___, *being a planet*>, and <Rosa, ___>. They can be expressed by sentences, and they can be asserted and believed. But, admittedly, they're not perfect. In particular, unless they somehow inherit truth-conditions from the propositions that they're proper parts of, they don't have truth-conditions.[29]

Along similar lines, the gappy proposition represented as <___, ___> would be a proper part of many propositions, including the proposition that Mars is a planet and Protest. In effect, it's the mereological difference Mars and *being a planet*, on the one hand, and the proposition that Mars is a planet, on the other, or between Rosa and *protesting*, on the one hand, and Protest, on the other: it's what you get when you remove Mars and *being a planet* from the proposition that Mars is a planet, or when you remove Rosa and *protesting* from Protest. Perhaps this is simply Π–builder. If that's right, then the gappy proposition represented as <___, ___> is a part of (at least) every singular monadic proposition.

Π–builder might be a plausible candidate for being the gappy proposition represented as <___, ___>. Perhaps it can be expressed by sentences, and perhaps it can be asserted and believed. But Π–builder isn't perfect either. Unless it somehow inherits truth-conditions from the propositions that it's a proper part of, Π–builder doesn't have truth-conditions.[30]

20.6 Gilmore This Volume and Fine 2010

20.6.1 *Gilmore This Volume*

There's a deep affinity between the vaguely Aristotelian view and Cody Gilmore's (this volume) view of propositions in 'Why 0–adic Relations Have Truth Conditions'. In the case of Protest, both views offer a (largely) ground-theoretic explanation of a fact about its truth-conditions by appealing to a fact about the constitutive essence of a universal. (On the vaguely Aristotelian view, the universal in question is Π–builder; whereas, on Gilmore's view, the universal in question is *protesting*.[31])

Consider Rosa and *protesting*. Some proposition-building relation brings them together into Protest. On the vaguely Aristotelian view, that relation is called 'Π–builder'; whereas, on Gilmore's view, that relation is called 'PLUG1'.[32] But that might be merely a matter of terminology.

One difference between the vaguely Aristotelian view and Gilmore's view is that, on the vaguely Aristotelian view, Π–builder is a part of Protest; whereas, on Gilmore's view, PLUG1 isn't. This difference matters when it comes to gappy propositions.

On Gilmore's view, what remains when you remove Mars from the proposition that Mars is a planet might be *being a planet*. Setting aside the question of whether it is plausible to identify gappy propositions with properties, someone who holds Gilmore's view could perhaps say that *being a planet* is the gappy proposition represented as <___, *being a planet*>. Similarly, what remains when you remove *protesting* from Protest might be Rosa. Setting aside the question of whether it is plausible to identify gappy propositions with people, someone who holds Gilmore's view could perhaps say that Rosa herself is the gappy proposition represented as <Rosa, ___>.

But what remains when you remove Rosa and *protesting* from Protest isn't PLUG1, since PLUG1 isn't a part of Protest. So PLUG1 isn't the gappy proposition represented as <___, ___>. Indeed, on Gilmore's view, Protest is composed of Rosa and *protesting*. So, when you remove Rosa and *protesting* from Protest, it seems that there's nothing left to be the gappy proposition represented as <___, ___>.

This is potentially a drawback, if you think that the gappy proposition represented as <___, ___> is expressed by 'Vulcan is non–self-instantiating'.

20.6.2 Fine 2010

The vaguely Aristotelian view is also in the spirit of Fine's (2010: 576, 586–588) view of propositions in 'Towards a Theory of Part'.[33]

Fine (2010: 582) says, 'we may account for the identity of the proposition that Socrates is wise by saying that it is the result of applying the operation of predication to Socrates and the property of being wise'. Fine (2010: 582, note 18) understands claims about identity here to be claims about essence. So, on Fine's view, it lies in the essence of the proposition that Socrates is wise to be the result of applying a proposition-building operation – what Fine calls 'the operation of predication' – to Socrates and *being wise*. Or, in the case of PROTEST, it lies in the essence of PROTEST to be the result of applying a proposition-building operation to Rosa and *protesting*.

One difference between the vaguely Aristotelian view and Fine's view is that, on the vaguely Aristotelian view, Π–builder is a part of PROTEST; whereas, on Fine's view, predication isn't. As before, this difference matters when it comes to gappy propositions.

On Fine's view, what remains when you remove Rosa and *protesting* from PROTEST isn't predication, since predication isn't a part of PROTEST. So, on Fine's view, predication isn't the gappy proposition represented as <___, ___>.

Another difference between the vaguely Aristotelian view and Fine's view is that, on the vaguely Aristotelian view, Π–builder is a relation; whereas, on Fine's (2010: 576, 582, 588) view, predication is an operation. Fine (2010: 566, 589) allows operations to have zero inputs. Applying the operation of predication to zero inputs would produce a unique null proposition, which could be the gappy proposition represented as <___, ___>.

Allowing zero inputs in one or more places (as it were) would produce the gappy propositions represented as <___, *being a planet*> and <Rosa, ___>. Alternatively, someone who holds Fine's view could say that those gappy propositions are produced by removing Mars from the proposition that Mars is a planet and by removing *protesting* from PROTEST. On Fine's (2010: 587–88) view, the result of removing (or 'abstracting') Mars from the proposition that Mars is a planet is a property, *being a planet*. But, again setting aside the question of whether it is plausible to identify gappy propositions with properties, someone who holds Fine's view could perhaps say that *being a planet* is the gappy proposition represented as <___, *being a planet*>.

20.7 Conclusion

There's a lot we haven't touched on. We haven't said anything about representation or constituents. We haven't defended the assumption that Rosa and *protesting* are parts of PROTEST. We haven't addressed whether the vaguely Aristotelian view faces any Benacerraf (1965) problems.[34] Nor have we addressed various paradoxes about propositions or settled how to handle different kinds of propositions, including plural propositions.[35] We hope to do so elsewhere.

Notes

1 *xx* compose $\gamma =_{df}$ (*i*) for every *x*, if *x* is among *xx*, then *x* is a part of γ; and (*ii*), for every *z*, if *z* is a part of γ, then there's an *x* such that *x* is among *xx* and *z* overlaps *x*. (*z* overlaps $x =_{df} z$ and *x* have a part in common.)

2 See Koslicki (2008: 176–78, 182). See also Fine (1982, 1999, 2008).

3 See Fine (1999: 74). On Fine's (2010) more recent view, see Section 20.6.2.

4 On parts, see Tillman and Fowler (2012), Gilmore (2014). For a contrary view, see Keller (2013) and Merricks (2015).

5 See Rosen (2010: 114–15, 2015: 198). On Fine's (2012: 46–8) view, by contrast, grounding is best expressed by a sentential connective.

6 See Rosen (2010: 117) and Fine (2012: 37, 39). For the record, we also take grounding to be *factive* (rather than *non-factive*), *full* (rather than *partial*), *mediate* (rather than *immediate*), and *strict* (rather than *weak*). See Fine (2012: 48–52). For more on grounding, see, for example, Clark and Liggins (2012), Trogdon (2013b), and Raven (2015).

7 See Fine (1994, 1995) and Rosen (2015).

8 On slots in universals, see Gilmore (2013).

9 On the distinction between constitutive and consequential essence, see Fine (1995: 56–8, 2012: 78–9), Rosen (2015: 195). (For further references, see Nutting, Caplan, and Tillman 2018: 140, note 7.) For the record, we also take essence to be *immediate* (rather than *mediate*) and *individual* (rather than *collective*). See Fine (1995: 54–5, 61–2, 65–6).

10 See Nutting, Caplan, and Tillman (2018).

11 See also Koslicki (2012b: 195; 2013: 56, note 29), Correia (2013: 286–87), and Dasgupta (2014: 589).

12 The distinction between essence and propria comes from Porphyry's *Isagoge*. Some related (perhaps identical) distinctions include Gorman's (2005, 2014) distinction between 'essence' and 'necessary accident', Oderberg's (2007: 156–62, 2011) distinction between 'essence' and 'properties', and Koslicki's (2012a) distinction between 'essential features' and 'necessary (but non-essential) features'. (On the connection to 'propria', see Gorman 2005: 287; Gorman 2014: 125–26; Oderberg 2007: 47; Oderberg 2011: 98; Koslicki 2012a: 187; Koslicki 2012b: 195–96, note 9.) The traditional terms '*proprium*' and '*propria*' are sometimes translated as 'property' and 'properties', respectively (as in Spade 1994 and Oderberg 2007, 2011). But not everything that we call 'properties' are propria.

13 The property *having a sense of humor*, or *being risible*, is a traditional example of a proprium. See Porphyry, *Isagoge*, paragraph 56.

14 Gorman (2005: 287, 2014: 126) mentions the 'flows from' idiom and attributes it to Aquinas; Oderberg (2007: 156–57, 2011: 98) uses the idiom. (Fine 2012: 78, note 27 also uses it, but he might not have propria in mind.)

15 For a related example, see Gorman (2005: 282–83, 2014: 126–27).

16 One might attempt to define the relation using explanation, grounding, or support (see Gorman 2005: 282–86, 2014: 126–31); causation and origination (see Oderberg 2011: 101–103); or Aristotle's notion of demonstration (see Koslicki 2012a: 196–201). We worry that such attempts might overgenerate, distinguishing *having a sense of humor* from *being rational* and *being an animal*, but not from *being a seamstress* or *being either rational or law-abiding*.

17 Where *x* isn't a fact, *x* is grounded in $F =_{df}$ the fact that *x* exists is grounded in *F*; and *x* is essentially grounded in $F =_{df}$ it lies in *x*'s essence to be grounded in *F*. For views on which it lies in the essence of one or more entities to be such that facts about grounding obtain, see Rosen (2010: 130–33), Fine (2012: 74–80). See also Audi (2012: 108–10), Trogdon (2013a: 473–77), Dasgupta (2014: 565–71, 589–92). (For a related view, see Litland 2017: 308.)

18 Another option is to take Δ-builder to be a relation that's unordered, singular, and triadic: triadic, in the sense that it has exactly three slots; unordered, in the sense that no slot is first, second, or third; and singular, in the sense that it lies in the essence of each slot to be filled in with exactly one entity per occurrence. On slots and adicity, see Gilmore (2013). On relations with unordered slots, see Fine (2000: 10–16). (See also Gilmore 2014: 191, note 50.) On slots that can be filled in with one entity, or with several entities, per occurrence, see Yi (1998: 104–106).

19 Where *P* is a principle, *x* is governed by $P =_{df}$ *P* is about *x* and *P* is true; and *x* is essentially governed by $P =_{df}$ it lies in *x*'s essence to be governed by *P*. For a view on which it lies in the essence of an operation to be governed by principles, see Fine (2010: 571).

20 On ordered slots, see Gilmore (2014: 191, this volume).

21 On the need to exclude paradoxical properties, see Fairchild (2017).

22 For a contrary view, see McGlone (2010; 2012: 223, note 14), Pautz (2016: 480–83), Gilmore (this volume).

23 On variably polyadic relations, see Fine (2000: 22), MacBride (2005: 568–95).

24 Assuming that *R* is not a plural property or relation (so ignoring plural propositions), assuming that *R* is not variably polyadic, assuming that *R* has at most finitely many slots, and so on. To handle propositions that quantify plurally over propositions, one could build iterative restrictions into Principle about Standing, along the lines of the picture in Fine (2010: 583–84).

25 On propositions expressed by sentences that contain names that lack semantic content, see Braun (1993, 2005) and Salmon (1998). On Salmon's (1998: 304–306) view, 'Vulcan' refers to an actual non-planet. (But, on his view, other names lack semantic content. See Salmon 1998: 305–308.) On Braun's (2005: 614–20) view, some uses of 'Vulcan' lack semantic content, some refer to an actual non-planet, and some are indeterminate.

26 On propositions expressed by sentences that contain predicates that lack semantic content, see Mousavian (2011: 139–40, this volume). The predicate 'is non-self-instantiating' is paradoxical only if objects and properties are of the same type. Some reject that assumption. (See Florio 2014.) But other plausible cases of predicates that lack semantic content don't rely on the assumption. For example, perhaps 'is dephlogisticated' lacks semantic content. (See Mousavian 2011: 136–37. For a similar view, see Braun 2015: 81–3. For a contrary

view, see Braun 2015: 97–9.) Details of particular examples aside, it seems that some sentences that have semantic contents can nonetheless contain predicates that lack semantic content. (This claim is compatible with Braun 2015: 97–9.)

27 For reservations about the gappy proposition represented as <___, ___>, see Mousavian (2011: 136–40, this volume).

28 x is a proper part of $y =_{df} x$ is a part of y and $x \neq y$. Contrary to Spencer (2013, 2016, this volume), we don't think that there are infinitely many gappy propositions represented as <___, *being a planet*>.

29 On Braun's (1993, 2005) view, gappy atomic propositions have truth-conditions; on Salmon's (1998) view, they don't. Perhaps the gappy proposition represented as <___, *being a planet*> is such that, necessarily, it's true if and only if nothing instantiates *being a planet*; and perhaps this truth-conditional fact flows from the essence of the proposition that Mars is a planet. Similarly, perhaps the gappy proposition represented as <Rosa, ___> is such that, necessarily, it's true if and only if Rosa doesn't instantiate anything; and perhaps this truth-conditional fact flows from the essence of Protest.

30 Perhaps the gappy proposition represented as <___, ___> is such that, necessarily, it's true if and only if nothing instantiates anything; and perhaps this truth-conditional fact flows from the essence of the proposition that Mars is a planet and also the essence of Protest. See note 29.

31 In conversation, Ali Kazmi has also suggested a view that appeals to the essence of *protesting*.

32 See also the discussion of 'zipping' in Merricks (2015: 154–55, note 28; 2016: 488–89, 499–501) and Wang (2016: 465–68).

33 See also Johnston (2006: 681–87).

34 See Fitts (this volume) for discussion.

35 See Deutsch (this volume) for discussion.

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