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Paraphrase Techniques for Nihilists

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1. 1

Nihilists hold that there are no composite objects—that everything lacks proper parts, that everything is a mereological simple. Cian Dorr and Gideon Rosen (Rosen and Dorr) and Ted Sider (Sider) have defended nihilism.[1] *Semi-nihilists* hold that there are some composite objects, but many fewer of them than most people would suppose. Trenton Merricks, Eric Olson, and I are semi-nihilists.[2]

Both nihilists and semi-nihilists deny that there are composite inanimate objects, and it is only that denial that we shall be concerned with. I will therefore—simply for convenience' sake—ignore the distinction between nihilism and semi-nihilism, and refer to both nihilists and semi-nihilists as nihilists. But what will nihilists say about such pairs of sentences as these:

(1) Some chairs are heavier than some tables

(2) Some bricks are heavier than some houses?

If there are no chairs or bricks, then both sentences are false (or express false propositions)—at least if they have the quantificational structure they appear to have. (If chairs, tables, bricks, and houses exist, it is at least apparently true that they are material objects composed of smaller material parts. We may therefore say that (1) and (2)—in virtue of their apparent quantificational structure and the meanings of the count-nouns they contain—*apparently imply the existence of composite material objects*.) And yet those who say that both sentences are false must somehow account for the fact that most people (even most philosophers, and certainly most of "the

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[1] Rosen and Dorr 2002; Sider 2013.   [2] Merricks 2001; Olson 2007; Van Inwagen 1990.

folk") would say—and with great confidence—that although (2) was false, (1) was true. (Suppose a large number of people, chosen at random from the populace, were given a true-false test that included these two sentences. They would all mark (1) 'true' and (2) 'false'—and without any pause for reflection.)

Nihilists typically respond to the challenge presented by such pairs of sentences by the familiar philosophical device of paraphrase. I, for example, have offered the following paraphrase of (1) (Van Inwagen, p. 109):

(1′)   There are xs that are arranged chairwise and there are ys that are

arranged tablewise and the xs are [collectively] heavier than the ys.

(Here 'there are xs' and 'there are ys' are "plural quantifiers" that bind "plural variables"—'the xs', 'the ys'.) Sentence (1′) is what might be called a mereologically neutral paraphrase of (1)—a paraphrase of (1) in that it agrees with (1) about how simples (objects without proper parts) are spatially, temporally, and causally related to one another, neutral in that it is consistent with both the truth and the falsity of nihilism.[3] Sentence (1′) is, moreover, a *transparently* neutral paraphrase of (1)—for it is obvious and uncontroversial that it is consistent with both the truth and the falsity of nihilism.

In the sequel, an unqualified occurrence of 'paraphrase' will mean 'transparently neutral paraphrase'.

The corresponding paraphrase of (2) is, of course,

(2′)   There are xs that are arranged brickwise and there are ys that are

arranged housewise and the xs are heavier than the ys.

One important difference between (1) and (2) is this: If simples are spatially, temporally, and causally related to one another as they actually are, and nihilism is true, then (1) is false but has a true paraphrase, whereas not only is (2) false, but *even its paraphrase* is false.

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[3] In *Material Beings* the plural variables in paraphrases were not used with any "understood" restriction—that is, 'there are xs that are arranged chairwise' meant 'there are objects of some description that are arranged chairwise'. I will here assume that, e.g., chairs are necessarily fusions of things that are arranged chairwise, and I will assume that there are things (things of any sort) that are arranged chairwise (tablewise, computerwise,...) if and only if there are simples that are arranged chairwise (tablewise, computerwise,...). (These assumptions entail, among other things, that chairs, tables, and computers have no "gunky" parts.) In the present chapter, plural variables in paraphrases range only over simples.

The topic of sections 1.1–1.3 of this chapter is a purely technical question—the question whether certain sentences that apparently imply the existence of composite material objects can be provided with transparently neutral paraphrases. (The answer to this question is Yes, and the paraphrases are provided in section 1.3. Section 1.4 concerns difficulties that attend the project of applying the "paraphrase techniques for nihilists" employed in section 1.3 to sentences other than those "certain sentences.") But that question, as befits a purely technical question, must be framed very carefully.

I begin with definitions. Let us call a sentence a *target sentence* if it satisfies the following three conditions:

- Its vocabulary, like the vocabulary of (1) and (2), is that of everyday, non-technical English (or some other natural language).
- Like (1) and (2), it apparently implies the existence of composite material objects.
- Ordinary speakers ("the folk"), if polled, would be in agreement as to its truth-value (as is the case with (1) and (2)).[4]

And let us say that a sentence that is offered as a paraphrase of a certain target sentence (call that sentence the *target of* the paraphrase) is an *adequate* paraphrase of its target just in the case that it satisfies both these conditions:

- Like $(1')$ and $(2')$, it is true if and only if "the folk" would mark its target 'true' and it is false if and only if the folk would mark its target 'false'.
- Like $(1')$ and $(2')$, it is transparently neutral; that is, it is evident that it does not imply the existence (or the non-existence) of composite material objects.

Gabriel Uzquiano has contended (Uzquiano) that certain target sentences cannot be given adequate paraphrases that satisfy the following two conditions:

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[4] Perhaps it would be prudent for me to work with a slightly idealized version of the folk: the folk have an excellent grasp of logic and they do not hold false beliefs that might influence their judgments about potential target sentences—beliefs, that is, that are false for reasons that have nothing to do with mereology or metaphysics. (For example: 'All tables weigh more than 30 kilos and all chairs weigh less than 25 kilos'.)

- the quantificational apparatus they employ is first-order singular or plural quantification (as opposed, for example, to second-order quantification and to so-called perplural or plurally plural quantification).
- the domain of their quantifiers includes only physical or material simples (as opposed to, for example, sets of material simples, or regions of space that contain material simples).

I will call an adequate paraphrase of a target sentence that satisfies these two conditions an *Uzquiano paraphrase* of that sentence.

Uzquiano considers four such sentences—that is, four sentences that supposedly cannot be provided with adequate paraphrases that satisfy his conditions:

(3) The chairs outnumber the tables

(4) Some computers communicate only with one another

(6) Some bricks are touching each other[5]

(8) Some brick houses are mixed together with some cobblestone houses.

(I have numbered the sentences as they are numbered in Uzquiano.) These sentences are certainly "target sentences" as I have defined the term. The "purely technical question" I will address is: Is it possible to find Uzquiano paraphrases of these four sentences?[6] (Or, it will transpire, of (3), (4), (8) and a target sentence I shall consider in place of (6); when we have got to that point, I will explain why I offer a paraphrase of that other sentence and not of (6).)[7]

Uzquiano raises no objection to the employment by nihilists of '-wise' plural predicates like 'the xs are arranged chairwise', and "collective" plural predicates like 'the xs are heavier than the ys' in the construction of their

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[5] Nothing is implied by the use of different reciprocal pronouns (as 'one another' and 'each other' are called) in (4) and (6).

[6] Since the folk would (or so I am prepared to stipulate) mark each of these four sentences 'true', the paraphrase of each must be true.

[7] Why would nihilists *want* to have Uzquiano paraphrases of the target sentences—as opposed to adequate paraphrases of some other kind? *I* want Uzquiano paraphrases because (a) I believe that the only variables are singular and plural nominal variables—the familiar 'x', 'y', and 'z' of the logic textbooks, and 'the xs', 'the ys', 'the zs', their plural analogues. I therefore eschew perplural and second-order paraphrases for reasons that have to do with logic rather than metaphysics, and (b) I know from experience that if I were—for example—to propose to replace talk of tables with talk of sets whose members are arranged tablewise, nine philosophers out of ten would say, "Van Inwagen thinks that tables are sets of simples arranged tablewise." Well, at any rate, seven out of ten. Cf. Uzquiano 2004, pp. 439–440, 441–443, and 443–449.

paraphrases.[8] I therefore regard myself as free to employ such predicates in my paraphrases of these sentences.

I will present no general recipe for constructing Uzquiano paraphrases of target sentences. But the paraphrases I shall offer will require very little new vocabulary,[9] and none of the new vocabulary I introduce will be primitive: it will comprise only defined predicates whose definitions involve nothing beside the apparatus of first-order quantification (singular and plural) and predicates like 'the *x*s are arranged chairwise' and 'the *x*s are arranged computerwise'—"kind-arrangement plural predicates," I'll call them. (And I'll abbreviate that unwieldy phrase to 'arrangement predicates'). That is to say: An arrangement predicate consists of a plural variable followed by 'are arranged' followed by an adverb formed by suffixing '-wise' to a composite-object count-noun.

Once we have introduced the new predicates, the paraphrases of Uzquiano's target sentences will more or less write themselves. It is because these predicates render the task of paraphrase so easy that I have given this chapter the title "Paraphrase Techniques for Nihilists." Nevertheless, I must concede that there are target sentences for which it is almost certainly impossible to provide Uzquiano paraphrases even with their aid (a point to which I will return in section 1.4). Indeed, for all I know, there may be target sentences for which it is impossible to provide an Uzquiano paraphrase in any terms whatever.

1. 2

Our new predicates are of two kinds: *fusional arrangement predicates* and *arrangement-indexing predicates*. To each arrangement predicate, there corresponds a fusional arrangement predicate and an arrangement-indexing predicate.

The fusional arrangement predicates that correspond to 'the *x*s are arranged chairwise' and to 'the *x*s are arranged computerwise' are:

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[8] In the present chapter, I am not going to bother to distinguish open sentences from predicates (important though that distinction is in some contexts).

[9] Other than vocabulary required by content specific to individual target sentences. For example, if we are to paraphrase 'The chairs outnumber the tables', we shall have to have some vocabulary item that has something to do with numbering. In the remainder of this chapter, generalizations about "new vocabulary" are about new vocabulary other than such words and phrases as may be needed to express content peculiar to particular target sentences.

the xs are arranged fusion-of-chairs-wise

and

the xs are arranged fusion-of-computers-wise.

The following definition of the former can serve as a template for the definition of any fusional arrangement predicate.

The xs are arranged fusion-of-chairs-wise $=_{df}$

$\forall y$ (y is one of the xs $\rightarrow$ for some zs (the zs are among the xs & the zs are arranged chairwise & y is one of the zs)).

Note that a fusional arrangement predicate is, as the term suggests, an arrangement predicate. (After all, chairs, if they exist, are composite objects, and fusions of two or more chairs, if they exist, are likewise composite objects. If simples can be arranged chairwise whether or not there are chairs, why can simples not be arranged fusion-of-my-dining-room-chairs-wise whether or not there is such a thing as the fusion of my dining-room chairs?)

The arrangement-indexing predicate that corresponds to 'the xs are arranged chairwise' is

The xs chair-index the ys $=_{df}$

the ys are arranged fusion-of-chairs-wise, and the xs are among the ys, and for any zs (the zs are among the ys and the zs are arranged chairwise. $\rightarrow \exists!w$ (w is one of the xs and w is one of the zs)).

(If any simples arranged chairwise have a unique fusion and if something is a chair if and only if it is a fusion of simples that are arranged chairwise, then the xs chair-index the ys just in the case that the ys are the simple parts of some fusion of chairs z, the xs are among the ys, and every chair that is a part of z has exactly one of the xs as a part. Consider, for example, three chairs, Alfa, Bravo, and Charlie. The xs chair index the simple parts of Alfa, Bravo, and Charlie just in the case that the xs are three simples, and one of the xs is a part of Alfa and not a part of Bravo or Charlie, one of the xs is a part of Bravo and not a part of Alfa or Charlie, and one of the xs is a part of Charlie and not a part of Alfa or Bravo.)

1. 3

We now have the vocabulary we need (other than the vocabulary required by the content peculiar to individual target sentences—see note 9) to offer Uzquiano paraphrases of four target sentences—Uzquiano's sentences (3), (4), and (8), and the sentence I shall consider in the place of his sentence (6).

All but one of our paraphrases will involve arrangement-indexing predicates. (The exception is the paraphrase of 'Some computers communicate only with one another'.) I will concede at the outset that these paraphrases are "adequate" (in our technical sense) only given the truth of certain assumptions about composite objects (or about the ways in which simples are arranged). Those who affirm the existence of composites can state the needed assumptions schematically this way:

For any x and for any y, if x is an F and y is an F and x is not identical with y, there is no z such that z is a part of x and z is a part of y.

And nihilists can state them this way:

For any xs and for any ys, if the xs are arranged F-wise and the ys are arranged F-wise and the xs are not identical with the ys, there is no z such that z is one of the xs and z is one of the ys.

(The needed assumptions are the instances of this schema that can be obtained by substituting count-nouns for 'F'—these at least: 'chair', 'table', 'brick', 'house', 'cobblestone'.)

These assumptions and various problems and questions they raise will be the topic of section 1.4.

And now the paraphrases.

Target sentence (3): The chairs outnumber the tables.

This is Uzquiano's description of the general problem target-sentence (3) is meant to illustrate: "cardinality comparisons."

In addition to two predicates of the kinds we have already discussed (an arrangement predicate and an indexing predicate), we shall need the content-specific predicate

the xs outnumber the ys.

We can simplify our paraphrase if we define a one-place indexing predicate that is a special case of our two-place 'the xs chair-index the ys', namely, 'the xs chair-index'.

Say that a simple is "enchaired" just in the case that it is one of some simples arranged chairwise. Then we may say that the xs chair-index (period, full stop) just in the case that they chair-index the enchaired simples.[10] (If any simples arranged chairwise have a unique fusion and if something is a chair if and only if it is a fusion of simples that are arranged chairwise, the xs chair-index just in the case that the xs are all parts of chairs, and every chair has exactly one of the xs as a part.)

The paraphrase of (3) is:

(3′)   For some xs, those xs are arranged chairwise,[11] and . . .

for any ys and any zs, if the ys chair-index and the zs table-index, the ys outnumber the zs.

Target sentence (4): Some computers communicate only
with one another.

(That is to say: For some xs, those xs are computers, and for all y and all z, if y is one of the xs, and y communicates with z, then z is one of the xs.[12]) This is Uzquiano's description of the general problem target sentence (4) is meant to illustrate: "plural quantification over composites."

We shall need the content-specific predicate

the xs communicate (collectively) with the ys.

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[10] A full, formal definiens for 'the xs chair-index' is

Some ys are such that $\forall z$ (z is one of those ys $\leftrightarrow$ for some ws, those ws are arranged chairwise and z is one the ws), and the xs are among the ys, and for any vs (the vs are among the ys & the vs are arranged chairwise. $\rightarrow$ $\exists!w$ (w is one of the xs & w is one of the vs)).

[11] Why this clause? Suppose it were omitted. And suppose no simples were arranged chairwise. Then there would be no simples that chair-indexed, and the second clause of (3′) would be vacuously true. But if no simples were arranged chairwise, 'The chairs outnumber the tables' would be judged false by the folk—and false even if no simples were arranged tablewise: those who believe that there are no dragons and no unicorns will say that 'The dragons outnumber the unicorns' is false.

[12] Cf. Uzquiano (2004), p. 434. This reading implies that if some computers communicate with nothing, then some computers communicate only with one another. And it implies that if, for any computers, some among them communicate with something that is not a computer, then it is false that some computers communicate only with one another. Uzquiano says (p. 434) that (4) is modeled on the famous Geach-Kaplan sentence 'Some critics admire only one another'. I expect that most people would not regard it as false that some critics admire only one another simply because, for any critics, there were some among them who admired certain politicians or certain athletes (who were not also critics).

The paraphrase of (4) is:

(4′)   For some xs, those xs are arranged fusion-of-computers-wise, and...

for any ys and any zs, if the ys are arranged computerwise and the ys are among the xs and the ys communicate with the zs, then the zs are arranged computerwise and the zs are among the xs.

Target sentence (6): Some bricks are touching each other.

This is Uzquiano's description of the general problem target sentence (6) is meant to illustrate: "plural predicate collectively satisfied by composites."

But here I confess myself somewhat puzzled by the example. Why must the target sentence (6) be regarded as containing a plural predicate? Uzquiano says that (6) should be read this way:

(7)   For some xs
$\forall y$ (y is one of the xs $\rightarrow$ y is a brick) and the xs are touching each other.[13]

But why not instead read (6) this way:

(7a) $\exists x \exists y$ (x is a brick and y is a brick and x and y are touching each other[14])?

Whether one prefers to read (6) as (7) or (7a), those two sentences certainly seem to be logically equivalent. Obviously, (7a) follows from (7). (If the zs are bricks that are touching each other, then there is a brick x and a brick y such that x and y are touching each other.) Suppose then that (7a) is true. Then there are two bricks (I assume that nothing "is touching" itself)—call them X and Y—that are touching each other. And then there are xs—X and Y—such that $\forall y$ (y is one of the xs $\rightarrow$ y is a brick) & the xs are touching each other.[15]

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[13] I use the notation and vocabulary I favor. Uzquiano's actual sentence (7) was 'Some composites, the xxs, are such that (i) for every x, if x is one of the xxs, then x is a brick, and (ii) the xxs are touching each other'. My version of (7) in the text assumes that bricks are composite objects. One could always append 'those xs are composite objects, and' to my 'For some xs'.

[14] Or 'x is touching y & y is touching x', or even 'x is touching y'.

[15] If 'Some bricks are touching *only* one another', had been proposed as a target sentence, it *would* have had to be read as containing a plural predicate—in some such way as this:

For some xs, those xs are bricks, and for all y and all z, if y is one of the xs, and if y is touching z, then z is one of the xs

—which is our "computers" sentence with 'bricks' for 'computers' and 'is touching' for 'communicates with'. There is no difference in logical structure between 'Some bricks are touching only

Since (6) need not be read as containing a plural predicate, let us replace it with a target sentence that can only be read as containing a plural predicate:

Target sentence (6a): Some bricks are arranged in a circle.

(I am going to make things easy for myself by assuming that all bricks are of at least approximately the same size and that we do not have a case of "bricks arranged in a circle" unless the diameter of the circle—the greatest distance between any two of the bricks—is large in comparison with the dimensions of a brick.)

We shall need the content-specific predicate

the xs are arranged in a circle.

The paraphrase of (6a) is:

(6a′)   For some xs, those xs are arranged fusion-of-bricks-wise, and, for some ys, those ys brick-index the xs and the ys are arranged in a circle.

But can (6a′) serve as a template that will show us how to construct an Uzquiano paraphrase of just any target sentence that contains a "plural predicate collectively satisfied by composites"? We may imagine an Interlocutor who protests,

That's all very well, but that kind of paraphrase won't work for just any plural predicate collectively satisfied by composites. Granted, if you have twenty standard bricks, each of them at least two meters from its nearest neighbor, and if twenty simples (or twenty silicon atoms or twenty tiny things of any sort), each of them a part of one of the bricks, are arranged in a circle, then the twenty bricks must be arranged in a circle. But suppose the target sentence had been 'Some bricks are arranged in a circle and were all manufactured on the same day'. Simples are never manufactured—and even if they were, it wouldn't follow from the twenty simples being manufactured on the same day that the twenty bricks were manufactured on the same day!

The Interlocutor's observation is valid, but it has no important philosophical implications beyond, perhaps, underscoring the point that I have not presented, and do not claim to be able to present, a systematic method for

one another' and 'Some computers communicate only with one another'. The presence of the word 'only' in (4) is the, well, is the *only* essential difference between (4) and (6).

generating Uzquiano paraphrases of target sentences. In any case, finding an Uzquiano paraphrase of the Interlocutor's target sentence is not difficult. One need only introduce a "plural analog" of 'x and y are bricks that were manufactured on the same day'—say, 'the xs are arranged brickwise and the ys are arranged brickwise and the day when the xs were caused to become arranged brickwise is the day when the ys were caused to become arranged brickwise'. (For short: 'the xs and the ys were sameday-brickwised'.) Then:

For some xs, those xs are arranged fusion-of-bricks-wise, and…

> for some ys, those ys brick-index the xs and the ys are arranged in a circle, and…

>> for any zs and any ws, if the zs are arranged brickwise and the ws are arranged brickwise and the zs are among the xs and the ws are among the xs, then the zs and the ws were sameday-brickwised.

<p align="center">Target sentence (8): Some brick houses are mixed
together with some cobblestone houses</p>

This is Uzquiano's description of the general problem target sentence (8) is meant to illustrate: "plural predicate collectively satisfied by composites of composites."

I will make my task easier by assuming that brick houses are fusions of bricks and cobblestone houses are fusions of cobblestones—although, of course, items such as layers of mortar and bathtubs and ceiling fixtures will be parts of real houses of either sort.

We shall need the content-specific predicate

> The xs are mixed together with the ys.

And we can greatly simplify our paraphrase of (8) if we make use of two defined predicates, namely,

> the xs are arranged fusion-of-brick-houses-wise

> the xs are arranged fusion-of-cobblestone-houses-wise.

We first define

> the xs are arranged brickhousewise $=_{df}$

>> the xs are arranged housewise and the xs are arranged fusion-of-bricks-wise

and

the *x*s are arranged cobblestonehousewise.

We may now obtain definitions of 'the *x*s are arranged fusion-of-brick-houses-wise' and 'the *x*s are arranged fusion-of-cobblestone-houses-wise' by substituting 'the *x*s are arranged brickhousewise' and 'the *x*s are arranged cobblestonehousewise' for 'the *x*s are arranged chairwise' in our definition of 'the *x*s are arranged fusion-of-chairs-wise'.

The paraphrase of (8) is:

(8′)   For some *x*s and some *y*s, those *x*s are arranged fusion-of-brick-houses-wise and those *y*s are arranged fusion-of-cobblestone-houses-wise and ...

for any *z*s and any *w*s, if the *z*s house-index the *x*s and the *w*s house-index the *y*s, the *z*s are mixed together with the *w*s.

I conclude that it is possible to provide Uzquiano paraphrases of Uzquiano's target sentences (3), (4), and (8), and of the sentence (6a) (our "replacement" for his (6)). It is true that the paraphrases are different in logical form from their targets, and that they are complex and involuted. But these are features they share with many famous philosophical paraphrases. (One might cite "token reflexive" paraphrases of tensed statements and "adverbial" paraphrases of statements that apparently imply that items like sense data and qualia can be the objects of direct or immediate awareness.) The reader is particularly invited to compare the paraphrases offered in this chapter with the Quine-Goodman paraphrase of 'There are more cats than dogs' (Goodman and Quine, pp. 109–110) and the Lewis-Lewis paraphrase of 'There are as many holes in this piece of cheese as there are crackers on that plate' (Lewis and Lewis, p. 210).

1. 4

I have said that our paraphrases were adequate only if chairs did not overlap one another (tables did not overlap one another, bricks did not overlap one another, ...). Or, to speak in terms acceptable to the nihilist, only if:

For any xs and for any ys, if the xs are arranged chairwise and the ys are arranged chairwise and the xs are not identical with the ys, there is no z such that z is one of the xs and z is one of the ys.

It is not hard to see why this is so. Suppose that there are five simples, a, b, c, d, and e, that a and b are arranged chairwise, that b and c are arranged chairwise, and that, for any xs, if those xs are arranged chairwise, either those xs are a and b or those xs are b and c. Suppose, further, that d and e are arranged tablewise and that, for any ys, if those ys are arranged tablewise, those ys are d and e. (Our present topic is logic and semantics, and not metaphysics or joinery, so there's no need to be realistic about numbers.) Or, to speak in terms *not* acceptable to the nihilist, suppose there are exactly two chairs, one a fusion of a and b and the other a fusion of b and c, and that there is exactly one table, a fusion of d and e. The reader will find it easy to verify both that a and c chair-index a, b, and c and that, more surprisingly, the simples identical with b—that is, the xs such that $\forall y. \, y$ is one of the xs $\leftrightarrow$ $y = b$—chair-index a, b, and c. And, therefore, in the situation imagined, $(3')$ is false. Then the simples identical with d table-index the simples arranged tablewise—but it is false that the simples identical with b outnumber the simples identical with d.

It is not difficult to revise our definitions in such a way that the revised definitions provide the materials for adequate paraphrases of our target sentences in situations in which, e.g., there are chairs that overlap chairs—*provided* "overlap" does not go so far as to become a case of proper parthood. (Our paraphrase of (3) will be adequate only if there are xs that chair-index and those xs and the chairs are equinumerous, and every chair has exactly one of the xs as a part. This condition can be satisfied if chairs "merely overlap"—if they overlap without any chair being a part of another—but it cannot be satisfied if one chair is a part of another.[16])

I therefore confess: if I lived in a world that had the following three features:

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[16] Well, as a first approximation. The pedantically correct statement is that it cannot be satisfied if there is a chair each of whose simple parts is also a part of *some* other chair. If chairs are fusions of simples, 'Some chair is a part of another chair' is equivalent to '$\exists x \exists y \, (x$ is a chair & y is a chair & $y \neq x$ & $\forall z \, (z$ is a simple & z is a part of $x. \rightarrow z$ is a part of $y))$'. This statement entails, but is not entailed by, the weaker statement, '$\exists x \, (x$ is a chair & $\forall z \, (z$ is a simple & z is a part of $x. \rightarrow \exists y \, (y$ is a chair & $y \neq x$ & z is a part of $y))$'.

- It contained one table and two chairs
- One of the chairs was a proper part of the other
- The folk, knowing everything about the tables and chairs one could learn by examining them and talking about them with the people who made them, would agree that sentence (3) (that is, 'The chairs out-number the tables') was true,

I should be unable to find a sentence that satisfied these four conditions:

- It would have the same implications as (3) in all matters pertaining to the ways in which simples were spatially, temporally, and causally related to one another
- It would be evident that it did not imply the existence of chairs or the existence of tables (or the existence of any other composite material objects)
- It would be true
- The domain of its quantifiers would comprise only simples (as opposed to, for example, sets of simples, or regions of space that contained simples).

It is easy enough to find sentences that satisfy the first three of these conditions:

The chairwise sets outnumber the tablewise sets,

for example, or

The chairwise regions outnumber the tablewise regions.

(A "chairwise/tablewise set" is a set of simples whose members are arranged chairwise/tablewise. A "chairwise/tablewise region" is a region of space whose simple occupants are arranged chairwise/tablewise.) But these paraphrases, although adequate (to my mind, at least) are not Uzquiano paraphrases. This difficulty arises only if our target sentences are indeed target sentences. It seems to me to be evident that in the actual world, the folk will agree about the truth-values of our sentences (3), (4), (6a), and (8)—or at least they will if they have visited my friend Tilly, who lives in a brick house mixed in with some cobblestone houses and whose hobby is the production of circles of bricks. But would this be case if objects of the sorts to which those sentences refer had proper parts that were of their own kind? Is it

evident that the folk would agree about the truth-value of 'The chairs outnumber the tables' if they lived in a world in which it was true both that

…there are *x*s arranged tablewise and, for any *y*s, if the *y*s are arranged tablewise, the *y*s are the *x*s'

and that

…there are *x*s arranged chairwise and there are *y*s arranged chairwise and the *y*s are properly among the *x*s, and, for any *z*s, if the *z*s are arranged chairwise, the *z*s are the *x*s or the *z*s are the *y*s?

Perhaps not. Perhaps there is a real possibility that if—in that simple world—a representative sample of the folk were given a true-false exam which included the question, '"There are more chairs than tables"—true or false?', some would answer 'true', some 'false' and some 'I can't say' or 'I suppose it depends on how you define "chair"' or 'The question is unclear'. And, if that was indeed the response, 'The chairs outnumber the tables' would not be a target sentence.

Is there a clear case of an object that the folk *would* say was a chair that had chairs as proper parts—or a bicycle that had bicycles as proper parts, or a trash bin that had trash bins as proper parts? Dean Zimmerman has suggested (in correspondence) that the folk might regard the Palatine Tiara—the most famous of the papal triple crowns—as a crown that had three crowns as proper parts.[17] The Tiara is a sort of beehive-shaped helmet on whose outer surface three crowns seem to be resting—in just the way an ordinary crown rests on the (presumably uneasy) head of a monarch. I say "three crowns seem to be resting" because it is not clear to me whether the "crowns" are actual crowns or mere representations of crowns—mere complications in the surface of the beehive-shaped helmet. I suppose that few of the folk would judge that a bronze bas-relief of a crowned king has a part that is a crown, and I am inclined to doubt whether, if they had been allowed to examine the Palatine Tiara carefully, many of the folk would judge that it had crowns as proper parts.

We could, of course, alter the Tiara in our imaginations. We could *imagine* that there were once three crowns (all of them worn as crowns for

[17] The triple crown or triregnum that was placed on the head of a new pope in the days when the ceremony that the Holy See now calls an inauguration was called a coronation. The Palatine Tiara is actually only the best known of more than twenty papal crowns.

many years by various kings and electors and sovereign grand dukes) that
were eventually brought together and "arranged crownwise" with the inten-
tion of producing a crown symbolizing the three principal aspects of the
pope's authority. And we could *imagine* that if we ask the folk—who are
witnessing the coronation of a newly elected pope (and who are well-
informed about the physical structure of the tiara being placed on his
head)—"How many crowns did the protodeacon just place on the head of
the new pope?", they will all give essentially the same answer: some variant
on, "Four—three small ones and one large one made up of the small ones." If
we imagine these things, we are imagining an assertion about the number of
crowns that satisfy a certain condition, and this assertion resists Uzquiano
paraphrase. Or, at any rate, the indexing technique employed in most of the
paraphrases presented in this chapter fails to provide an Uzquiano para-
phrase of 'Four crowns were placed on the new pope's head'. (Suppose the
six simples *a*, *b*, *c*, *d*, *e*, and *f* are arranged crownwise; suppose that *a* and *b*
are arranged crownwise, that *c* and *d* are arranged crownwise, and that *e* and
f are arranged crownwise; suppose that, for any *x*s, if those *x*s are among *a*, *b*,
c, *d*, *e*, and *f* and are arranged crownwise, those *x*s are *a*, *b*, *c*, *d*, *e*, and *f* or
those *x*s are *a* and *b* or those *x*s are *c* and *d* or those *x*s are *e* and *f*. Then for
no *x*s among *a*, *b*, *c*, *d*, *e*, and *f* is it the case that exactly one of the *x*s is one of
a, *b*, *c*, *d*, *e*, and *f*, exactly one of the *x*s is one of *a* and *b*, exactly one of the *x*s
is among *c* and *d*, and exactly one of the *x*s is among *e* and *f*.)

And imagine we must, for imagination is all we have. Our modifications of
the Tiara are fictional—even if, like many other things one encounters in works
of historical fiction, they have a certain tenuous connection with reality. It
would be better to have a non-fictional example of a chair that has chairs as
proper parts or a crown that has crowns as proper parts or ... And I think that
there in fact is such a thing—a statue that has statues as proper parts.

Achille Varzi has called my attention to a statue that is a fusion of statues.
Manolo Valdés's *La Dama Ibérica* is a large statue in Valencia that is of the
same shape as, and is composed of 22,400 small copies of, *La Dama de Elche*,
an Iberian sculpture of the 5th or 4th century BC.[18] (Varzi learned of
La Dama Ibérica from Jordi Valor Abad of the University of Valencia.)

I am reasonably confident that the folk will, uniformly and without
hesitation or qualification, echo the words I used to describe it—confident,

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[18] *La Dama Ibérica* can be seen at http://emedobletaller.blogspot.com/2007/09/dama-
iberica-de-manolo-valdes.html.

that is, that they will say that the photograph to which there is a link in note 18 shows a large statue that is composed of many thousands of small statues.

The technique of "indexing," which figured in all but one of our paraphrases, cannot be applied to statues in any case in which each of the simple parts of some statue is also a part of some other statue. And it seems that *La Dama Ibérica* presents just such a case: each constituent simple of the large statue is also a part of one of the small statues, and every simple that is a part of any of the small statues is a part of the large statue. There are no *x*s such that (i) those *x*s number 22,401, and (ii) for any *y*, if *y* is either *La Dama Ibérica* or one of the 22,400 small copies of *La Dama de Elche* of which *La Dama Ibérica* is composed, exactly one of the *x*s is a part of *y*.

It seems, therefore, that "indexing" does not provide Uzquiano paraphrases of all target sentences. Whether the "residual" target sentences can be given Uzquiano paraphrases by some other method is a question for further investigation.[19]

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