May 2014

Colocated Objects? a New Challenge to the Intentionalists' Solution to the Grounding Problem

Lu Chen
University of Wisconsin-Milwaukee

COLOCATED OBJECTS? A NEW CHALLENGE TO THE
INTENTIONALISTS' SOLUTION TO THE GROUNDING PROBLEM

by

Lu Chen

A Thesis Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

in Philosophy

at

The University of Wisconsin Milwaukee

May 2014

ABSTRACT
COLOCATED OBJECTS? A NEW CHALLENGE TO THE
INTENTIONALISTS' SOLUTION TO THE GROUNDING PROBLEM

by

Lu Chen

The University of Wisconsin-Milwaukee, 2014
Under the Supervision of Professor Joshua Spencer

C.S. Sutton (2012) renews the intentionalists' solution to the grounding problem for

colocationalism by responding to Karen Bennett's (2004) challenge. This paper aims

to show that Sutton's revised approach to the grounding problem is still untenable. I

start with a simplistic version of intentionalists' grounding claim. For this simplistic

version, I argue that the possible alternative intentions can lead to contradiction in

modal properties. Then I introduce Sutton's more sophisticated attempts to solve the

grounding problem. I contend that, in order to avoid the similar objection to the

simplistic version, Sutton ultimately runs out of resources for a genuine solution.

For my advisor and friend Joshua, and my mum, whose unconditional love makes everything possible.

TABLE OF CONTENTS

0. Introduction

What is the relation between a lump of clay (call it 'Lumpl') and the statue it constitutes (call it 'Goliath')? Are they identical? Despite their remarkable similarity in many aspects, including being situated in the same spatiotemporal region[1], some philosophers – call them colocationalists – insist that Lumpl and Goliath are distinct entities, because (1) they have different persistence conditions and modal properties, namely that Lumpl is squishable (i.e. it can survive being crushed down) while Goliath is non-squishable, that the statue can survive having a bit cut off while the lump cannot, etc., and (2) Leibniz's indiscernibility law requires that two identical things be indiscernible.

The monists – who hold that there is only one entity in question[2]– challenge the colocationists to explain why Lumpl and Goliath have those different persistence conditions and modal properties, given that they share the same subatomic structure, surroundings, etc. This challenge is often called "the grounding problem." (Burke, 1992) In other words, the grounding problem asks what grounds Lumpl's squishability and Goliath's non-squishability.[3]

---

[1] Lumpl and Goliath simultaneously come into existence and are destroyed at the same time.

[2] To explain away the apparent modal difference, some monists think that the Goliath/Lumpl thing really cannot be squishable, because when they spatiotemporally coincide, the statue is the dominant kind and only the dominant kind is entitled to bestow the properties in question (Burke); some claim the opposite, that the Goliath/Lumpl thing is really squishable because only the lump counts as genuine substance; finally, the counterpart theorists take it to be both squishable and non-squishable, depending on which of its counterparts we are talking about.

There are two possible frameworks for the one-versus-two debate: the first framework regards the lump and the statue as "enduring objects", which are "wholly present" at any time during their existence; within this framework, a monist (e.g. Wasserman) may claim that the lump and the statue are identical even when they have different temporal properties, i.e. coming into existence or being destroyed at different times. The other framework regards the lump and the statue as atemporal perduring objects, which consist of all the temporal parts; within this framework, a monist distinguishes between objects that have different temporal properties. In this paper, I keep neutral between the two frameworks.

[3] Although the grounding problem *per se* is a general question for both colocationalists and monists,

There are various answers or reactions to the grounding problem on behalf of the colocationalists.[4] Among them, I will focus on the intentionalists' approach, which holds that Lumpl's squishability and Goliath's non-squishability are grounded in our different intentions (i.e. our collective attitudes, conceptions and conventions) towards them. I aim to argue that the intentionalists' approach is unsatisfactory due to the trouble caused by potentially conflicting intentions. To do this, I structure the paper as follows. In the first section, I will illustrate the notion of the grounding relation and then present the grounding problem in light of it. In the second section, I will argue against the naive version of the intentionalists' solution to the grounding problem. In the third section, I will articulate a more sophisticated version of intentionalism, held by C.S. Sutton (2012), and then contend that this version is similarly subject to the argument against the naive version. Finally, I conclude the intentionalists cannot solve the grounding problem.

1. The grounding problem

The grounding problem asks what grounds Goliath's non-squishability and Lumpl's squishability. But what exactly is the grounding relation and what features constrain it? The grounding relation is usually thought to be a kind of non-causal determination or explanatory relation. It's widely held to be asymmetric, transitive

---

the latter clearly have more ease than the former in answering it: the monists could appeal to all the things that Lumpl and Goliath share, but the colocationalists are deprived of those resources, since the shared things cannot explain the difference. In other words, while both colocationalists and monists have to explain why various objects come to have their modal properties or persistence conditions, only colocationalists have to explain why they come to have their *distinct* modal properties.

[4] The grounding problem stirs a wide range of attitudes from both sides in the debate. Some think there are satisfactory answers to this challenge (Baker, 1999; Wasserman 2002; Sutton, 2012); some argue that the inability to supply a positive answer is not fatal for the colocationists and suggest that the colocationists should insist that properties like squishability /non-squishability are brute (Bennett, 2004); there are still others who argue that the grounding problem is either unclear or cheaply answered (deRosset, 2011). Among the colocationists who accept the challenge, there is the view claiming that it's grounded in that Goliath has parts that Lumpl lacks, such as arms, legs, etc.; there is also the view claiming it's grounded in the haecceitic identity properties, namely Goliath is identical to Goliath and Lumpl is identical to Lumpl; the list goes on.

and irreflexive.[5] To understand the relation properly, it might be helpful to compare the grounding relation with the entailment relation.

Entailment relations can be accurately characterized as "Necessarily, if A then B", while grounding relations require not only the modal covariance between the relata but also a deep metaphysical dependency that escapes the modal characterizations. Two examples can make this clear: first, suppose Socrates and the singleton of Socrates necessarily go together, we may say that the existence of Socrates entails the existence of the singleton of Socrates and vice versa; in other words, for Socrates and his singleton, the entailment relation is symmetric. This, however, does not capture the asymmetric metaphysical dependency between Socrates and his singleton, which can be expressed in terms of the grounding relation: Socrates' existence grounds the existence of Socrates' singleton, but not vice versa. Second, mathematical truths are vacuously entailed by any contingent facts; but we do not wish to say the former are grounded in the latter since there is no deep dependency relation between mathematical truths and any contingent facts.

Although the grounding relation is different from the entailment relation, the latter can be seen as a necessary condition for the former, that is, the grounding relation requires the strong determination that the entailment relation captures. This comes from our intuition that the grounding relation is a tight dependency of the groundee (i.e. the proposition that is grounded) on the grounder (i.e. the proposition that grounds) and that the grounder should be able to provide an explanation for the groundee.[6] If a table looks red in one possible world and green in another while reflecting the same light waves under the same conditions in both worlds, we

---

[5] Some philosophers such as Jenkins and Kit Fine cast doubt on the irreflexivity (and hence the asymmetry) of the grounding relation.

[6] The condition of a good explanation is thought to be that the explanadum could not be otherwise given the explanan. See Trogdon (2013) for more detailed discussion.

wouldn't think the light waved provide a sufficient explanation for the color we expect the grounder to provide.

Admittedly, if necessitation comes in different degrees, it might be too strong to claim that the grounding relation entails metaphysical necessitation, i.e. the grounder necessitates the groundee in every possible world, for the grounder might just necessitate the groundee in the restricted sense. For instance, it might be argued that although mental properties are grounded in physical properties, zombies with no mental properties are possible. However, to further our discussion, we need only rely on a more limited necessitation. For example, in the zombie case, to exclude the world in which zombies with no mental properties exist, we shall confine our range of necessitation to those possible worlds that are nomologically similar to our world. We could always interpret "necessary" in our discussion as meaning restricted necessity rather than metaphysical necessity. Now we have the following claim about grounding:

Necessitation claim:

$$(A \text{ grounds } B) \rightarrow \Box (A \rightarrow B)$$

The above claim says that a necessary connection holds between actual grounders and groundees, but since there is little reason to favor actuality in this case, such a requirement for the grounding relation should apply to all possible pairs of grounder and groundee. Thus, I want to further propose a strengthened version of the above claim as follows:

Strengthened Necessitation claim (SN):

$$\Box ((A \text{ grounds } B) \rightarrow \Box (A \rightarrow B))$$

I also want to rule out the view that holds that a certain grounding relation applies

only to a particular thing (or some particular things) and is not generalizable. In other words, I want to claim that, in a grounding relation, it is not *a particular thing's* having a certain property but its *having that property* that grounds its being a certain way.[7] Such an assumption, while debatable, is at least friendly to our expectation that an explanation of a certain feature of an individual should be able to explain the same feature of a different individual. For example, if we assert that the table's reflection of certain light waves grounds its being blue, then we should accept that anything that reflects the same light waves grounds its blueness also. More generally, if x's having a property grounds that x is a certain way, then necessarily, if anything has that property, the same grounding relation obtains for it. We can formalize the idea as follows:

Generalizability Claim:

$(\exists x)$ (Fx grounds Gx) $\rightarrow \Box$ $(\forall y)$ (Fy $\rightarrow$ (Fy grounds Gy))[8]

(While I take generalizability claim to be very plausible, one should be careful not to confuse it with the claim that if x's being a certain way is grounded in its certain property, then everything's being that way is necessarily grounded in its possession of that property. The latter claim can be easily refuted by the following counterexample: the party's having a spy is grounded in the party's having Ortcutt the spy in attendance, but it is not the case that every party's having a spy is grounded in

---

[7] One way to take issue with this generalizability claim is to be committed to haecceitism and take the haecceitistic property of a particular thing as grounding its other qualitative properties. While such position is formally compatible with the generalizability claim, since no two individuals share the same haecceitistic property, the grounding relation that explains a property of an individual cannot be generalized to explain similar properties of other individuals after all. However, since the intentionalists do not seem to explicitly adopt such haecceitistic approach, I take it safe not to discuss the approach further in this paper (although I would prefer to reject this approach eventually). For more details about this approach, see deRosset (2011).

[8] Note that the grounding relation is a factual relation, i.e. that for all x, 'Fx grounds Gx' entails 'Fx' and 'Gx'.

its having Ortcutt in attendance.[9])

Finally, in the above formulation, I want to grant that it is possible to restrict the domain of the universal quantifier: for instance, one can interpret the domain as all artifacts, rather than all entities in the universe. The reason is that the grounding problem is best characterized in the context of a restricted domain.

Having characterized the notion of the grounding relation and what it entails, let us go back to the grounding problem. Since it asks what grounds Lumpl's squishability and Goliath's non-squishability, respectively, to answer the grounding problem is to substitute Φ and Ψ in the following schema with suitable propositions.

1. Φ grounds Goliath's non-squishability

2. Ψ grounds Lumpl's squishability.

Because of the generalizability claim, the above task further requires substituting Φ in the following more general grounding claims:

3. Necessarily, for all x, if Φ, then Φ grounds x's squishability.

4. Necessarily, for all x, if Ψ, then Ψ grounds x's non-squishability.

Now, before digging into the intentionalists' position, let's go through some imagined answers the colocationists may provide to answer the grounding problem (using Goliath as the example).

a) <u>Goliath's subatomic statuewise arrangement</u> grounds Goliath's non-squishability.

This answer is inadequate. According to Generalizability, this answer implies that anything that has the same subatomic statuewise arrangement should be non-squishable; Lumpl has exactly the same subatomic arrangement, but the

---

[9] The example is mentioned by an anonymous commentator.

colocationalists want to say Lumpl is squishable, which is a counterexample to the general implication of this answer. The lesson to draw from the inadequacy of such an answer is the following: any property that is shared by Goliath and Lumpl cannot alone ground Goliath's non-squishability or Lumpl's squishability.

Some philosophers may attempt to explore some options in its vicinity. For instance, one may claim that Goliath has arms and legs and ears as parts while Lumpl only has bits of clay as its parts. According to this view, when we squish Goliath, we destroy its arms, legs and ears, and since Goliath has those as its part, Goliath is non-squishable. On the contrary, when we try to squish Lumpl, we do not destroy the bits of clay, so Lumpl is squishable. But there are a lot of difficulties associated with this view. For example, as Wasserman (2002) points out, we can ask whether Lumpl and Goliath share any subatomic parts. If they do, then it is hard to explain why the same material parts compose an arm in Goliath's case but not in Lumpl's case. In other words, the grounding problem merely recedes to the arm level. On the other hand, if Goliath and Lumpl do not share any parts, that is, if Goliath has a distinct set of subatomic particles as its parts, then the colocationists may have to swallow the incredible claim that rearranging subatomic particles can bring forth the existence of new fundamental particles.[10]

Let's turn to another kind of answer:

b) <u>Goliath's having aesthetic value</u> grounds Goliath's non-squishability.

This answer is also unsatisfactory. Although it manages to distinguish between Goliath and Lumpl, there is no explanatory relation between aesthetic value and non-squishability. This can be easily shown by an example such as a piece of avant-garde

---

[10] For a more comprehensive refute, see Wasserman (2002).

artistic work that has aesthetic value but can survive being squished (as part of its design), or a bad statue that has no aesthetic value but is non-squishable.

A third kind of answer is the following:

c) <u>Goliath's being a statue</u> grounds Goliath's non-squishability.

It is not easy to find a counterexample to this answer, especially if we consider something like non-squishability to be built into the sortal property of being a statue. But then the statuehood would become the new target of the grounding problem. The question becomes what grounds Goliath's being a statue.

It seems to me that many answers (e.g. being badly made, worth money, having body parts, the surroundings, etc.) will fall into at least one of the three categories that I list above and will thus be subject to the same objections. One can argue either that (1) the putative grounding property is the same for Goliath and Lumpl, or (2) it is not an explanation for the groundee, or that (3) one can respecify the grounding problem to a new target that is accepted as the ground for the previous one. Such respecification tends to cause trouble for colocationalists so long as they only have a limited pool of different properties that are all similarly subject to it, because in order to ground each of those properties, the colocationalists would be obliged to go circular in the pool while circularity is prohibited by the transitivity and asymmetry of the grounding relation.[11]

Perhaps one could stop respecification by claiming that some property in the pool is primitive and thus not subject to respecification. For instance, one may claim that the fact Goliath has a body while Lumpl hasn't is primitive; or one may even argue that modal properties such as squishability and non-squishability are primitive, and

---

[11] The non-circularity requirement can be shown as follows: If one says (a) A grounds B, (b) B grounds C, and (c) C grounds A, then by transitivity, (b) and (c) implies (d) B grounds A, which by asymmetry implies A does not ground B, thus being contradictory to (a).

hence reject the grounding problem at the very beginning. I will not argue against such an appeal to primitiveness in this paper. [12] But, I find it intuitively unsatisfactory to allow modal properties to be basic and brute. Also, modal primitiveness can lead to unfavorable consequences, such as having to choose between arbitrariness and a plenitude of colocated objects. (Bennett, 2004)

2. The Naive intentionalists' view

The simplest intentionalist's answer to the grounding problem can be expressed as follows:

C1: <u>Our intention that Goliath is non-squishable</u> grounds Goliath's non-squishability.

C2: <u>Our intention that Lumpl is squishable</u> grounds Lumpl's squishability.

Here, "intention" is used to refer to our collective attitudes, concepts or conventions; it should be distinguished from the other usage that refers to our private or personal intentions. So C1 is not about a particular person's private intention that Goliath be non-squishable, but more about a convention that Goliath is non-squishable. I am certainly not saying that a particular person cannot play a decisive role in specifying the collective intentions; for example, if one invents a Y-shaped widget as a teaching tool to represent a family tree, her intending this widget to be a teaching tool can be registered in our collective intention towards this widget. [13] In other words, the notion of intention here either refers to a collective attitude or one that is expected to be collectively accepted. This is meant to prevent random and

---

[12] It is worth mentioning that some appeals to primitiveness may be less problematic than others. For example, deRosset proposes that Goliath's nonsquishability is grounded in its being identical to Goliath, and that the property of being identical to Goliath is brutal. In this case, some of us may find it natural to think identity claim as primitive and stop asking what grounds the identity claim.

[13] This example is offered in C. S. Sutton's paper.

wishful personal attitudes from affecting the plausibility of the intentionalists' grounding claims.

According to the generalizability claim, we should be able to generalize C1 and C2 to the following claim:

*The **I**ntentionalists' **G**rounding claim* (IG):

> (IG) Necessarily, for all x, if we intend x to be squishable/non-squishable, then such intention grounds x's squishability/non-squishability.

Notice that in (IG) the domain of the universal quantifier differs for different intentionalist positions, some of which include only artifacts, while others may extend to organisms. As I mentioned before, I will grant to the intentionalists whatever domain they like, as long as it addresses a reasonably large group of entities (rather than, say, a group that just includes Goliath and Lumpl).

It seems that the intentionalists' view has several virtues in comparison with the other approaches considered. First, it is not trapped in respecifications of the grounding problem, because human intentions are usually not thought to be grounded in their objects but rather in something quite different such as social practices, neuronal activities, etc. Second, we can have different intentions when facing the same entity, which provides the potentiality to ground different modal properties – in this case squishability and non-squishability – that the monists are questioning. Third, there could be a genuine explanatory or dependence relation between human intentions and the properties in question. There are conventional properties such as the property of being worth five thousand dollars, being fashionable, being adorable, etc., which are clearly dependent on human intentions. If squishability/non-squishability is like having monetary value, being fashionable or adorable, then human intentions seem to explain it.

These virtues make the intentionalists' view initially attractive to me. However, the naïve version proposed here does not work. Bennett (2004) has raised a decisive objection to it. The idea is quite straightforward: the naïve answers (C1) and (C2) seem to say that our intention merely bestow properties upon Goliath and Lumpl that exist prior to our intention. Now, are Goliath and Lumpl that exist pre-intentionally identical? If they are identical, then, since the grounded propositions and the grounding propositions use the same designators, "Goliath" and "Lumpl" in the grounded propositions should also refer to identical entities. In this case, the intentionalists are no longer defending colocationism. If they are not identical, then the naïve intentionalists allow that there are utterly indistinguishable distinct colocating entities, which seems highly implausible. So, the naïve intentionalist's approach is a non-starter. What I want to do in this section is to raise a different objection to this position. I want to make it very clear that the main advantage of my objection is not to knock down this naïve position, since it is already very dead, but to provide a schematic pitfall that more sophisticated positions should look out for. In fact, as I will argue in the next section, it is very hard for even a sophisticated position to find a way out of this.

However, I want to argue that (IG) leads to contradictions unless the intentionalists reject some generally accepted claims. The idea is roughly this: for a particular thing q, it is possible for us to intend q to be squishable, and also possible for us to intend q to be non-squishable. But then the question arises: since our intention necessarily grounds whether q is squishable, wouldn't our alternative intentions lead to contradictions with regards to whether q is squishable or not? I want to show that the answer is, unfortunately, 'yes'. The general skeleton of my argument is as follows:

Argument against the Intentionalists' Grounding claim (AIG):

AIG-1: Possibly, we intend q to be squishable.

AIG-2: Possibly, we intend q to be non-squishable.

AIG-3: If (IG) and AIG-1 is true, then q is possibly squishable.

AIG-4: If (IG) and AIG-2 is true, then q is possibly non-squishable.

AIG-5: If q is possibly non-squishable, then q is not possibly squishable.

AIG-6: Therefore, q is possibly squishable and not possibly squishable.

(AIG-1, AIG-2, AIG-3, AIG-4, AIG-5, IG)   ⊥

The first two premises AIG-1 and AIG-2 appeal to our familiar understanding of human intentions. I will give more support to them when addressing and refuting the intentionalists' possible ways out of this argument. For now, to establish the argument, I shall mainly explain why AIG-3, AIG-4 and AIG-5 are true. (Please see Appendix for a formal version of the justification.)

I will first prove AIG-3 to be true; then, since the proof of AIG-4 is very similar with the proof of AIG-3, I will skip it and spend time on proving AIG-5.

As a preparation, we need the following:

Modal theorem (**MO**): $\Box\,(A \to B) \to (\Diamond A \to \Diamond B)$;

Principles of the S5 modal system:**S5-1**: $00\ldots\Box = \Box$;

S5-2: $00\ldots\Diamond = \Diamond$ (where each 0 is either $\Box$ or $\Diamond$).

We also need the strengthened necessitation claim:

SN: $\Box\,((A \text{ grounds } B) \to \Box\,(A \to B))$

From (IG), by universal instantiation, we have that necessarily, if we intend q to be squishable/non-squishable, then such intention grounds q's squishability/non-squishability; together with MO we get: if possibly we intend q to be squishable/non-

squishable, then possibly such intention grounds q's squishability/non-squishability; given AIG-1 (possibly, we intend q to be squishable), we further get that possibly, our intention that q is squishable grounds q's squishability. From SN and MO (given S5), we obtain from the previous statement that necessarily, if we intend q to be squishable, then q is squishable. Since AIG-1 says that possibly we intend q to be squishable, one more application of MO gets us the result that possibly, q is squishable. As such, we have successfully deduced that q is possibly squishable from AIG-1 and (IG); thus, AIG-3 is justified. A very similar line of reasoning takes us from AIG-2 and (IG) to the result that q is possibly non-squishable, and thus justifies AIG-4.

To justify AIG-5, we need some additional maneuver on the modal properties. Standardly, we analyze squishability as being possibly squished, and non-squishability as not being possibly squished:

A1: x is squishable =df x is possibly squished.

A2 (follows from A1): x is non-squishable =df x is not possibly squished

For example, in the Goliath/Lumpl case, Goliath's non-squishablility means that there is no possible world, in which Goliath is squished and continues to exist; similarly, Lumpl's squishablility means that there are some possible worlds, in which Lumpl is squished and continues to exist. Since we have already got that q is possibly non-squishable, according to A2, we substitute "non-squishable" with "not possibly squished" and get the result that q is possibly not possibly squished, which, according to the definition of modal operators, is equivalent to that q is not necessarily possibly squished. Now we can use S5-2 to first delete the "necessarily" in the last statement and then to add "possibly" before "possibly squished", which results in the new statement that q is not possibly possibly squished. Given A1, we can substitute

"squishable" for "possibly squished" in the last statement and obtain the result that q is not possibly squishable. Now that we have reached the result that q is not possibly squishable from AIG-2 and (IG), I hold AIG-5 to be justified.

Now we have a clear contradiction as shown in AIG-6, i.e. q is possibly squishable and not possibly squishable, so there must be something wrong in the premises. Putting the logical theorems aside, assume the intentionalists want to hold to their grounding claim (IG), they are left with the following options:

First, the intentionalists can deny the standard analysis of squishability/non-squishability. If there is a reasonable alternative analysis that is not subject to the AIG argument, then perhaps the AIG argument amounts to revealing that the intentionalists have to endorse some non-standard analysis of squishability/non-squishability, which might be an unfavorable theoretical burden for them if they are not quite willing to give up the standard analysis. Besides, it's not clear whether an alternative analysis can fully resolve the tension that the AIG argument poses.[14]

Second, the intentionalists can deny that the grounding relation entails necessitation. For instance, the intentionalists can appeal to the fact that, in the cases

---

[14] Counterfactual analysis of squishability/non-squishability can serve as an example for non-standard analysis: we can define x's being squishable at a world, w, as requiring that possible worlds where x is squished and continues to exist be closer to *w* than possible worlds where x is squished and does not continue to exist; similarly, x's being non-squishable at w means possible worlds where x is squished and does not exist are closer to w than possible worlds where x is squished and exists. Since the AIG argument relies on the S5 modal system, which is characterized by models that have its accessibility relation to be the equivalence relation, the counterfactual analysis might overcome the AIG argument if we fail to pick out a restricted set of possible worlds whose accessibility relation satisfies an equivalence relation, esp. transitivity; the accessible relation might not satisfy transitivity in the sense that when w_1 is a nearby world to w_2 and w_2 is nearby world to w_3, it may not be the case that w_1 is a nearby world to w_3. However, it's not obvious to me that the tension posed by the AIG argument could be fully resolved. Suppose in w_1, we intend q to be non-squishable, i.e. w_1 is closer to a world (make it w_2) where q is squished and destroyed than a world (make it w_3) where q survives crushing down, if the possible worlds are dense enough, as I expect them to be, then we can always find a set of possible worlds surrounding w_1 that are also closer to w_2 than to w_3; now let's interpret necessity as being true in all those possible worlds, then we can still ask whether it is possible for people to intend q to be squishable. Admittedly, the answer is not straightforward given that the idea of closeness plays a significant role here; but I think the intentionalists still have a heavier burden to show that we necessarily intend q to be non-squishable even in this case. I shall not discuss this topic further in this paper.

of mental/physical grounding relations, there are some grounding theorists who want to grant both that mental properties are grounded in physical properties and that there can be possible worlds in which some individuals instantiate the physical properties without instantiating the mental properties (like zombies). But notice that my AIG argument can be rebuilt on a much weaker necessitation claim. To ensure the effectiveness of the argument, we need only to rely on an analysis of grounding in terms of certain *restricted* necessitation relations, which exclude those possible worlds that are vastly different from ours, such as the worlds where zombies exist, as long as within the restricted worlds we are still free to intend differently about q. Then, I think it would be much more difficult, if not impossible, for the intentionalists to argue against such restricted necessitation claims, since we do require grounding as a deep explanation relation to obligate modal covariance of the relata to some extent.

Third, the intentionalists can deny AIG-1 (Possibly, we intend q to be squishable) or AIG-2 (Possibly, we intend q to be non-squishable). But AIG-1 and AIG-2 are unlikely to be false, for there is no reason that we cannot intend q to be whatever we like; for example, there could not be any natural properties in q that prevent us from forming different intentions; after all, Lumpl and Goliath have exactly the same physical features yet the intentionalists think that we can have different intentions towards them. Also, the fact that we possibly intend q to be squishable/nonsqusihible should not have any bearing on whether we can possibly intend it to be otherwise, since our intentions in different possible worlds do not interfere with each other. Perhaps there are some constraints on what is good for one to intend from the point of usefulness in social practice, or there may be some limit to what we can intend from the perspective of our mental mechanisms, but it certainly seems that we have enough freedom to have intentions as to whether q is squishable or not.

Finally, the intentionalists may want to deny the S5 principles. I will not give a full argument against this option due to the limited space of this paper. But I want to suggest some difficulties of this option to the intentionalists. The denial of S5 principles in modal theories amounts to the denial that all possible worlds are S5-structured. But notice that my argument need not rely on this strong modal assumption, but need only require that there is a restricted set of possible worlds that are S5-structured. Thus, the intentionalists who take this option must go on to deny that two conflicting intentions can exist in the same S5-structured set of possible worlds. But then they have to come up with a story about how a certain intention in one possible world can determine all our intentions in other possible worlds within the same restricted set bound by S5. Again, since it is unlikely that our intentions in different possible worlds can interfere with each other, no such story easily comes to mind at this point.

Thus, it seems that the intentionalists have no good resource to solve the contradiction. If they are not prepared to make highly contentious claims about grounding or modal properties, they had better give up (IG).

3. The Sophisticated Intentionalists' View

Not surprisingly, intentionalists do give up (IG). In this section, I will examine a more sophisticated position represented by C.S. Sutton (2012).[15] Sutton rejects (IG) as inaccurate: (IG) says that we intend Goliath (or Lumpl) to be non-squishable (or squishable), but that this is not true. We do not direct our intention towards Goliath and Lumpl as if they existed prior to our intention and we simply bestowed properties

---

[15] There are other intentionalists, who may tell slightly different stories than Sutton. See Amie Thomasson (2007) and Alan Sidelle (2001). But the difference is not significant as far as my criticism is concerned. So, while my argument is explicitly directed at Sutton only, it is implicitly addressing a wider literature, and I would love to see how other intentionalists will respond to my argument.

on them; rather, there is no Goliath or Lumpl before the exercise of our intention, and only in virtue of our intention do they come into existence. What, then, is the object of intention? Sutton argues that it is the parts that later compose Goliath and Lumpl. Let me make an analogy to illustrate her idea. Imagine an artist creating her artwork: she makes a pile of bananas, puts some pigs' brain beside it, and hangs some needles under the low ceiling; when she finishes, she moves back and looks, then decides that everything is in the right place, and names the whole thing "xyz". Sutton's version of intention is like this: it is the parts, namely the bananas, the needles, etc. rather than the "xyz" that the artist adjusts and ponders and judges to be arranged in the right way so as to compose the new entity. (One little discrepancy between the analogy and the Goliath/Lumpl case is that in the analogy, the artist is perfectly aware of the plurality of the parts, while in the Goliath/Lumpl case, we may be only conscious of one physical thing with a certain shape and weight through which the parts collectively present themselves. One may feel uncomfortable about the disanalogy, but that point is not what I want to focus on.)

What is interesting about Sutton's sophisticated intentionalism is that it gives the initial impression that it could overcome the AIG argument. Let me illustrate this impression. One may describe Sutton's grounding claim as follows:

> (RI) Necessarily, for all ys, if we intend those ys to compose a squishable/non-squishable thing, then such intention grounds that there is an x such that ys compose x and x is squishable/non-squishable.[16]

As formulated, the AIG argument cannot apply to (RI), because suppose we want to assume this:

---

[16] 'ys' is a plural variable that refers to multiple things.

(1) Possibly, we intend the ps to compose a squishable thing.

(2) Possibly, we intend the ps to compose a non-squishable thing.

(RI) does not enable us to infer from (1) and (2) that the ps in both cases compose the same thing. After all, in the Goliath/Lumpl case, our different intentions towards the parts might result in two different entities, namely Goliath and Lumpl. In this line of reasoning, it seems that we can only infer at the end of the argument something like this:

Possibly, there is an x such that the ps compose x and x is possibly squished

Possibly, there is an x such that the ps compose x and x is not possibly squished.

But the above inferences are perfectly compatible, since x can take different entities as its value. So the original AIG argument is not effective.

However, although (RI) seems not to be subject to the AIG argument, it is not the right way to formulate Sutton's grounding claim, because it fails to answer the grounding problem in the first place.

The reason that (RI) fails to answer the grounding problem is this: when we apply RI to the Goliath case, we cannot get the ideal result that our intention that the parts compose a non-squishable thing grounds *Goliath*'s non-squishability, for assigning the parts to the ys in the grounder does not fix the x in the groundee as Goliath. Theoretically, we can feed anything into x's placeholder, such as Jack the Giant killer. Thus (RI) only grounds that *something* is squishable/ non-squishable, not, as we expect, that a particular thing that we want to talk about is squishable/ non-squishable. To fix x to a particular thing, we should probably include the relation between ys in the grounder and x. Notice that Sutton does not explicitly state what her solution to

the grounding problem is, though she claims to solve the grounding problem (she only comes up with the claim that some ys compose something squishable/non-squishable in virtue of our intending those ys to compose something squishable/non-squishable); so, I need to extrapolate her grounding claim on her behalf.

A first attempt to improve (RI) is:

> (RI-1) Necessarily, for all x and ys, if we intend those ys to compose x, which is squishable/non-squishable, then this intention grounds x's squishability/non-squishability.

This option is a non-starter, because what is crucial to Sutton's revised intentionalism is that she wants to avoid directing an intention towards the particular thing x, while this formulation is equivalent to our intending ys to be x and intending x to be squishable/non-squishable. Besides, this formulation has the same result as the old (IG) when confronting the AIG argument: as far as we can intend x to be squishable, we are equally entitled to intend ys to compose x that is squishable.

A second attempt to improve (RI) is:

> (RI-2) Necessarily, for all x and ys, if those ys compose x and we intend those ys to compose a squishable/non-squishable thing, then these facts ground x's squishability/non-squishability.

This formulation is also inadequate as a grounding claim. When applying (RI-2) to the Goliath/Lumpl case, we have, on the one hand, Goliath is non-squishable because we intend the parts to compose something non-squishable, and the parts compose Goliath; on the other hand, the parts also compose Lumpl and hence Lumpl also satisfies the same grounding condition as Goliath. Then, according to Generalizability, Lumpl should also be non-squishable. But Lumpl is squishable, or so

the intentionalists want to say. Thus, (RI-2) is not an adequate grounding claim.

All the other intentionalists' grounding claims that similarly rely on stipulating the parts of a particular thing instead of stipulating the object of intentions will fail to distinguish between Goliath and Lumpl, since Goliath and Lumpl have the same parts.

One may be tempted to think that there must be a way to pick out Goliath or Lumpl uniquely without having intentions directed towards it. Since there are two components in the grounder, namely the composition part and the intention part, that one can make use of, one might want to add the following subsidiary condition to the general grounding claim on behalf of the Suttonian intentionalists: any x (artifacts or whatever the intentionalists are talking about) *just is* something composed of some ys that is squishable/non-squishable. She may even provide a long list in which every entity is defined uniquely. The list may contain items such as: Goliath = the composition of the clay parts that is non-squishable; Lumpl = the composition of the clay parts that is squishable; Clockle = the composition of the clock parts that is non-squishable; Towelle = the composition of the towel parts that is squishable, etc. Then, the objector may propose, the intentionalists can solve the indistinguishability problem that troubles (RI-2) by appealing to the unique definition of Goliath or Lumpl. Let us use Goliath as an example: since we intend the clay parts to compose something non-squishable, and since Goliath just is something composed by those parts that is non-squishable, we have grounded Goliath's non-squishability. The general grounding claim would be like this:

> (RI-3) Necessarily, for all ys and x, if we intend those ys to compose
> something squishable/non-squishable, then this intention, taken together with
> the fact that x just is whatever is composed of the ys that is squishable/non-

squishable, grounds that x is squishable/non-squishable.

Although (RI-3) circumvents the indistinguishability problem, the subsidiary condition is itself troublesome. To illustrate, there are two possible readings of the definition that Goliath *just is* something composed of the clay parts that is non-squishable. First, it can mean that Goliath is nothing over and above the composition of the specific parts that is non-squishable. On this reading, the intentionalists would commit themselves to parthood essentialism, namely that Goliath could not have been composed of different parts and still have existed. But this is implausible. For example, Goliath would continue to exist if we were to replace some of its parts. Second, the subsidiary condition can also mean that whatever is composed of the parts and is non-squishable is Goliath. On this reading, Goliath could have been composed of different parts, so we cannot charge the intentionalists with parthood essentialism. While this statement is unproblematic in the actual world where the parts do compose Goliath, it nevertheless becomes problematic when we consider all possible worlds, as is required by (RI-3). In order to answer the grounding problem, the intentionalists would need to say that whatever *could have been* composed by the parts that is non-squishable is Goliath. This is problematic because the parts could also compose duplicates of Goliath which are non-squishable and yet are not Goliath. In this case, the intentionalists once again fail to ground that *Goliath* is non-squishable.

Therefore, Sutton is faced with a dilemma. On the one hand, any grounder that does not include our intention towards a particular thing fails to pin down the particular thing in the groundee. On the other hand, she wants to reject the idea that our intention is directed towards a particular thing, since there is no pre-intention entity for intention to be directed to. To steer clear of this dilemma, Sutton needs a

very special kind of intention – a special relation between our intention and a particular thing – which does not include the particular thing as its object or content, yet can fix the resulting composite entity to be the particular thing once it is directed towards the parts. One way to cash out such a special relation is to hold that the intention is directed in a-particular-thing-like way. In particular, if our intention is directed in a Goliath-like way to the parts, the parts compose Goliath. Thus, just as I can happy-in-a-rainday-ly intend my little brother to sing, I can Goliathly intend the parts to be non-squishable. Accordingly, the grounding claim would be:

> (RI-4) Necessarily, for any x and ys, if we intend in an x-like way that ys compose something squishable/non-squishable, then such intention grounds x's squishability/non-squishability.

Here, I confess my ignorance of what such a Goliathly intention would be like. Fortunately, we need not worry about whether this special kind of intention is really legitimate, since the AIG argument against (IG), the naive intentionalists' grounding claim, also applies against (RI-4):

> AIG'-1. Possibly, we intend x-like-ly that ys compose something squishable.
>
> AIG'-2. Possibly, we intend x-like-ly that ys compose something non-squishable.
>
> … ⊥

Again, to defend (RI-4), Sutton has to deny one of AIG'-1 and AIG'-2; but it seems that we are as free to x-like-ly intend ys to compose something squishable/non-squishable as to intend x to be squishable/non-squishable in the naive intentionalists' story, since there is no natural connection between x and squishability/non-squishability prior to our intention. If there exists a complicated story that explains why we cannot freely x-like-ly intend ys to be a certain way, it is at least not obvious

at the moment.

With all the above considerations, I would like to conclude that Sutton fails to propose an intentionalists' grounding claim that is both accurate and capable of overcoming the AIG argument, hence leaving the grounding problem ultimately unanswered.

4. Conclusion.

Intentionalists hope to ground persistence conditions and modal properties in terms of our intentions. The naive version of intentionalism thinks that x's squishability/non-squishability is grounded in our intending it to be squishable/non-squishable, while Sutton's more sophisticated version takes x's squishability/non-squishability to be grounded in our intentions towards its parts. In this paper, I have proposed that the AIG argument jeopardizes both versions of intentionalism. For the naive version, when we have possibly different intentions about whether a particular thing is squishable or non-squishable, given that our intentions towards it necessarily ground its modal properties, we end up with the fatal contradiction that the particular thing is both possibly squishable and not possibly squishable. Sutton tries to revise the naive version, but it is hard to extrapolate her exact grounding claim from her theory. After examining various possible ways of formulating her grounding claim, I come up with what proves to be the only sensible way, which is nevertheless subject to the same argument as the one against the naive intentionalism. Thus, I conclude that both versions fail to solve the grounding problem.

Bibliography

1. Baker, Lynne Rudder. "Unity without Identity: A New Look at Material Constitution," *Midwest Studies in Philosophy* 23 (1999): 144-165.

2. Bennett, Karen. "Spatio-temporal Coincidence and the Grounding Problem," *Philosophical Studies* 118 (2004): 339-371.

3. Burke, Michael B. "Copper Statues and Pieces of Copper: A Challenge to the Standard Account," *Analysis* 52 (1992): 12–17.

4. DeRosset, Louis. "What is the Grounding Problem?" *Philosophical Studies* 156 (2011): 173-179.

5. Fine, Kit. "Some Puzzles of Ground," *Notre Dame Journal of Formal Logic* 51 (2010): 97-118.

6. Jenkins, C.S. "Is Metaphysical Dependence Irreflexive?" *The Monist* 94 (2011): 267-276

7. Sutton, C. S. "Colocated Objects, Tally-Ho: A Solution to the Grounding Problem," *Mind* 121 (2012): 703-730.

8. Trogdon, Kelly. "Grounding: Necessary or Contingent?" *Pacific Philosophical Quarterly* 94/4(2013): 465–485.

9. Wasserman, Ryan. "The Standard Objection to the Standard Account," *Philosophical Studies* 111 (2002): 197-216.

Appendix

A Formal proof for the AIG argument:
Dictionary:
ISx: one intends that x is squishable;
INx: one intends that x is non-squishable;
Sx: x is squishable;
Nx: x is non-squishable;
Qx: x is squished.
A≺B: A grounds B.

(a) Justification for AIG-3:

1. □ (∀x) (ISx→ (ISx ≺ Sx))	(IG)
2. □ (ISq→ (ISq ≺ Sq))	UI 1
3. □ (A→B) → (◊A→◊B)	MO
4. ◊ ISq→ ◊ (ISq ≺ Sq)	MO 2
5. ◊ ISq	AIG-1
6. ◊ (ISq ≺ Sq)	MP 3, 4
7. □ ((ISq ≺ Sq) → □ (ISq→Sq))	Instan. SN
8. ◊ (ISq ≺ Sq) → ◊ □ (ISq→Sq)	MO 7
9. ◊ □ (ISq→Sq)	MP 6, 8
10. 00...□ = □	S5-1
11. □ (ISq→Sq)	S5-1 9
12. ◊ ISq→ ◊ Sq	MO 11
13. ◊ Sq	MP 5, 12

(b) Justification for AIG-4

1. □ (∀x) (INx→ (INx ≺ Nx))	(IG)
2. □ (INq→ (INq ≺ Nq))	UI 1
3. □ (A→B) → (◊A→◊B)	MO
4. ◊ INq→ ◊ (INq ≺ Nq)	MO 2
5. ◊ INq	AIG-1
6. ◊ (INq ≺ Nq)	MP 3, 4
7. □((INq ≺ Nq) → □ (INq→Nq))	Insta.SN
8. ◊ (INq ≺ Nq) → ◊ □ (INq→Nq)	MO 7
9. ◊ □ (INq→Nq)	MP 6, 8
10. 00...□ = □	S5-1
11. □ (INq→Nq)	S5-1 9
12. ◊ INq→ ◊ Nq	MO 11
13. ◊ Nq	MP 5, 12

(c) Justification for AIG-5

1. ◊ Nq	Assp.
2. Nq =df ¬ ◊ Qq	Instan. A2
3. ◊ ¬ ◊ Qq	Sub. 1, 2
4. ¬ □ ◊ Qq	EQ 3
5. 00…◊ = ◊	S5-2
6. ¬ ◊ Qq	S5-2 4
7. ¬ ◊ ◊ Qq	S5-2 6
8. Sq =df ◊ Qq	Instan. A1
9. ¬ ◊ Sq	Sub. 7, 8