DON'T GET HUNG UP IN THE MIDDLE

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Grounding is still a relatively young topic for philosophical inquiry amongst contemporary analytic philosophers, so there is still a lack of consensus on the subject. One unanswered question is the target of grounding: can it be a tool to explain reality? Is it a relation like causation or parthood? Among all this uncertainty,there seems to be, even at such a young point in the life of grounding as an area of philosophical inquiry, a certain consensus or rather a dichotomy among philosophers. I'm talking about the position of the fundamentalia, entity(ies) that are thought by foundationalists to ground everything.

Most philosophers take grounding structures to be either top-ist or bottom-ist. According to top-ism, everything is immediately or mediately grounded by the entity of which everything else is a proper part of. This entity is usually identified with the cosmos. According to bottom-ism everything is immediately or mediately grounded by the smallest entities, the mereological atoms, whatever they may be. Between top-ism and bottom-ism resides middle-ism, and it means exactly what it sounds like. Middle-sized entities constitute the fundamentalia, grounding smaller entities through a downward chain (towards the mereological atoms) and larger ones through an upward chain (towards the cosmos). This may sound peculiar at first but is not quite so when examined closely. Sara Bernstein, in her paper *"Could a middle level be the most fundamental?"* argues for the plausibility of middle-ism.

In this paper I attempt to show, offsetting Bernstein's arguments for middle-ism, how middle-ism is more problematic than its counterparts, in three ways. In carrying out this project, I don't think that middleism is just as plausible as top-ism or

bottom-ism. Despite this, I concede that taking a closer look at middle-ism and not simply dismissing it at the outset has its merits. This paper tries to be representative of that. I have three objections to make. The first one concerns the middle level itself and how the middle-sized fundamentalia can occupy neither one level nor multiple. The second one appeals to the unintuitive consequences that middle-ism has based on the notion of relative fundamentality. The third one is based on a problem that arises when talking about parthood, about how grounding direction goes both from wholes to parts *and* parts to wholes in middle-ism.

§2 The Middle Level

In this section, I will start off with a brief discussion of middle-ism and the advantage that Bernstein claims middle-ism holds over its rivals. This will be followed by an analysis of the middle level which will show how the middle-sized fundamental entities can neither occupy one level, nor multiple levels, that is, a portion of the chain. Finally, I will discuss a potential reply that a middle-ist could make and my response to it.

Let us look at middle-ism a little more closely. It might seem peculiar or absurd that the world would be structured in a way such that it is both ascending (upward chain, towards the cosmos) and descending (downward chain, towards mereological atoms) instead of either one. But, as Bernstein argues, it is equally imaginable that God, instead of going with a top-ist or bottom-ist structure, decided to go with a middle-ist view. Still, it seems as though it would be harder for God to create the middle-sized entities and let the smallest and the largest entities fall out of them rather than having to create just the mereological atoms since the mereological atoms are clearly simpler, more primitive entities. I don't mention the cosmos here since, in creating the cosmos, God would be creating everything and so among the three, creating mereological atoms seems to be the easiest.

Bernstein argues that middle level entities like iPhones, toasters, and amoebae have an (prima facie) advantage over the fundamental entity(ies) posited by top-ists (the cosmos) and bottom-ists (mereological atoms). The advantage being that these middle level entities are "perceptually available" and have "rich essences"[1] , which discourage doubts regarding the nature or the explanatory power of the fundamentalia. Middle-sized entities, like a human, instantiate (essential) properties like having the exact parents they have, which the cosmos and mereological atoms do not. Here, perceptual availability and rich essences are being considered advantages since the fundamental entity for the top-ist, the cosmos, cannot be perceived, at least not all at once. On the other hand, the fundamental entity for the bottom-ist would

1 Bernstein, S. "Could a middle level be the most fundamental?". *Philosophical Studies,* 2020: pp. 1-15.

be the mereological atoms, which we have not identified, at least not yet. Even if we did come to know of them, they would be out of the reaches of our perceptual abilities presumably owing to their small size.

Let us begin by examining the middle level. The objection is against the advantage they supposedly have over the fundamentalia posited by top-ists or bottom-ists, that is, of having rich essences and being perceptually available. I object by saying that the list of middle level entities is indeterminate. The consequence of this is that they lose the aforementioned advantage of being perceptually available, and so it turns out to be a disadvantage. The question to be asked here is: are these middle-sized fundamental entities on the same level or do they occupy multiple levels? The former may seem like the obvious answer since multiple levels would imply a hierarchy, that is, one level grounded by ones below it, which would disqualify those entities from being fundamental, but I disagree for the following reason. If they are all on the same level, one must ask: what happens when a successor of an existing middle level entity comes into existence? Say for example, what would happen when the new iPhone comes out? A middle-ist might answer that the new iPhone would just be added to the list of the middle level entities. The list is dynamic.

However, the list cannot be dynamic because two models of the iPhone cannot both be a part of the same list. This is because any single model of the iPhone can explain all the previous models and the ones to come. Having two entities of the same species will result in the fundamentalia having grounds (the older generation being a ground for the newer one and vice versa, which is to say that some middle-sized entities would ground other middle-sized entities) which would disqualify them as fundamentalia altogether. This disqualification I mention is based on the notion of independence, as the criteria for what counts as fundamental, as defended by Bennett, over the notion of completeness, in her book Making Things Up. Fundamentality as independence, according to Bennett, is simply the idea of being ungrounded. To say a thing is fundamental (according to independence) is to say that there are no other entities below it that ground it. Completeness on the other hand is the idea that the fundamental entities must build everything above them. It does not specify that they must be ungrounded[2]. Going back to the question of the fundamentalia occupying one level, the issue is not only that the fundamentalia would be grounded but also that an entity and its grounds cannot be on the same level of fundamentality. This might be clear for artifacts but let us consider a non-artifact too. For example, a progeny has the genetic material to trace its family tree upward and downward.

Therefore, since middle-sized objects cannot all occupy one level, it seems as though they must occupy multiple levels, that is, a portion of the chain will constitute the fundamentalia, which is absurd. I say it is absurd because of two reasons. First,

2 Bennett, K. "Making Things Up". Oxford: Oxford University Press, 2017: pp. 141-160.

there would remain no definite qualification that dictates which levels count as fundamentalia and which do not. For example, with the addition of new levels due to inventions or births of new members such as the latest iPhone, or an amoeba undergoing cell division, there will not be any reason sufficient to make the cutoff at a specific level rather than the level right before or after it. Since the list of middle-sized fundamentalia isn't determinate, one risks having to call all levels fundamental, in which case the notion of fundamentality becomes too expansive to be meaningful. This makes it hard to pinpoint from exactly which level onwards do entities stop counting as fundamental. It becomes an instance of the infamous Sorites paradox (Hyde, Dominic, and Diana Raffman, SEP) like the infamous sand heap problem where there is no distinct point when a heap of sand, during the removal of grains of sand one-by-one, stops being a heap[3]. Second, going by Bennett's account of independence as the criterion for what counts as fundamental, a portion of the chain won't be fundamental since the entities wouldn't be ungrounded. Here, the middle-ist might prefer the completeness picture of fundamentality, but I follow Bennett in her arguments for independence over completeness, and so, devote no further discussion on it.

Another prima facie objection against middle-ism is the idea that middle sized objects are objects that can come into existence at any time between the beginning and the end of the universe's life. For example, trees, rocks, and humans all pop in and out of existence at multiple times in the universe's timeline. This is not the case for top-ism or bottom-ism. The cosmos and mereological atoms aren't something that can cease to exist and reappear during a universe's life. They are metaphysical, mysterious, out of our reach, or other-worldly. But in the case of middle-ism, the fundamentalia are rather short lived; they are transitory.

Through this objection, I have shown how the supposed advantage of being perceptually available and having rich essences held by middle-sized fundamentalia in middle-ism is actually a disadvantage because middle-sized entities are readily perceivable and conceivable. They are not mysterious or unknown entities. It is a disadvantage because of the problems that arise when looking at the question about them occupying one level or multiple levels.

To the problems raised above, a middle-ist might reply that this issue, that of one or many levels, is not unique to middle-ism and hence does not disqualify it or make it less plausible than its counterparts. Even for top-ism or bottom-ism, we do not know for sure whether the fundamentalia populate one or many levels. This idea has been discussed by Jonathon Schaffer in his paper *Is There a Fundamental Level*? and T.E. Tahko in his paper *Boring Infinite Descent*. Maybe, what we might believe to be mereological atoms are grounded in quantum energy fields which are grounded in

3 Nolan, D. "Cosmic loops". *Reality and its structures: Essays in fundamentality.* Oxford: Oxford University Press, 2017: pp. 91-105.

smaller and smaller portions of the same fields. In such a case it is equally unclear, as in the case of middle-ism, where to draw the line for what counts as fundamental. Also, what comes right above the mereological atoms is unclear. Again, it seems unlikely that right above the mereological atoms would there be something clearly perceivable like an iPhone or a washing machine. It might be something like a cluster of mereological atoms, or rather, something built by mereological atoms but still equally imperceptible and with an essence almost as scant as a single mereological atom. Similarly, for top-ism, what comes just below something like the cosmos is not clear. It seems unlikely that right below the cosmos there would be something perceptual, or easily comprehensible, like say, a toaster. It would probably be something along the lines of the universe-minus-one-atom. The problem raised against middle-ism, that of where to draw the line, is present for the counterparts too, especially for bottom-ism, since there is not just one but many of these 'atoms' fulfilling the role of fundamentalia. Since there isn't a clear qualification in top-ism and bottom-ism that tells us why the fundamentalia are the way they are, it is not something that should devalue middle-ism as a plausible candidate to explain grounding structures.

To the middle-ist's reply, I concede that the problem, in the way she puts it: that we do not know what comes right below the cosmos or right above the mereological atoms either but, there is a determined line for top-ism and bottom-ism. The cosmos and the mereological atoms are entities which are determined as fundamental. Not knowing what might come right next to them does not matter since the fundamentalia are clearly defined. This is not the case for the middle-sized entities since the list of fundamentalia is itself indeterminate, and as shown above, they can neither occupy one level nor multiple levels.

§3 Relative Fundamentality

In this section, I will show how, if one chooses to accept middle-ism, it results in an absurd conclusion. To do this, I will use Werner's account of relative fundamentality and then discuss a potential objection the middle-ist can make. Finally, I will use Werner's theory to dismiss that reply. The middle-ist can still attempt to argue for middle-ism by taking another route, which I will also argue against.

As shown in §2, the middle-sized fundamentalia cannot occupy the same level due to the problem of entities of similar species, like newer generations of iPhones. Despite this, a middle-ist might still argue that middle-sized fundamentalia do occupy one level by including only the first member of any species of entities, like the first-generation iPhone, but this too, I argue, is not possible for the following reason.

It is obvious that all the mereological atoms would be at the same level since they are identical. But, having perceptually available middle-level entities (even if it is

only first-generations that count as fundamental) such as iPhones and toasters on the same level create a problem. My objection is that accepting middle-ism would lead one to the conclusion that all the mereological atoms *do not* lie on the same level of fundamentality. This comes about as follows. Let us take an iPhone and a toaster to be among the middle-sized entities that are part of the fundamentalia. It is obvious that an iPhone is more complex than a toaster, whether that is in terms of merely the number of components involved in its assembly, the scientific complexity, or the level of engineering that has gone behind the product. So, from the difference in the natures and complexities of these two middle sized entities at hand, it follows that the number of steps of immediate grounding it takes to reach down to the level of the mereological atoms would be different. The number of steps from the iPhone to a mereological atom would be more than that from the toaster to the mereological atom. For example, the steps from the iPhone would be as such: iPhone; motherboard; integrated CPU; CPU; GPU; silicon lattice structure; silicon atoms…… mereological atoms. The steps from the toaster would be as such: Toaster; heating coil; copper atoms…… mereological atoms. Hence, we arrive at the conclusion that the mereological atoms are not all on the same level of fundamentality, which is absurd. And so, the middle-ist cannot say that the middle-sized fundamental entities occupy one level.

The middle-ist, adamant on her stance, might still argue that the middle-sized fundamental entities do occupy one level. This she justifies by saying that one can take different numbers of steps from the fundamentalia and yet get to the same level of fundamentality. Which is to say that one could take a different number of steps of immediate grounding to go from the fundamental level to that of the mereological atoms in different cases, as shown with that of the iPhone and the toaster.

This violates the account of relative fundamentality as drawn out by Werner. Roughly, on his account, relative fundamentality can be measured by counting down the number of steps of full immediate grounding it takes from the entity or node at hand, to the fundamental entity or entities (depending on how many fundamentalia one takes there to be)[4]. It is a violation of this account since despite the move made by the middle-ist which puts the mereological atoms at the same level by taking different number of steps from the fundamental level, the mereological atoms arrived at in both the cases, via the iPhone and via the toaster, would have different values or degrees of relative fundamentality. This is due to there being different numbers of steps between them and the fundamental level. At this point the middle-ist can take one of two paths.

4 Werner, J. "A grounding-based measure of relative fundamentality". *Synthese,* 2020: pp. 1-17.

The first path the middle-ist could take is that she can accept the violation of Werner's account of relative fundamentality and take there to be indiscrete levels of fundamentality. This will allow the middle-ist to place two mereological atoms at the same level of fundamentality even though there are different steps between them and the fundamental level. This makes the levels indiscrete because equal lengths, the toaster-mereological atom and the iPhone-mereological atom, would have an unequal number of levels of fundamentality. My only response to this would be that it is overly bold to reject the best account of relative fundamentality we have in order to accommodate an already suspicious middle-ist structure of grounding, especially when no alternative has been given to explain the notion of relative fundamentality, let alone one as elaborate as Werner's.

The second path the middle-ist can take draws on the idea of plural grounding from Shamik Dasgupta's *On the plurality of grounds.* The idea is that a certain set of facts would together ground another fact without any one or many of the facts from the set being sufficient for the explanation of the grounded fact[5]. Following from this, the middle-ist could say that the middle-sized fundamentalia ground everything above and below. One cannot get any more specific than this and so, pinpointing which middle-sized fundamentalia are grounding the grounded entity at hand is consequently not possible.

I would reply to this with a different proposal, which eventually fails, like before, due to Werner's notion of relative fundamentality. My proposal is a modification of Werner's notion of arbitrary grounding, which he talks about in his paper *Arbitrary grounding.*

Arbitrary grounding says that if we have a specific set of grounders, *ff*, we cannot specify which groundee *g* they will ground among a group of groundees *gg*. Borrowing Werner's example, if there are two identical doughnuts *a* and *b* on a table and you were to pick one, there is no specific reason why you pick, say, a over *b*. It's an arbitrary choice. With the *ff* at hand, one cannot pinpoint which groundee will emerge. So, for any given set of grounders, we cannot specify the groundee.

My proposal involves flipping the position of non-specificity in arbitrary grounding. The middle-ist could say that for any specific groundee, one cannot specify the grounder(s). So, if we talk about mereological atoms, one cannot claim which specific grounder(s) any mereological atom(s) came from. Did a particular mereological atom come from an iPhone or a toaster? One can never tell. The only thing that can be said is that the mereological atom(s) is grounded by the middle-sized fundamentalia. But this proposal runs into trouble. Even if we cannot specify which middle-sized entity is grounding which mereological atom(s), two mereological atoms coming from different middle-sized entities, even though

5 Dasgupta, Shamik. "On the Plurality of Grounds". *Philosophers' Imprint*, 2014.

unknowable which, can still be on different levels of fundamentality with no explanation as to why that is the case. This is problematic for Werner's account of relative fundamentality as noted earlier, so this proposal must be rejected too.

In the end, maybe the Dasguptian view proposed earlier could be the answer for the middle-ist to hold on to, but this view is just too generic and lacks explanatory power. It gives us no information apart from the idea that middle-sized entities ground the smaller and larger entities, which is circular since that is exactly the definition of middle-ism.

This Dasguptian proposal is similar to an approach that is implicit in Kevin Richardson's paper *On What (In General) Grounds What.* The idea is that one should not take specific instances, as I do with the iPhone and the toaster. We should build from a generalized picture, starting with a broader idea and then extrapolating that to specific cases. For example, when talking about middle-sized fundamental entities, start by taking all of them at the same level since they are fundamental, or rather, equifundamental. In other words, we should go from broad categories to narrow cases to ensure that the central idea, that the middle-sized entities are fundamental, remains intact, and consequently that those entitites would be equifundamental, occupying one level. I object by saying that we must do exactly the opposite. It is a bad strategy to go from the broad to the narrow since the generalization can lead to dismissal of cases that are actually counterexamples to the broader idea. We must build from the narrow, specific cases, and only when we have enough narrow cases to build a generalized picture should we translate that notion to the broader picture. It would be wrong to start off with a set-in-stone idea and try to force individual cases to conform to it instead of building up the idea based on the specific cases. Bennett also endorses this idea in her book *Making Things Up*. She argues that singular claims are prior to generalizations. Broad claims, like *ff* ground the gg, are reached by quantifying or generalizing which do not provide a reason to believe them. Rather, singular claims, like this mouse is grounded by complex proteins, are what are true[6].

§4 Parthood

In this section, I will make my final objection against middle-ism based on an issue that arises for the middle-ist when thinking of the direction of grounding and parthood. The issue is that a middle-ist, in trying to avoid simultaneously taking opposite monistic and pluralistic stances, would still have to take restricted versions of monism and pluralism to be true, which is problematic. Like before, I will follow this objection with a potential reply from a middle-ist, and my response to it.

6 Bennett, K. "Making things up". Oxford: Oxford University Press, 2017: pp. 141-160.

Before we get into my objection, let me clarify the way in which I am using the terms monism and pluralism since these terms can have different connotations in different contexts. For my purposes, a monist, or rather a priority monist, is someone who takes wholes to be prior to their parts and a pluralist, or a priority pluralist, takes parts to be prior to the whole that they are a part of.

This objection stems from the difference between monism and pluralism. In middle-ism, middle-sized entities acting as the fundamentalia would have to satisfy the conditions that are demanded both by the monist and the pluralist. Let me explain using an example. Almost every smartphone nowadays has an integrated chip, that is, they have multiple components like the CPU, the GPU, antennae, memory cards, etc. all soldered together onto one chip that runs the entire smartphone. For a monist, the smartphone would be prior to the integrated chip which would then be prior to the individual components of the chip. For a pluralist, the individual components would be prior to the integrated chip which would then be prior to the smartphone. So, the problem for middle-ism is that the middle-sized fundamentalia have to come prior to both the larger and the smaller entities, that is, the integrated chip will have to be prior to both the smartphone and the individual components of the chip. In other words, the middle-sized entities, in some sense, have a higher function to perform as the fundamentalia for middle-ism than in the case of the counterparts.

Middle-ists have to ground the chain in two directions which would mean, in some sense, that they have to possess the explanatory power of mereological atoms in a bottom-ist structure (upward chain) and the cosmos in a top-ist structure (downward chain). One might ask at this point: where is the objection here? The integrated chip having to be prior to both the smartphone and the individual components is just the definition of middle-ism, that is, the middle-sized entities grounding the smaller *and* the bigger ones. In a way, yes! But the point I am trying to make is that middle-ism is more complicated than top-ism and bottom-ism in trying to ground both larger and smaller entities, and there is not sufficient reason for why this extra complication is needed. In other words, being a middle-ist, one cannot also be a proponent of priority monism or priority pluralism.

The middle-ist would have to (individually) deny both parts-ground-wholes and whole-grounds-parts and take some restricted version to accommodate their stance. She might do this by quantifying, maybe based on size or level of relative fundamentality, which portion of the grounding picture must follow the parts-ground-whole order and which must follow the whole-grounds-parts order. But this quantification is also problematic for the same reason as was the fundamentalia occupying multiple levels. There would be no exact qualification by which the middle-ist can pinpoint exactly where the middle-sized entities stop being fundamental. As a result, middle-ism violates the Occam's razor principle

which says that one should prefer the simplest explanation for anything and only complicate the explanation if needed[7]. Middle-ism, in trying to explain reality through grounding structures, further complicates our understanding without providing new insight relative to its two counterparts.

The middle-ist could have said that the advantage that middle-sized fundamentalia possess, that of being perceptually available and having rich essences, justifies the complication, but as I have shown in the second section those traits are actually disadvantages. She might in turn use a similar strategy as earlier by saying that since the explanatory powers or abilities that the cosmos or the mereological atoms possess are still beyond us, that is, we do not have knowledge of what they are, it is equally plausible that there be middle-sized objects possess explanatory powers such that they can ground things above and below them. Maybe God decided to make the world such that middle-sized entities qualify as fundamentalia. Hence, the problem regarding the higher ask for the fundamentalia in middle-ism, that of grounding larger entities going up *and* smaller ones going down, does not necessarily make it any less plausible than its counterparts.

Again, I reply that the problem raised may not be unique to middle-ism, but there are definitely higher hurdles for middle-ism to overcome, like those highlighted in sections two and three, due to the disadvantage they possess, that of their perceptually availability and rich essences.

§5 Conclusion

In this paper I have shown three ways in which middle-ism is a less favorable method of grounding compared to its counterparts, namely top-ism and bottom-ism. The overarching problem that leads, in one way or another, to all my objections is the supposed advantage of perceptual availability and rich essences in middle-sized entities, that Bernstein appeals to, which I have shown to be a disadvantage. The perceptual availability and rich essences possessed by the middle-sized fundamentalia makes their nature clear, or at least clearer, than the counterparts, namely the cosmos and mereological atoms. Since this clarity, that of perceptual availability and rich essences, is achieved, middle-ism faces problems such as those shown in this paper.

One can look at it from an epistemic lens. It is very likely that we never come to know what the structure of the world is and so, I concede that saying that God could very well have structured the world on the basis of middle-sized entities could be just as plausible as saying that the sun, tomorrow, will rise in the west rather than the east. Still, I think the problems I raise against middle-ism show, at the very least, that it is a view less plausible than its counterparts.

7 Baker & Alan, "Simplicity", *The Stanford Encyclopedia of Philosophy,* Winter 2016 Edition, Edward N. Zalta (ed.)

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