Nothing in particular

GIUSEPPE SPOLAORE
University of Padua
giuseppe.spolaore@unipd.it

In this paper, I introduce and discuss a paradox that I call "subtraction paradox". The subtraction paradox has the same basic structure as many other puzzles involving the notion of nothingness. Roughly, the structure is this: sometimes we presuppose, when we speak, that "nothing" ("nothingness") denotes something; however, if so, the thing denoted by "nothing", viz., nothing, cannot be nothing (for no thing is nothing). It may be tempting to think that the subtraction paradox ultimately depends on the fact that the notion of nothingness is especially problematic. In this paper, I draw doubt on this view, showing that essentially the same paradox can be formulated with no appeal to the notion of nothingness. In the Appendix, I suggest that the paradox ultimately depends on a principle connecting facts and truths and on the possibility of (impredicative) quantification over facts. I also suggest that the paradox is a fact-based version of standard antinomies such as Cantor's paradox.

Eternity & Contradiction. Journal of Fundamental Ontology
volume 3 • issue 4 • Apr. 2021

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Consider our universe and suppose to gradually subtract all the things that populate it (see Baldwin 1996). Now let us assume that this subtraction process has come to an end and ask: what is the result? The following answer sounds clearly correct:

(1) The result of the subtraction process is nothing (understood as nothingness, i.e., the absence of everything)[1].

However, (1) is problematic. For if the term "nothing" denotes something in (1), then it denotes a thing[2]. Hence, the result of the process of subtraction is a thing (the thing denoted by "nothing"), and so the result is not, strictly speaking, the absence of everything. Therefore, if "nothing" denotes something, then (1) is false. If, on the other hand, "nothing" is empty (non denoting), on a par with "the round square", then it is not true that the result of the process is nothing, for the same reason that no process can result in the round square (if a process resulted in the round square, then the round square would be a thing, and so "the round square" would be nonempty). Either way, we must give up the intuition that (1) is true.

Let us call this problem the *subtraction paradox*. The subtraction paradox is one of the *paradoxes of nothing* – a family of arguments sharing the

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1   The view that "nothing", in its 'nothingness' reading, means the same as "the absence of everything" is both plausible and common (see, e.g., Severino 2013: 107, Priest 2014: 55, Costantini 2020). Such 'nothingness' reading contrasts with the standard, quantificational reading of "nothing" (see, e.g., Priest 2014: 55–56, Spolaore and Sgaravatti 2018 for discussion). To illustrate, if "nothing" is understood quantificationally in (1), then (1) is equivalent to the claim that the subtraction process yields no result. I assume that this is *not* the intended reading of (1).
2   Here I am using "thing" as a transcendental expression, viz., in such a way that everything (every object or entity we can refer to) counts as a thing; see, e.g., Spolaore and Lando 2014.

same fundamental structure. Roughly, the structure is this: in many cases we presuppose, when we speak, that "nothing" denotes something (i.e., that we speak of something when we speak of nothing); but, if nothing is something, then it is not nothing.

The aim of this note is to argue that, plausibly, the subtraction paradox does not depend specifically on the notion of nothing (absence of everything), in the sense that perfectly analogous paradoxes can be formulated by using different notions and by considering subtraction processes that do not yield a null result.

Let us start by observing that the subtraction paradox depends on the following two theses:

(A) When we count the things that survive to the subtraction process, then nothing (assuming "nothing" is non-empty) is a thing that contributes to the total count. Thus, if the result of the subtraction process is nothing, then the number of the resulting things is at least 1.

(B) If X is an empty term, then the sentence ⌜The result of the subtraction process is X⌝ is not true.

Now, it is easy to prove that, if we accept (A) and (B), along with a very plausible assumption, we can formulate a paradox analogous to the subtraction paradox for each finite number of things that might result from the subtraction process. This is the plausible assumption:

(C) If (A) is true, viz., if nothing (the absence of everything) contributes to the total count of things, then also *relative* absences, like the absence of bread or the absence of Abel, contribute to the total count of things.

Here is a possible proof. Let us choose any finite number of things and ask: is it possible to get a smaller number of things by subtracting some of those things? It appears that the answer is *yes*. However, if we accept (A), given plausible assumption (C), the answer must be *no*. Let us assume, for instance, that the universe includes just two things, Cain and Abel, and suppose that Abel is erased. In this scenario, the following statement sounds true:

(2) The result of the subtraction process is the absence of Abel.

However, by (A) and (C), the absence of Abel is a thing that contributes to the number of things resulting from the subtraction process. Thus, the number of these things is 2 (Cain and the absence of Abel), that is, exactly the number we started with. And it is clear that no subtraction process can lead to a smaller number. The alternative is to reject (A), and to suppose that "the absence of Abel" is an empty description. But if so, by (B), we must give up the intuition that (2) is true.

This version of the paradox makes no appeal to nothingness (the absence of everything) but it still involves the notion of absence. However, given another very plausible assumption, we can provide a version of the paradox involving no absence either. This time, the plausible assumption is that, if absences are things that contribute to the total count of things, then the same holds for *presences*, viz., for things like the presence of something, the presence of bread etc. Keeping this assumption in mind, let us come back to the previous scenario (the one in which Cain is the unique thing left) and consider the following statement:

(3) The result of the subtraction process is the presence of a unique thing.

In the relevant scenario, (3) rings (obviously) true. However, if "the presence of a unique thing" denotes a thing that contributes to the count of the things left, then the result of the process is the presence of *two* things (Cain and the presence of a unique thing), not just one. Thus, (3) is false. If, on the other hand, "the presence of a unique thing" is an empty description, then, by (B), we must still give up the intuition that (3) is true.

Plausibly, not all paradoxes of nothing depend on nothing in particular.

Appendix. Remarks on *Nothing in particular*

The guest editors for this Journal invited me to expand my note with some explanatory comments, and I am happy to comply.

In (2) and (3), the descriptions "the absence of Abel" and "the presence

of a unique object" can be replaced *salva significatione* with suitable that-clauses:

(2′)   The result of the subtraction process is *that Abel is absent*.
(3′)   The result of the subtraction process is *that a unique thing is present*.

In a similar vein, we can safely replace "nothing" in (1) with "that there isn't anything" (where "there isn't anything" receives a quantified reading, viz., it is equivalent to "it is not the case that there is something"):

(1′)   The result of the subtraction process is that there isn't anything.

Now, prima facie, (1′) looks less problematic than the original sentence (1). However, the impression is misleading, for at least two reasons. First, (1′) still includes a definite description ("The result of the subtraction process"), and the subtraction paradox can be restated with reference to *that* description.[3] Second, many philosophers would agree that the clause "that there isn't anything" in (1′) denotes a *fact* (or a true proposition). It is not by chance that (1′) sounds like a mild variant of (1″):

(1″) The result of the subtraction process is *the fact* that there isn't anything.

Assuming, plausibly enough, that nonempty descriptions beginning with "the fact that..." denote facts, the strict equivalence between (1), (1′) and (1″) strongly suggests that "nothing", if anything, denotes a fact in (1), namely, the fact that there isn't anything (in the relevant scenario).

If all that I have said thus far is correct, then the subtraction paradox has much more to do with the connection between facts and truths than it has with the notion of nothingness. At least prima facie, facts and truths are connected by the following schema (where P is any proposition):

(D)   ⌜P if, and only if, it is a fact that P⌝ (e.g., "It rains if, and only if, it is a fact that it rains").

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3   Here is a possible formulation. If "the result of the subtraction process" denotes something in (1), then the result of the subtraction process is a thing, not (strictly speaking) nothing, and so (1) is false. If, on the other hand, the description is empty, then, by (B), (1) is not true.

If taken at face value, (D) entails that for any true proposition there exists a corresponding fact. Unsurprisingly, based on (D), we can immediately formulate fact-based variants of the subtraction paradox. Here is a possible formulation. Suppose all facts have been erased, so that there are no facts. By (D), it is a fact that there are no facts. But then it is not the case that there are no facts (for there is at least one fact, namely, the fact that there are no facts). Contradiction. And of course, similar impredicativity-based paradoxes can be produced for any finite number of facts that should result from the subtraction process. (In passing, let me observe that these fact-based variants make it apparent the connection between the subtraction paradox and classical antinomies such as Cantor's paradox.)

Should we conclude that absolute nothingness – the absence of all things, including facts – is impossible or even self-contradictory? This is a view that Severino (e.g., 1957: ch. 4 [partly translated in this Volume as Severino 2021: 21–32]), along with Parmenides (e.g., DK fr. 6), Priest (e.g., 2014: ch. 4) and others, subscribed to. However, for the reasons discussed in the note, this view can be used to (dis)solve the subtraction paradox only if joined with the view that, for any finite number n, absolute n-ness (the presence of exactly n things) is equally impossible.

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