**The Invalidity Objection to the Zygote Argument:**

**A Reply to De Marco**

**Abstract:**

Alfred Mele’s Zygote Argument is among the most influential arguments in the contemporary free-will debate. Kristin Mickelson (2015) has argued that the Zygote Argument is invalid—the argument’s explanatory conclusion is not entailed by its premises. Gabriel De Marco (2016) has suggested two ways to “rescue” the Zygote Argument from Mickelson’s “explanatory gap objection”. In this essay, I argue that neither of De Marco’s rescue attempts succeeds: the first merely restates (in different technical terms) one of Mickelson’s proposed solutions to the explanatory gap objection; the second fails because it yields another invalid version of the Zygote Argument.

**Keywords:** Zygote Argument, Multiple-case Manipulation Argument, Free Will, Determinism, Incompatibilism, Incompossibilism, Impossibilism, Best Explanation Argument

1. **Introduction**

Alfred Mele’s Zygote Argument (Mele 2006, 2008, 2013, 2017) is one of the most prominent argumentsin the contemporary free-will debate. Although the argument has only two major premises, its underlying logical structure and upshot remain a matter of dispute.[[1]](#footnote-1) Kristin Mickelson (2015b) has pointed out that the conclusion of the Zygote Argument is at best ambiguous, and the argument is invalid on one common disambiguation. Specifically, the Zygote Argument is invalid when its conclusion “determinism precludes free action” is taken to mean that deterministic laws preclude (rule out, undermine, destroy) free action. Mele grants that his argument is invalid on such an interpretation and has updated the argument accordingly. [[2]](#footnote-2) New formulations of the Zygote Argument conclude to a variation on the relatively modest thesis that there is a correlation between the obtaining of deterministic laws (or truth of determinism) and the lack of free human agents; they are completely silent on whether determinism, deterministic laws, deterministic causation or the like plays a role in ruling out or undermining free will (cf. Mele 2013, 2017).

In his essay, “Rescuing the Zygote Argument” (2016), Gabriel De Marco adds to the discussion of the structure and conclusion of the Zygote Argument by suggesting two ways to “rescue” the Zygote Argument from Mickelson’s critique. First, De Marco points out that a valid version of the Zygote Argument can be created by holding its original two premises fixed and changing its conclusion to the non-explanatory claim that follows from these premises. Second, he argues that one could hold the original conclusion fixed and create a valid argument by adding a new premise which asserts that free will is metaphysically possible. According to De Marco, this new three-premise version of the Zygote Argument also demonstrates that, *pace* Mickelson, best-explanation reasoning is not required to support the Zygote Argument’s original conclusion that deterministic laws undermine free will.

In this essay, I point to serious problems with each of De Marco’s replies. De Marco’s first restatement of the Zygote Argument is valid but not novel: De Marco merely repeats (using his preferred jargon) a version of the Zygote Argument proposed by Mickelson and adopted by Mele. De Marco’s second version of the Zygote Argument is novel but not valid—and, moreover, it involves best-explanation reasoning.

**2. The Original Zygote Argument is Invalid**

The Zygote Argument is based on a thought experiment in which a goddess Diana creates an otherwise normal human Ernie in a universe with deterministic laws (Mele 2006: 189). This thought experiment is designed to elicit the intuition that Ernie is not free or morally responsible for his actions. The argument is then made that there is no principled difference between Ernie and any normal human living in a deterministic universe. Along standard lines, Mickelson formally summarizes the original Zygote Argument (hereafter “OZA”), as follows:[[3]](#footnote-3)

**OZA**

P1. *Victim Premise*: Ernie is not a free agent and is not morally responsible for anything.

P2. *No-difference Premise*: Concerning free action and moral responsibility of the beings into whom the zygotes develop, there is no significant difference between the way Ernie’s zygote comes to exist and the way any normal human zygote comes to exist in a deterministic universe.

1. *Conclusion:* So determinism precludes free action and moral responsibility.[[4]](#footnote-4)

Also along standard lines, Mickelson interprets OZA’s conclusion as the claim that the laws described by determinism are metaphysically incompatible with—preclude, rule out, make impossible, destroy, undermine*—*free action.[[5]](#footnote-5) Upon review, however, the premises of OZA do not entail that the truth of determinism (or its truthmakers/determiners) keeps people from exercising free will. Indeed, the premises of OZA do not isolate any feature and identify it as freedom-undermining. At most, the premises of OZA entail a modest, non-explanatory thesis such as: “No one who developed from a normal human zygote and lives in a deterministic universe is free or responsible for anything he does”. Since OZA’s conclusion explanatory conclusion is not supported by its premises, OZA is invalid.

Mickelson’s worry with OZA may be stated in a more general way. Just as scientists may establish that a *correlation* relation holds between two phenomena without thereby establishing whether the phenomena are (in addition) directly *causally* related, philosophers may establish that a *metaphysical incompossibility* relation holds between two phenomena without establishing (in addition) that a direct *metaphysical incompatibility* relation holds between them. Metaphysical incompossibility is analogous to the correlation relation: two things are metaphysically incompossible if it is metaphysically impossible for them to co-exist. For example, if free will is metaphysically impossible, it follows (a fortiori) that free will and brown cows are incompossible—there is, we might say, no possible world at which a brown cow exists and someone acts freely. However, it does not follow from the incompossibility of brown cows and free agents that the existence of brown cows precludes—makes impossible, rules out, undermines—free will (or vice versa). This demonstrates that two phenomena may be incompossible even though the phenomenon are not *metaphysically incompatible*, where the latter relation holds only when one phenomenon precludes, rules out, destroys, undermines, mitigates, or stands in some similar antagonistic relationship with another. Since the premises of the original Zygote Argument support the mere incompossibility of free will and deterministic laws, but its conclusion expresses the stronger claim that these two phenomena are metaphysically incompatible, Mickelson concludes that the original Zygote Argument is invalid.[[6]](#footnote-6)

For ease of reference, let us call this type of objection—one that posits that an argument is invalid because there is an *explanatory gap* between its stated explanatory conclusion and the non-explanatory thesis entailed by its premises—an *explanatory gap objection*.

Although Mickelson argues that OZA is invalid, she does not suggest that the Zygote Argument is irredeemably flawed. Mickelson outlines two ways of responding to the explanatory gap objection (2015b: 2912), what we might call a *premise-preserving strategy* and a *conclusion-preserving strategy*. A premise-preserving strategy responds to the explanatory gap objection to OZA by changing OZA’s explanatory conclusion to the negative, non-explanatory thesis that is entailed by its original premises. Using the premise-preserving strategy, Mickelson produces a new version of the Zygote Argument which concludes to the non-explanatory thesis that there is no possible universe in which deterministic laws obtain and someone who is subject to the laws performs a free action. In response to the invalidity charge, Mele has adopted a premise-preserving solution (Mele 2013, 2017).

A conclusion-preserving solution, by contrast, responds to the explanatory-gap objection by modifying the premises of OZA so that they adequately support OZA’s original, explanatory conclusion. According to Mickelson, there is only one viable way to flesh out the conclusion-preserving strategy: OZA must be developed as a best-explanation argument which concludes that deterministic laws undermine free will (see also Mickelson 2017).

**3. De Marco’s Premise-preserving Solution**

De Marco offers two replies to Mickelson’s explanatory gap objection—one premise-preserving solution and one conclusion-preserving solution—and claims that neither requires developing the Zygote Argument as a best-explanation argument. I discuss De Marco’s premise-preserving solution in this section and his conclusion-preserving solution in the next.

De Marco begins his essay by acknowledging the invalidity of OZA.[[7]](#footnote-7) He then lays out a premise-preserving solution, saying:

For those manipulation arguments that are invalid for the reasons that Mickelson gives, as well as for the Zygote Argument, an easy fix would be to change their conclusion to the claim that *compatibilism is false*. (De Marco 2016:1624, my emphasis)

What does De Marco mean when he says that a valid version of the Zygote Argument can be created by simply changing its original conclusion to the claim “compatibilism is false”? De Marco says the phrase “compatibilism is false” means:

*there is no possible universe in which deterministic laws obtain and someone who is subject to the laws performs a free action* (De Marco 2016: 1624).

Let us now compare the premise-preserving solution De Marco describes to the one provided earlier by Mickelson. Mickelson argued that OZA could be turned into a valid argument by changing its conclusion from incompatibilism to incompossiblism, where ‘incompossibilism’ means:

*there is no possible universe in which deterministic laws obtain and someone who is subject to the laws performs a free action* (Mickelson 2015b: 2917).

In short, De Marco embraces Mickelson’s proposed premise-preserving solution—including her idiosyncratic “subject to the laws” constraint—in all but name.[[8]](#footnote-8)

To sum things up, in the sense that De Marco’s “initial solution” to the explanatory gap objection is successful, it is not novel: he simply repeats a premise-preserving solution which had already been proposed by Mickelson and adopted by Mele (2013, 2017). Moreover, since De Marco does not reply to standing criticisms of his preferred technical terms (cf. Mickelson 2015a, Vihvelin 2013), he provides little motivation to prefer his jargon over that used by Mickelson. So, De Marco’s initial premise-preserving solution does not advance the debate.[[9]](#footnote-9)

**4. De Marco’s Conclusion-preserving Solution**

In De Marco’s second response to Mickelson’s explanatory gap objection, he takes up a conclusion-preserving strategy. De Marco concedes that the original Zygote Argument’s explanatory conclusion may be defended with the help of a best-explanation argument (De Marco 2016: 1627), but he rejects Mickelson’s argument for the claim that best-explanation reasoning is *required* to develop the Zygote Argument into an argument for a positive, explanatory conclusion (De Marco 2016: 1625). Rather than identifying a flaw in Mickelson’s reasoning about the structure of manipulation arguments (Mickelson 2015b: 2912), he describes a new version of the Zygote Argument which purportedly requires no best-explanation reasoning.

De Marco claims that a valid conclusion-preserving version of the Zygote Argument can be created by combining the two premises from OZA (above) with the further premise *that it is metaphysically possible for someone to act freely* (De Marco 2016: 1625). In short, De Marco’s new Zygote Argument, call it “ZAP”, goes as follows:

**ZAP**

P1. Ernie is not free (or morally responsible) for anything he does.

P2. Concerning free action (and moral responsibility), there is no significant difference between Ernie and anyone who is subject to deterministic laws of nature.

P3. **Possibilism**: **Possibly, someone performs a free action.**

C. Therefore: Necessarily, anyone who is subject to deterministic laws is unfree (at least partly) in virtue of being subject to deterministic laws; it is impossible for someone who is subject to deterministic laws of nature to exercise free will (at least in part) *because they are subject to deterministic laws of nature.*

Clearly, ZAP is invalid. ZAP’s premises entail that possibly, someone exercises free will in a universe *without* deterministic laws, but they do not tell us *why* no one acts freely in universes *with* deterministic laws. ZAP, like OZA, is subject to the explanatory gap objection: the incompatibilism-affirming “because” clause in the conclusion does not follow from ZAP’s premises. Since ZAP is invalid, it fails as a counterexample to Mickelson’s claim that conclusion-preserving versions of the Zygote Argument require the addition of a best-explanation argument.

Given that the invalidity of De Marco’s new Zygote Argument was initially overlooked, perhaps it is worth exposing the invalidity in its underlying logical form. As De Marco concedes, the conjunction of ZAP’s premise 1 and premise 2 entail only the qualified incompossibilist thesis, call it *incompossibilism\**, that it is impossible for someone *who is subject to the laws of nature* to exercise free will in a universe with deterministic laws. ZAP concludes to the similarly qualified incompatibilist thesis, hereafter *incompatibilism\**, that it is impossible for someone who is subject to deterministic laws of nature to exercise free will (at least in part) because they are subject to laws of nature which are deterministic. So, ZAP is valid if and only if the following argument is valid:

**The Underlying Argument (UA)** [[10]](#footnote-10)

1. *Possibilism*: Possibly, someone (some metaphysically possible being) exercises free will.
2. *Incompossibilism\**: It is impossible for someone who is subject to deterministic laws of nature to exercise free will.
3. *Incompatibilism\*:* It is impossible for someone who is subject to deterministic laws to perform a free action (at least in part) *because* the person is subject to deterministic laws.

The premises of UA entail that possibly, someone exercises free will in a universe *without* deterministic laws. However, UA’s premises do not tell us whyno one who is subject to the laws acts freely in universes *with* deterministic laws. Is it because deterministic laws (qua being deterministic) destroy free will in some special way? Is it because one’s being subject to the laws of nature would keep a person from satisfying a necessary condition on free will (irrespective of whether the laws are deterministic or otherwise)? Is it because only a *causa sui* could (counterpossibly) achieve the sort of self-creation required to by the sourcehood condition on free will (again, irrespective of what the laws are like)? The premises of UA do answer such questions, yet the conclusion of UA tells us that deterministic laws are freedom-undermining. In short, UA is subject to the explanatory gap objection and, so, UA is invalid; by parity of reasoning, so is ZAP.

Since ZAP is invalid, De Marcos’ proposed conclusion-preserving solution to the explanatory gap objection fails. By extension, ZAP does not challenge Mickelson’s claim that closing the gap (at least in the context of manipulation arguments) requires a best-explanation argument.

**5. Minimizing vs. Closing the Explanatory Gap**

Although De Marco’s conclusion-preserving solution technically fails, the reader might still think it adequately addresses Mickelson’s concerns: adding the assumption of possibilism to incompossibilism does not *close* the explanatory gap, but perhaps it *minimizes* the gap to the point that it is no longer worrisome. After all, if possibilism is true and so is incompossibilism (in some form or other), what other thandeterministic laws could account for the lack of free human agents in deterministic universes? What *better explanation* could there be?

These questions are interesting because they cast doubt on De Marco’s claim that, in adding the assumption of possibilism to the Zygote Argument, he does not partake in best-explanation reasoning:

Notice that nothing of what I have said above [in constructing ZAP] amounts to an inference to the best explanation. Adding P3 [the assumption of possibilism] to the Zygote Argument [OZA], or to manipulation arguments for incompatibilism, would not thereby make it a best explanation argument, nor would it need to be supplemented by one. (De Marco 2016: 1626)

What seems to be overlooked here is that there is more to a best-explanation argument than blindly asserting a speculative explanatory claim. Among other things, one must build up a case for one’s preferred explanation by carefully considering the most viable alternative explanations and showing that one’s preferred explanation is *better* than its rivals. Instead of taking up this tedious work, De Marco takes a dialectical shortcut: adding possibilism to the premises of OZA allows him to reject out of handall explanatory claims which imply the truth of impossibilism—including the impossibilism-friendly explanation that Mickelson’s suggests (Mickelson 2015b). In short, the dialectical role played by the possibilism-affirming premise of ZAP is clear: this premise rules out a swathe of candidate explanations which would otherwise challenge the incompatibilists’ claim that the best explanation for (best metaphysical account of) the lack of free humans in deterministic universes is that the deterministic laws undercut free will. So, adding possibilism to the premises of the Zygote Argument is to engage in best-explanation reasoning after all.

(As an aside, it is worth noting that adding possibilism to an argument for incompossibilism is, in effect, to assume the truth of free-will libertarianism (where ‘libertarianism’ is used as an umbrella for all those views which posit that free will is possible but only when the laws are *not* deterministic). One might reasonably worry, in the context of manipulation arguments, that it is dialectically infelicitous to rule out impossibilism-friendly explanations by simply *assuming* that some libertarian account for free will is correct.)

Finally, it seems that the underlying logical structure of the Zygote Argument is that of a best-explanation argument whether or not we add a possibilism-affirming premise. The Zygote Argument, like all multiple-case arguments, has a unique “no-difference” premise, a generalization premise which asserts that there is no principled difference between the victim in the manipulation scenario and the normal human in a natural determination scenario. In the first prominent multiple-case argument, Derk Pereboom’s Four-case Argument (Pereboom 2001, 2014), this no-difference premise is supported with an explicit “multiple-case strategy”, a series of cases in which each new case differs only slightly from the previous one, and each case is a bit closer to the normal determination scenario. The multiple-case puts a clear burden of proof on those hoping to reject the no-difference premise, namely they must “point out a relevant and principled difference between any two adjacent cases that would show why the agent might be [free and] morally responsible in the later example but not the earlier one” (Pereboom 2014: 6). Mele does not highlight the multiple-case strategy as much as Pereboom, but he does defend his no-difference premise by comparing his original case in which a scheming goddess intentionally designs and creates Ernie’s zygote with a case in which an insane goddess unintentionally creates Ernie’s zygote (2006: 198, n. 16), and others have suggested further variations, e.g. a case in which Ernie’s zygote is created by a lightning strike (Sartorio 2016: 160-161). The function of these bridge cases is to *rule out candidate explanations* for Ernie’s lack of free will which might otherwise seem to mark a principled difference between Ernie and the normal human in a deterministic universe.

Stepping back, the multiple-case strategy that is used in defense of the no-difference premise of the Zygote Argument is an instance of a very familiar type of best-explanation reasoning: identify an independent variable, change the value of this independent variable while keeping everything else fixed, and assess whether it changes the value of the dependent variable. Mele selects something like “the way in which one’s zygote is created” as the independent variable and something like “a human’s status with respect to free will and moral responsibility” as his dependent variable.[[11]](#footnote-11) Upon review, it seems that no change in the value of the independent variable (i.e. no change in the way one’s zygote is created) leads to a change in the dependent variable (i.e. changes a human’s status from unfree and non-responsible to free and responsible). From this, we conclude that the way in which one’s zygote is created is not, even in part, what keeps humans from satisfying the necessary and jointly sufficient conditions on free will when deterministic laws obtain. True, Mele elects to stop his Zygote Argument before using the multiple-case strategy to rule out other candidate explanations (e.g. that the laws of nature in Ernie’s universe are deterministic) or forwarding an explanation of his own. However, this is a choice on Mele’s part; there is nothing in the logical structure of the multiple-case strategy or the overall Zygote Argument that requires him to stop where he does. The fact that Mele chooses not to pursue this best-explanation reasoning any further does not mean that the Zygote Argument is not a best-explanation argument; it means, rather, that the Zygote Argument is an *incomplete* best-explanation argument which stops (for all that is said in the course of the argument) at a metaphysically arbitrary conclusion.

**6. Conclusion**

De Marco’s response to the explanatory gap objection suggests that Mickelson, by putting a wedge between incompatibilism and incompossibilism, has simply burdened philosophers with the busywork of closing the gap back up again. However, our discussion illuminates that closing this explanatory gap is a substantive—and illuminating—philosophical challenge.

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1. For example, see Mele (2008), Derk Pereboom (2014: 79, n.3), Matt King (2013), Neal Toganazzini (2014). [↑](#footnote-ref-1)
2. Mickelson first raised the invalidity worry (along with her two proposed reply strategies) in 2012 while commenting on an early draft of “Manipulation, moral responsibility, and bullet biting” (Mele 2013) at the Central European University Workshop on Manipulation Arguments. [↑](#footnote-ref-2)
3. Mickelson this simplified version of the original Zygote Argument because it eliminates unnecessary verbiage found in the premises of the original argument (Mickelson 2015b). [↑](#footnote-ref-3)
4. Taken literally, this statement affirms that determinism, which has the ontological status of a thesis, undermines free will. This conclusion does not follow from the premises of the Zygote Argument, for the premises do not entail that a (true) proposition does the “work” of undermining free will when the thesis is true (cf. Hermes 2013). For present purposes, I will gloss over such concerns. [↑](#footnote-ref-4)
5. For philosophers who have interpreted the Zygote Argument explicitly in this way, see, Patrick Todd (2013), Carolina Sartorio (2016), Nahmias and Deery (2017), and Kadri Vihvelin (2017). Put another way, it is common for philosophers to take the “incompatibilist” conclusion of the Zygote Argument (that “determinism precludes free will”) to be roughly the same as the “incompatibilist” conclusion of the first influential multiple-case argument, Derk Pereboom’s Four-case Argument, which concludes that deterministic causation beyond one’s control “precludes” or “rules out” free will and moral responsibility (Pereboom 2014: 84). [↑](#footnote-ref-5)
6. For further discussion of these distinctions, see Mickelson 2015a, 2017, and forthcoming. [↑](#footnote-ref-6)
7. De Marco says that “some” might dismiss Mickelson’s claims that OZA is invalid by simply rejecting her interpretation of ‘precludes’ (De Marco 2016: 1623, fn.4). Notably, but such a claim is neither an argument against the accuracy of Mickelson’s interpretation nor a defense of OZA’s validity. Perhaps the worry is that Mickelson’s interpretation violates the principle of charity. That is, perhaps De Marco is suggesting that a reasonably charitable person could—perhaps should—interpret OZA’s conclusion so that OZA comes out valid. That would be an interesting charge, but it is unclear how a defense of such a charge would go. Mele’s use of ‘incompatibility’, ‘determinism’, and ‘precludes’ are often ambiguous, but it at least sometimes clear that he uses ‘precludes’ in the normal “rules out” sense of the word and ‘determinism’ as shorthand for “deterministic laws”(cf. Mele 2006: 185; Mele 2007: 207). This creates tension with regard to applying the principle of charity, for it is unclear how one could charitably embrace a valid interpretation of OZA without being uncharitable to the many philosophers who take OZA to be—like its predecessor and main rival, the Four-case Argument (Pereboom 2001, 2014)—an argument which pinpoints deterministic laws (deterministic causation, or the like) as something which undermines human free will. Further complicating matters is that Mele does not correct those who claim that the Zygote Argument supports (a version of) the explanatory conclusion that deterministic causation or deterministic laws preclude, undermine, rule out, or otherwise get in the way of people exercising free will (cf. Mele 2018). [↑](#footnote-ref-7)
8. While the “subject to the laws” restriction is not motivated in Mickelson’s paper, it was added in the interest of charity. OZA’s conclusion might otherwise be understood as entailing the negation of the libertarian view that it is metaphysically possible for a law-overriding agent to exercise free will with deterministic laws obtain (cf. Pereboom 2001, Ch. 2). Whether the restriction is redundant or plays a useful dialectical role depends on which view of deterministic laws of nature (beyond the assumption of necessitarianism) is assumed. In any case, the restriction seems relatively benign in the context of Mele’s argument, and adding this agent-relative restriction is simpler than diverging into a largely unrelated discussion of (Mele’s views on) the laws of nature (cf. Mickelson “Leeway and the Laws of Nature”, ms.). [↑](#footnote-ref-8)
9. De Marco suggests that the benefit of his relabeling strategy is that is allows to avoid the “fuss” over the incompossibilism/incompatibilism distinction (De Marco 2016: 1624). Mele (in conversation) has expressed a similar position, stating that he would be satisfied if his argument supports the mere correlation claim captured by an anthropocentric version of incompossibilism; he is uninterested in developing his argument into an argument for incompatibilism (in the explanatorily-loaded sense of the term). This is a respectable position, just as it would be respectable for a scientist to be satisfied by an initial study which successfully stablishes a strong correlation relation between two phenomena, even though the study leaves the underlying causal relationship between the phenomena unclear. However, to say that correlation conclusions may be interesting in their own right does not imply that the correlation/causation distinction is not worth fussing over, or that scientists who take up the additional project of exposing the causal mechanisms which underwrite the correlation are somehow misguided. Similarly, we should be able to grant that the incompossibilist conclusion of the Zygote Argument is interesting while also respecting those metaphysicians who are interested in the additional project of illuminating what, precisely, *accounts for* the lack of free human agents in worlds where determinism is true.

   [↑](#footnote-ref-9)
10. ZAP seems to be a fair interpretation of the new Zygote Argument that De Marco has in mind. In the course of his reply, De Marco presents the following three theses:

    **D**. [Incompossibilism\*]: Necessarily, anyone who is subject to deterministic laws is unfree.

    **E**. [Incompatibilism\*]: D is true because these agents are subject to deterministic laws.

    **N**. [Impossibilism]: Necessarily, no agent acts freely or responsibly.

    De Marco contends that D entails E *on the assumption that* *N is false* (De Marco 2016: 1625), which is a mistake. [↑](#footnote-ref-10)
11. Mele says that “the cross-universe difference in what caused Z [the zygote that becomes Ernie] does not support any cross-universe difference in freedom or moral responsibility” (Mele 2006: 190). Mele’s narrow focus on zygote creation is even more apparent in the newest statement of the Zygote Argument, which concludes to the restricted anthropocentric incompossibilist thesis “So in no possible deterministic world in which a human being *develops from a normal human zygote* does that human being have free will” (Mele 2017:188; my emphasis). The dialectical role of these apparently arbitrary restrictions such as “being human” and “developing from a normal human zygote” is worthy of attention, though the cost/benefit analysis of such restrictions cannot be discussed here. [↑](#footnote-ref-11)