

# Mental Causation, Exclusive Argument, and Non-reductive Physicalism

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## Abstract

Jeagwon Kim's exclusion argument is a well-known argument against non-reductive physicalism in the contemporary debate on mental causation. In this essay, we will first discuss two versions of the exclusion argument: the simple version and the sophisticated version. Secondly, we will take a conservative strategy to defend the kind of non-reductive physicalism initiated by Donald Davidson: the Token Identity Theory. Namely, we will explain where Kim failed to appropriately understand Davidson's work and argue that the simple version and the sophisticated version of the exclusion argument won't work against the clarified token identity theory at all. Lastly, Since much of Kim's inappropriate interpretation of Davidson's work is rooted in their difference in metaphysics, there is reason to believe the proper understanding and evaluation on contemplation as such on mental causation, non-reductive physicalism, and other related problems can't be achieved without finding an appropriate metaphysical frame.

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### Keywords

Mental causation, Exclusion argument, Non-reductive physicalism, Token identity theory, Philosophy of mind

DOI: 10.47297/wspjhcWSP2515-469904.20200402

The mind-body problem, which mainly concerns the relationship between mind and body, is a difficult philosophical problem with a long history. According to some contemporary philosophers, "to ask how mind and body are related just is, in part, to ask how they could possibly affect one another causally." (cf. Robb and Heil), the problem of "how mental states are causally related with body actions" is at the core of the mind-body problem. (Shoemaker, p.74) The issue of mental causation is widely discussed in the current fields of philosophy and other social sciences, and it has manifested in many different forms while making its profound impacts on the philosophy of mind, metaphysics, the philosophy of action, moral philosophy, the philosophy of psychology, the philosophy of society, the philosophy of science, and cognitive science.

Non-reductive physicalism (hereafter NRP) is undoubtedly attracting much attention in the contemporary debate around mental causation, while the famous Exclusion Argument (hereafter EA) developed by Jaegwon Kim has been widely used to argue against it. In this article, we will provide a defense for one kind of non-reductive physicalism: Token Identity Theory. Unlike much of the defensive arguments currently available, to defend the token identity theory, we will respond to EA with a conservative strategy. The outline of our argument is as follows: we will first consider two versions of EA, i. e. the simple and sophisticated version; secondly, we will investigate Davidson's token identity theory (hereafter TIT) and compare it with Kim's understanding to illustrate where exactly did Kim misunderstand Davidson's work. Then, we will argue that TIT after clarification could not be refuted by either version of EA. At last, we will reveal that Kim's misunderstanding results from the deep metaphysical divergence between him and Davidson. There is a good reason to think that only from a proper metaphysical frame could we understand and evaluate contemplation as such on mental causation, non-reductive physicalism, and other related problems.

## II. Two versions of Exclusion Argument

Since EA argues against non-reductive physicalism, we need to understand that at first to see why would Kim(and his supporters) insist EA will pose threats to it.

There are three kinds of theories about NRP currently common as follows: Functionalism (cf. Fodor), Token Identity Theory (cf. Davidson, 1970b/2002), and Emergentism (cf. Crane). According to Kim, though we have not yet reached common ground on NRP, the following three theses of NRP are generally accepted(cf. Kim, 2005, pp.33-55)

Thesis one: Mind-body Supervenience (hereafter S)

Thesis two: Mind-body irreducibility (hereafter I)

Thesis three: Mental causal efficacy (hereafter M)

Base on Kim's related works, we will explain them in detail as follows. The first thesis says it is generally believed by non-reductive physicalists that there is a supervenience relationship between mind and body. The keyword of the first thesis is "supervenience" about which there are three points to be noted in Kim's works: Firstly, according to Kim, the fundamental kind of supervenience relationship is the kind that's between properties, according to which other kinds of supervenience relationships (e.g. of events, facts) are explained. (Kim, 1993, p. 55) It is the reason why Kim generally just studies the supervenience relationship between mental properties and physical properties while talking about supervenience. Secondly, Kim differentiates two versions of mind-body supervenience, strong supervenience and weak supervenience. (cf. Kim, 2005, pp. 53-78; 2011, p.9) In short, that means for a mental property M and a physical property P, if M is supervenience on P in all the possible worlds M appeared, then M is strongly supervenient on P. And if M is supervenience on P in some but not all the possible worlds M appeared, then M is weakly supervenient on P. Thirdly, Kim has clearly stated that for non-reductive physicalists, the supervenience relationship between mind and body can only be weak supervenience.

Therefore, according to Kim, thesis one (S) means that it is generally believed by non-reductive physicalists that mental properties are weakly supervenient on physical properties. Thesis two means that physicalists generally believe that "mental properties cannot be reduced into, and are not identical with

physical properties." (Kim, 2005, p.34) The keyword here is "reduce." It is the ontological reduction rather than epistemological reduction (which we will soon attend to) Kim mentioned here. thesis three means that non-reductive physicalists generally believed that "Mental properties have causal efficacy—that is, their instantiations can, and do, cause other properties, both mental and physical, to be instantiated" . (ibid, p.35) The keywords here is causal efficacy. Kim holds that non-reductive physicalists generally believe mental properties have causal efficacy, which means it must be able to cause other properties (i.e. physical or mental property) to occur. Note that there are only two kinds of possibilities at here: mental properties can either cause mental properties or physical properties. We call the former mental-mental causation (hereafter M-M), the latter mental-physical causation (hereafter M-P) or downward causation (hereafter D). <sup>1</sup>In a word, according to Kim, it is believed by non-reductive physicalists that mental properties can cause other mental properties or physical properties.

All three of the thesis seem to be plausible. However, Kim finds that those theses will be inconsistent with two fundamental principles received by almost all of the physicalists, i.e. non-reductive physicalists cannot maintain both these three theses and their two fundamental principles. Kim claims that EA can defend this claim effectively and show that non-reductive physicalism, in any case, is not a stable standpoint. In the end, it will either collapse into epiphenomenalism or reductive physicalism and nothing more. We will now proceed to first introduce aforementioned principles one and two, and then investigate Kim's EA.

Principle one: the causal closure principle of the physical world. (hereafter CCP)

Principle two: the causal exclusion principle. (hereafter CEP)

CCP says "If a physical event has a cause at time  $t$ , then it has a physical cause at  $t$ ." (Kim, 2001, p.171) It is worth noting that according to Kim, CCP does not commit that a physical event can't have a non-physical cause, it just means it is never necessary to find a cause outside the physical world for a

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1 There are four kinds of causation, except M-M and M-P causation, including physical-mental causation (hereafter P-M) or upward causation (hereafter U), and physical-physical causation (hereafter P-P).

physical event. In other words, a physical world is causally, hence explanatorily complete. (ibid) Hence it is consistent with the completeness of physical knowledge or physical explanations. CEP says (unless it is in case of real overdetermination) "an action does not have more than one cause". (ibid,p.32)

There are two points to be noticed: (1) CEP aims to show that at any given time any event can only have one sufficient cause unless it is a real case of overdetermination; (2) Kim thinks of CEP or CCP alone won't threaten non-reductive physicalism, but together they will. (Kim, 2005, p. 43) In other words, Kim claims no non-reductive physicalism can hold S, I, M, CCP, CEP all together. the reason being there is an inconsistency hard to eliminate as demonstrated by EA. Kim has developed two kinds of EA, the Simple version and the Sophisticated version. The key difference between them is that the former deals with M-P and the latter M-M. For the sake of discussion, first, let's reconstruct both versions base on Kim's works.

## I. The Simple EA

(1) M-P or D causation is possible, if and only if it is possible for a mental property M to be the cause of a physical property P\* at time t.

【 D 】

(2) P\* will have a sufficient physical cause at time t, i. e. a physical property P.

【 CCP 】

(3) M≠P.

【 I 】

(4) If this is not a case of over-determination, then,

(5) According to (2)(3)(4), M cannot be the cause of P\* at time t.

【 CEP 】

Hence,

(6) According to (1) (6), M-P causation is impossible.

【 Modus Tollens 】

## II. The Sophisticated EA

(1') M-M causation is possible, if and only if a mental property  $M^*$  could cause a mental property M to occur(i.e. it is possible for  $M^*$  to be the cause of M at time t). 【 M-M 】

(2') Mental property M is weakly supervenient on physical property P. 【 S 】

(3') Obviously, there is an asymmetry between  $M^*$  and P: if P was absent, then it is impossible for  $M^*$  to cause M to occur (i.e.  $M^*$  cannot be the cause of M at time t); otherwise, if P was present, then M could occur even if  $M^*$  was absent. 【 Edward's dictum<sup>2</sup> 】

(4') According to (3'), only if  $M^*$  could cause the subvenient P of M to occur(i.e. Only if  $M^*$  is a cause of P at time t) could  $M^*$  cause M to occur (i.e. could it be the cause of M at time t).

(5') According to (4'), if  $M^*$  could cause M to occur, then  $M^*$  could cause a subvenient P of M to occur.

(6')  $M^*$  could not cause P to occur. 【 D is impossible, as proven in Simple EA 】

(7') According to (5') and (6'),  $M^*$  could not cause M to occur. 【 Modus Tollens 】

Therefore,

(8') According to (1') and (7'), M-M causation is impossible. 【 Modus Tollens 】

At first, the simple EA concluded in D being impossible since there is a contradiction among D, I, CCP, and CEP as illustrated. In other words, for non-reductive physicalism to insists on CCP, CEP, and I, it must abandon D, unless it is a real case of over-determination. And unless it is a real case of over-determination, for it to insists CCP, CEP, and D, we can easily see that it will have to abandon I. Secondly, the sophisticated EA concluded in M-M causation being impossible mainly by showing the following two points: the first is that D is a necessary condition for M-M, and the second is D and S are sufficient and necessary conditions for M-M,i.e. M-M is possible if and only if S is possible

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2 Kim says Edward's dictum is a kind of intuition most people have. It holds the view that most people will prefer to choose vertical supervenience relationship rather than lateral M-M causation, because it seems that the former is stronger than the latter in relation. (Kim, 2005, pp. 36-38)

and D is possible( $M \leftrightarrow S \wedge D$ ). Finally, it is easy to see that if we take the conclusions of both versions of EA together, we can deduce that thesis three is impossible.

With the above analysis, the following points became apparent: first, the simple version of EA remains simple by not concerning S. and for reaching the sophisticated version's conclusion S is required. Secondly, although EA is directly against M, for either of its version to work, it must rely on the inconsistency between S, I, M, CCP, and CEP. From Kim's perspective, the EA precisely shows that if non-reductive physicalism wants to hold on to S, I, M, CCP, and CEP altogether, the following dilemma can't be avoided: either hold on CCP, CEP, and I but have to abandon D, hence collapse into epiphenomenalism, or holds on CCP, CEP, and D but have to abandon I, i.e. give up  $m \neq p$  and accept  $m = p$ , hence collapse into some kind of reductive physicalism.

Does EA really proclaim the end of non-reductive physicalism, as Kim suggested? Of course not. We could argue against each of the S, I, M, CCP, and CEP to defend non-reductive physicalism. These three strategies are most common, i. e. autonomous strategy, inheritance strategy, and token identity strategy<sup>3</sup>, though none of this can be thoroughly discussed here due to the length of this paper. To put it briefly, though there are multiple ways to argue against EA, the key points which scholars focus on are CEP and M, specifically over-determination for CEP and D for M. Currently most non-reductive physicalists are trying to resolve the tension between over-determination and D by, for example, to re-interpret or negate over-determination, or to give a new account for D. by which these defense strategies are trying to show that taking I, D, and ICP all together won't result in overdetermination, so I, D, I, CP and CEP won't be incompatible. Hence both versions of EA won't actually work. And now we will provide a conservative strategy different from the above approaches to argue against the EA.

### III. Three theses of Token Identity

Since being developed by Davidson (cf. Davidson, 1970b/2002), the Token

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3 If interested in it, you can refer Robb and Heil (2013)

Identity theory has received much discussion in literature, including a paper by us (Wang & Wang, 2013). Our conservative strategy to "save" non-reductive physicalism will be given in the next section. Here we will focus mainly on three critical theses of token identity theory. We will show and compare Kim's and Davidson's understanding of those three theses, and in the process illustrate the exact point at which Kim misunderstood Davidson's work by locating the specific difference between their understanding. The three theses are listed below:

Thesis one: Token identity thesis. (hereafter TOT)

Thesis two: reducibility thesis (hereafter RT)

Thesis three: downward causation thesis (hereafter DT)

Let's attend to TOT at first. In the issue of mind-body relation, token identity theory holds that mind-body relation is of token identity (in contrast with type identity), which means that a particular mental event is identical with a particular physical one. It could be paraphrased in this way:

(TOT) If  $a$  is a mental event, then there is a physical event  $b$ ,  $a = b$ . (Wang & Wang, 2013, p53)

Further analysis shows there are obvious differences between Davidson's and Kim's understanding of TOT: here we have  $TOT_1$  according to Davidson and  $TOT_2$  according to Kim.

( $TOT_1$ ) There is a particular event  $e$ , and there are a mental description  $X$  and a physical description  $W$  such that  $X(e) = W(e)$ .  $a$  is event  $e$  described by  $X$ , denoted by  $X(e)$ , and  $b$  is event  $e$  described by  $W$ , denoted by  $W(e)$ .

( $TOT_2$ ) There is a particular event  $e$ , and there are a mental property  $K$  and a physical property  $W$  such that  $K(e) = H(e)$ .  $a$  is event  $e$  with mental property  $K$ , denoted by  $K(e)$ , and  $b$  is event  $e$  with physical property  $H$ , denoted by  $H(e)$ .

Davidson holds that whether an event  $e$  is mental or physical is depend on what kind of description is used. In other words, if  $e$  is described by a mental description  $X$ , then it's mental event  $X(e)$ , if  $e$  is described by a physical description  $W$ , then it's physical event  $W(e)$ . Differ from which, Kim thinks whether an event  $e$  is mental or physical is depend on what kind of property  $e$  itself has, if it has mental property  $K$ , then it is mental event  $K(e)$ , if it has physical property  $H$ , then it is physical event  $H(e)$ .

We can see that though both Kim and Davidson agree that events are individualized, they obviously differ on the understanding of what is mental events and what is physical events, thus respectively differ on the understanding

of TOT. the key point here is: Davidson understood the mind-body identity relation as the relation between two descriptions or concepts about the same event. In other words, Davidson holds that mental event a (as an individual) and physical event b (an individual) have a token identity relationship if and only if mental description/concept X and physical description/concept W denote the same event e. Yet Kim takes Davidson's token identity relation as the relation of two properties about the same event. Kim holds that mental event a (as an individual) and physical event b (an individual) have token identity relationship if and only if mental property K and physical property H belong to or are instantiated by the same event. All in all their difference in understanding TOT is quite obvious: descriptions or concepts are just terms at the language level by Davidson, but properties are entities at the ontological level by Kim.

In Davidson's and Kim's understandings of RT comes another difference. the reduction as Davidson understood is epistemological reduction(hereafter ER), however, for Kim, it is ontological reduction(hereafter OR).

(ER) A description/concept G could be epistemologically reduced into a description/concept F, if and only if there is a bridge law L or a correspondence rule R between G and F.

(OR) An entity m could be ontologically reduced into another entity p, if and only if m is ontologically identical to p.

According to Davidson, the reduction from the mental to the physical is merely between the mental concept/description and the physical concept/description, which is linguistical or epistemological, and certainly not ontological. And since Davidson holds that there can't be any bridge law or correspondence rule between mental concept/description and physical concept/description, the relation between them(as linguistical terms) will be linguistical or epistemological and non-reductive.

Now let's turn to DT, starting to form their different understandings on causal relation. At first glance, Davidson and Kim both think of it as between events, hence comes the term event-causation. Yet since their understanding of event evidently differ, so would their understanding of event-causation. The key difference here is: Davidson holds that we can say there is a causal relation between event a and event b if they can be characterized by a strict or unstrict causal law, hence comes his saying"where there is a causal law, there is a causal relation"(Davidson, 2002, p.2008). Notice that the following possibility is still

logically permitted here: there is a causal relation between event c and event b, though they are not covered by any causal law. The reason is why Davidson thinks of "having a causal law" merely as a sufficient condition for "having a causal relation". Yet such possibility is unacceptable for Kim since he holds that two events being characterized by a causal law is a sufficient and necessary condition for them to have a causal relation. This means for any two events, they surely can be characterized by a causal law so long as there is a causal relation between them, and vice versa. Based on this difference, we can define their understanding of DT separately as follows:

(DT<sub>1</sub>) If an event a described by a mental predicative X causally leads to the occurrence of an event b described by a physical predicative W at time t, then a is a cause of b at time t.

(DT<sub>2</sub>) If an event a which is an instantiation of a mental property H causally leads to the instantiation of another event's physical property K via event b at time t, then a is a cause of b at time t.

DT<sub>1</sub> is the understanding of Davidson, and DT<sub>2</sub> Kim. The differences in between are obvious. Firstly, according to Davidson, since we can always find a physical description or notion W\* to describe or denote the same event described or denoted by a mental description or notion X, and the event described or denoted by W\* will be a physical event, and since we can also always find a proper strict or unstrict causal law to characterize "the way physical event b\* causally lead to the occurrence of physical event b", D is possible. In contrast, Kim thinks that downward causation is totally impossible. The reason being: it is not possible for an event a which instantiates a mental property H to causally lead to another event b which instantiates a physical property K since there is no such strict or unstrict causal law that can characterize the relationship between a and b. And since Kim thinks that two events being characterized by a causal law is a sufficient and necessary condition for them to have a causal relation (as mentioned above).

Secondly, DT<sub>2</sub> shows another fundamental point about Kim's understanding of event causation: the key point of which is property. such is, only through the property can an event have causal efficacy over another event. Understanding as such is often referred to as "causation in virtue of properties" by academics. differ from which, the key point in event causation is "the description or notion" for Davidson. Only via certain connections of concepts or descriptive sentences

(i. e. causal law) can the subject of cognition cognize there is a causal relationship between events. In other words, once through certain modes of conceptual cognition (i. e. causal law), events can be seen as having a causal relationship. Yet do notice that whether or not there is a causal relation between events does not rely or depend on whether or not those events can be "covered" by strict or unstrict causal law (as modes of conceptual cognition). Hence we think this kind of understanding of event causation such as Davidson's can be referred to as "causation in virtue of concepts".

#### **IV. The Conservative Defend Strategy**

In section III, we've taken three theses closely related to token identity theory into consideration, and made the specific differences between Davidson and Kim's understanding clear via comparison. Based on the contents above, we will now adopt a conservative strategy to respond to the simple EA and provide our suggestions on dealing with some possible issues of Davidson's token identity theory.

Let's have a recap on simple EA at first. As mentioned in section II, one of the key points of simple EA is that it shows there is some inconsistency between D, I, CCP, and CEP in any situation without causal overdetermination. Hence Non-reductive physicalists will face the following dilemma: to hold CCP, CEP, and I, one must abandon D, and to hold CCP, CEP, and D, one must abandon I, yet both choices are unacceptable, for non-reductive physicalism will become epiphenomenalism without D, and reductive physicalism without I.

Many remedial measures have been provided in the face of such crucial criticism. Yet the following question is still worthy of our serious consideration: Is there a kind of non-reductive physicalism that could avoid the threat of EA while holding CEP, CCP, I, and D at the same time? We'd say yes since we now have reason to believe Davidson's token identity theory is itself a suitable option through the analysis in section III. Following Davidson's approach, we will now construct an argument to deal with EA specifically.

### III. Conservative defense strategy

(1'') M-P causation is possible if and only if a mental event  $m$  could possibly be a cause of a physical event  $p^*$  at time  $t$ . [  $DT_1$  ]

(2'') A physical event  $p^*$  has a sufficient physical cause at time  $t$  that is physical event  $p$ . [ CCP ]

(3'') Epistemologically,  $m$  cannot be reduced into  $p$ . [ ER ]

(4'') It is possible for  $m$  and  $p$  to be the same event  $e^\#$  described by mental description  $X^\#$  and physical description  $W^\#$  accordingly. [  $TOT_1$  ]

(5'') According to (2'') and (4''), It is possible for a mental event  $m$  to be a cause of a physical  $p^*$  at time  $t$ .

(6'') According to (1'') and (5''), M-P causation is possible.

The premise (1''), (3'') and (4'') should be highlighted. Differ from Kim's understanding in the simple EA, which treated D as "causation between properties"(DT<sub>2</sub>), The premise (1'') is based on Davidson's understanding and interpret D as causation between particular events without structure (DT<sub>1</sub>). Similarly, the premise (3'') interprets I as the epistemological non-reductive relationship between mental and physical descriptions (ER), rather than the ontological reductive relationship between mental and physical properties (OR). Hence the following possibility remains:  $m$  and  $p$  are merely the same event separately described by a particular mental and a particular physical description, i.e. (4''). While (4'') being possible, even if  $m$  and  $p$  are both the cause of  $p^*$  at time  $t$ , it won't lead to over-determination, so the whole situation won't be conflicting with CEP. Furthermore, since  $m$  could causally lead to  $p^*$ 's occurrence, D is possible in this case. As such we see that by returning to Davidson's token identity theory the aforementioned dilemma can be resolved, and CEP, CCP, I, and D can be held together. since III is in fact only defending a certain branch of non-reductive physicalism(token identity theory), and there is reason to believe III preserved Davidson's intent about token identity theory to the maximum content because it did not make any big or aggressive changes, we call it the conservative defense strategy. Here the remaining question is whether or not this conservative defense strategy could effectively disarm the sophisticated EA. And we will turn on that now.

The fifth step (5'') in the sophisticated EA is the crucial step, which says D is possible if M-M is possible (i.e. D is a necessary condition for M-M). Therefore,

if D is not possible, then, via Modus Tollens, M-M is not possible. According to the conservative argument, D is possible. By this, the sophisticated EA is immediately invalid. Though please notice the subtle difference in the strength of those two arguments, for simple EA, our conservative argument can strictly or directly provide for us the conclusion "D is possible" while disarming EA, yet for sophisticated EA the conclusion "M-M is possible" can't be strictly or directly reached. In other words, though the conservative strategy is an argument that can disarm simple EA and save D, while it can disarm sophisticated EA, it can not at the same time save M-M. All it can do here is make the threat of sophisticated EA had on M-M to be effectively mediated for now. The key point of the difference here is, the sophisticated EA has one more promise than the simple one, i.e. S. Only with the conclusion of the simple EA and S can we get the sophisticated EA, which argues for the impossibility of M-M. In this case, M-M is possible if and only if S and D are both possible ( $M-M \leftrightarrow S \wedge D$ ). hence we can see that in the case that the possibility of D has been argued and the possibility of S has not, we can't reach the conclusion that "M-M is possible". Here one would naturally think if we can provide a direct argument for S, with our conservative strategy, we can get "M-M is possible" as a strict conclusion. Unfortunately, supervenience remains a topic of much controversy in today's metaphysical discussions. and as far as we know there is still no satisfactory argument for how S is possible. We do not think this natural way of thinking can be realized in the short term. Hence a more realistic approach might be to try to defend M-M with the resources available now while avoiding S altogether.

There are reasons to believe that Davidson's token identity could totally provide the resources we need. As we've discussed in section 3, according to Davidson, a causal relationship is, in fact, a kind of connection between particular events, and whether an event is mental or physical does not depend on the situation in itself, but rather on whether it is described by mental or physical description. Hence, if a mental event  $m$  is actually a particular event  $e^\#$  described by a mental description  $X^\#$  and a physical event  $p^*$  is actually a particular event  $e^{\#\#}$  described by a physical description  $W^{\#\#}$ , and  $m$  could causally lead to  $p^*$ 's occurrence at time  $t$ , so it is possible to find a suitable mental description  $X^{\#\#}$  such that  $W^{\#\#}$  and  $X^{\#\#}$  are two different descriptions about the same event  $e^{\#\#}$ . Therefore, it is possible that a mental event  $m^*$  is the particular event  $e^{\#\#}$  described by the mental description  $X^{\#\#}$ . So here we have a direct argument

for M-M causation without appliance of S<sup>4</sup>: If m could causally lead to p\*'s occurrence at time t, and m\* and p\* is the same event e<sup>##</sup>, then m could causally lead to m\*'s occurrence at time t. Hence M-M is possible.

## V. Conclusion and the remaining problems

In conclusion, though the current two main approaches of non-reductive physicalism (i.e. Fodorian functionalism and Emergentism) are blocked by EA, we have sufficient reasons to believe Davidson's token identity theory does work for non-reductive physicalism. We also noticed that the obvious difference between Davidson and Kim's understanding of the three key theses of the token identity is rooted in the deeper divergence they have in metaphysics. So some problems remain to be solved. For example, if we can disarm EA merely in terms of the conservative strategy and Davidson's causation of particular events, does it mean that S is not indispensable in token identity? It seems that holding on to S could lead to some huge trouble (c.f. Wang & Wang, pp. 54-58); Yet abandon S could lead to the following possible metaphysical problem: as one kind of physicalism, how could token identity theory hold on physical events' fundamental role? Though we can't list all examples here, we do believe that metaphysical problems of this kind are the cause of the numerous divergence and chaos in today's academic discussion relating to mental causation. As Gibb says in the introduction of 2013's mental causation and ontology: "Solutions to the problem of mental causation that attempt to divorce themselves from ontology or which are based on ad hoc ontological assumptions will inevitably prove to be inadequate."(Gibb, p.1)

With Gibb, we too doubt strongly if any philosophical insight can be gained by making new fashionable approaches for mental causation problems without having some proper metaphysical framework or ontological assumptions for our discussions. It might be time for us to rethink the underlying metaphysical framework or ontological assumptions of our debate on mental causation.

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4 According to Davidson, there are difference in four kinds of causation (P-P, P-M/U, M-M, M-P/D) are about difference between descriptions, and they are about the same mental causation, i.e. a causation relationship between particular events.

Though we might still have a long way to go before a proper framework can be found, we do believe our analysis has shown non-reductive physicalism to be a promising approach.

## Reference

- [1] Xiaoyang W. A Posteriori Physicalism and Explanatory Gap: A Stretched Analysis of Brian Loar's Phenomenal Concept Strategy[J]. *World Philosophy*, 2013, 4, 91-103.
- [2] Xiaoyang W, Yucheng W. Anomalous Monism Reconsidered: A New Perspective on Mind-Body Token Identity Theory and Mind-Body Supervenience[J]. *Journal of Dialectics of Nature*, 2013, 35(3), 51-59.
- [3] Crane T. *Elements of mind: An Introduction to the Philosophy of Mind*[M]. New York: Oxford University Press, 2001.
- [4] Foster L, Swanson J W. *Experience and theory*[M]. Cambridge: University of Massachusetts Press, 1970.
- [5] *Essays on Actions and Events*[M]. New York: Oxford University Press, 2002.
- [6] Fodor J. *Psychological Explanation*[M]. New York: Random House, 1968.
- [7] Gibb S C. *Mental Causation and Ontology*[M]. Oxford: Oxford University Press, 2013.
- [8] Heil J, Mele A. *Mental Causation*[M]. Oxford: Clarendon Press, 1993.
- [9] Kim J. *Supervenience and Mind: Selected philosophical Essays*[M]. New York: Cambridge University Press, 1993.
- [10] *Physicalism, or Something Near Enough*[M]. Princeton: Princeton University Press, 2005.
- [11] *Philosophy of Mind*[M]. New York: Westview Press, 2011.
- [12] Stoljar D. *Physicalism*[M]. London: New York: Routledge, 2010.