Modelling Property-centric Emergentism

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Abstract: The notion of emergence, compared to then-hits like supervenience or grounding, is relatively absent in contemporary analytic philosophy. Nonetheless, a systematic theory of emergence is recently proposed by Jessica Wilson, which hopefully enriches our philosophical toolkit. I start this paper by marking two concerns about Wilson's accounts of emergence. Later, I propose the dual-aspect model of properties which, if combined with Wilson's accounts, generates two merits: (i) a meatier qualitative difference between weak and strong emergence, and (ii) a stronger defense of the ontological irreducibility. My goal, in summary, is to offer an alternative account of emergence which is broadly Wilsonian in spirit.

Keywords: emergence; emergentism; causal powers; quiddities; irreducibility

1. Introductory Remarks

Natural reality, as the seeming structure of sciences suggests, is roughly organized into distinct levels: The (physical) level of particles, the (chemical) level of molecules, and the (biological) level of cells, so on and so forth. Higher-level entities seem to maintain ontological and causal autonomy, though synchronically depending on lower-level (and ultimately micro-physical) entities. Or so says Jessica Wilson, who recently proposes a "systematic, historically motivated, and properly metaphysical bases for understanding higher-level dependence of the sort that is and is not, respectively, compatible with physicalism" in her book-length development, after an inquiry spanning over the last two decades (Wilson 1999, 2002, 2005, 2006, 2009, 2010, 2011, 2013, 2015, 2021).¹ This position is apparently attractive because, among many reasons, it allegedly captures both *autonomy* and *dependence* at the same time, which proves difficult, even if not incoherent at all, in previous inquiries. What's more, not only does Wilson's position allegedly capture both autonomy and dependence, Wilson also identifies her study as both emergentist and physicalism-friendly in spirit, whose peer is nevertheless rare in contemporary analytic philosophy.² Wilson's project, as I mark one comment from Timothy O'Connor, "is packed with a rich array of ideas and arguments," and for "a comprehensive, clear, and systematic treatment of the topic of emergence that fairly represents the range and content of views while powerfully defending the author's [i.e., Wilson's] own (and attractive) perspective, the reader can do no better than to carefully work through Wilson's book" (2022, 536). Call Wilson's accounts and its possible variations—i.e., property-centric, (causal) power-based, not merely "epistemic" (unlike epistemic entailment), not "purely modal" (unlike supervenience) and not "primitivist" (unlike Grounding) theories of emergence—Wilsonian emergentism.³ Wilsonian emergentism, by virtue of its ambitions, is impressively unique in the current dialectical landscape.⁴ Presumably, if Wilsonian emergentism works, many far-reaching implications will follow.

I much appreciate the insight demonstrated in Wilson's study of emergence and its possible, powerful impact in the broad picture. But I agree criticisms targeting Wilson's overstated neutrality pose substantial threats. The goal of this paper is, then, to offer an alternative account of emergence that responds to such criticisms and is broadly Wilsonian in spirit. A more

 3 These quoted standards (or ambitions, to put otherwise) are clearly teased out by Wilson herself from the same resource of fn. 1.

¹The quoted demarcation is Wilson's own words coming from her *Research Overview* (Version of May 28, 2024, available at http://individual.utoronto.ca/jmwilson/Wilson-Research.pdf, accessed 26 June 2024).

²Emergentism is historically believed to be incompatible with physicalism for various reasons, among which the rise and fall of British emergentism is highly significant. And given the popularity of the latter—according to the 2020 PhilPapers Survey, ca. 52% of the investigated analytic philosophers are reported to be physicalists (Bourget & Chalmers 2023, 7)—only few philosophers care to defend emergentism in contemporary analytic philosophy, as one author recently lamented in a top journal of this tradition that the "emergentist approach is largely absent in contemporary philosophy of mind" (Zhong 2020, 31). Yet if Wilson succeeds, the platitude that emergentism is incompatible with physicalism will be challenged.

⁴Before Wilson 2015, 2021, there are some other discussions of emergence in the last decade in, for instance, Gillett 2016 and Humphreys 2016. But notably, Wilson 2021 synthesizes contributions of both authors. Re the discussion of Gillett 2016, see Wilson 2021, 11, 61, 110–113; re the discussion of Humphreys 2016, see Wilson 2021, 8.

detailed writing plan is this. In section 2, I introduce Wilson's accounts of emergence, and mark two concerns about it. In section 3, I propose the dual-aspect model of properties—given this model, an emergence-relevant property has both a quiddity and a set of causal powers—to strengthen Wilson's accounts (call the product *Wilsonian emergentism+*). And I argue that *Wilsonian emergentism+*, compared to its ancestor, initially offers a meatier qualitative distinction between weak and strong emergence and better defends the irreducibility of emergent-level properties. In section 4, I close the paper with a review of the current dialectic around systematically theorizing about emergence, and two optimistic prospective notes.

2. Wilson's Accounts and Two Concerns

In section 2, I introduce Wilson's accounts of emergence and mark two concerns about it. Before that, three general preliminary remarks are in order. The first remark is about the connection between fundamentality and levels of reality. I stipulate, following Wilson, that lower-level entities are more fundamental than higher-level entities, and fundamental entities are "analogous to axioms in a theory," "basic," and are "all God had to do, or create" (Wilson 2014, 560; 2021, 30–32). Relatedly, as Wilson also cares about the accommodation of physicalism in her theory, based on the notion of fundamentality a core physicalist constraint (aka the No Fundamental Mentality constraint) goes like this: Compositionally basic (i.e., fundamental) physical entities and features do not individually either possess or bestow mentality, where basic or comparatively noncomplex entities and features are the targeted subject matter of physics, which does not rule out configurations of physical entities or their features from individually having or bestowing mentality (Wilson 2021, 23).⁵ For convenience, I also suggest that if something is fundamental, then it is not grounded in any other existence.⁶ The second remark is about the property-centric tradition.⁷ Notably, though the hierarchical picture also gives rise to the question "What is the nature of the relations holding between entities at different levels?," most literature

⁵This constraint is granted as one, though arguably not the only, necessary condition of all versions of physicalism (Wilson 2021, 22–24).

⁶Here 'ground' should be understood not as a rigorously defined metaphysical notion, but as a respectful word in ordinary English which, according to *The Mirriam-Webster Dictionary*, roughly means 'based on' (see the entry "grounded in" available at https: //www.merriam-webster.com/dictionary/grounded%20in, accessed 3 Nov. 2023). But Wilson will probably reject this convenient stipulation. See Wilson 2014 for her reasons.

⁷See, e.g., Macdonald & Macdonald 2019, 195–203 for a summary of the literature.

of inter-level metaphysics focus on question "What is the nature of the relations holding between properties at different levels?" that, as Jaegwon Kim (1992, 191) recommends, is the crucial question to which answers have defined various currently contested positions on certain metaphysical and methodological issues including, most notably, the mind-body problem. This paper will honor the property-centric tradition.⁸ The third remark is about the Token Identity of Causal Powers condition, which originates to the idea of power-based non-reductive realization first proposed in Wilson 1999 (and fully defended in Wilson 2011). A formal definition of the condition is this: Every token power of a token mental property is identical to a token power of the token physical property from which the mental property emerges (Wilson 2021, 58).

Wilson's accounts of emergence are defined in terms of two other notions: Co-temporal material dependence and causal powers. Co-temporal material dependence is the following relation between macro- and micro-entities.⁹ Scientists tell us, a macro-entity is ultimately dependent on complex configurations of some micro-entities such that, at any given time, the macro-entity inherits its matter from some configuration of micro-entities, and over a given temporal interval, some of the macro-entity's features (its states, properties, etc.) are at least partly a function of features of the underlying micro-entities' configuration (Wilson 2021, 1).¹⁰ Causal powers, to proceed, are those causal contributions an entity can make to bring about an effect. In other words, usually, an entity's causal powers are that entity's capacities to causally bring about certain states—usually certain states of some other entities (Wilson 2015, 354; 2021, 32).¹¹ In addition, I would like to mark the connection between causal powers and dispositions.¹² Usually, an entity's dispositions are ways in which it is placed or arranged, especially in relation to other

⁸Or equivalently, feature-centric. In literature, authors like Jessica Wilson prefer the term 'feature' while authors like Jaegwon Kim (or me) prefer 'property.' And in what follows, I solely employ 'property,' though I acknowledge that 'feature' and 'property' can be used interchangeably.

⁹Notably, the metaphysical relation between higher- (like the tree) and lower-level entities (like particles) are arguably more than such co-temporal material dependence and Wilson's position is therefore "metaphysically charged," see Heil 2023, 154 for the relevant discussion.

¹⁰"A is a function of B" roughly means if A is input, B will be output.

¹¹Here I do not presuppose any particular theory of the nature of causation, my focus is instead the nature of properties. But I mark that Wilson's neutrality about the nature of causation may also be concerning. See Baysan 2022, 163–165 for the relevant discussion.

¹²This point is made to prepare the audience for the debate between categorical-/dispositional essentialism that I will introduce in section 3.

things.¹³ And in contemporary metaphysics, one typical way to characterize an entity's dispositions is to characterize them in terms of causal powers.¹⁴ In lights of this tradition, I further suggest not distinguish causal powers from dispositions in this paper. More specifically, since our discussion of emergence is property-centric, I further define a property's causal powers as its capacities to causally bring about (the instantiation of) other properties. For instance, suppose a property S has the capacity to causally bring about another property M, then given my definition, S has the causal power denoted by $D_{(S, M)}$.¹⁵

I now put Wilson's accounts of emergence (2021) on the table. On her view, there are two and only two kinds of emergence:

Weak Emergence. "What it is for token feature S to be Weakly metaphysically emergent from token feature P on a given occasion is for it to be the case, on that occasion, (i) that S cotemporally materially depends on P, and (ii) that S has a non-empty proper subset of the token powers had by P." (p. 72)

Strong Emergence. "What it is for token feature S to be Strongly metaphysically emergent from token feature P on a given occasion is for it to be the case, on that occasion, (i) that S cotemporally materially depends on P, and (ii) that S has at least one token power not identical to any token power of P." (p. 53)¹⁶

And I highlight two desiderata for a conception of emergence that Wilson

¹³This notion should be distinguished from dispositions of persons/moral agents, which usually means some inherent qualities of mind and character.

 $^{^{14}}$ As I quote from the book jacket of Kistler & Gnassounou 2007, many people believe that "dispositional predicates can have complete meaning or figure in causal explanations." For the defense of this view, see, e.g., Kistler & Gnassounou 2007, ch. 1.

¹⁵Though this notation is famously introduced in Bird 2007, I do not presuppose any Bird-style conception here. In fact, here I do not presuppose any particular theory of the nature of dispositions concerning whether they are analyzable in simple conditionals, or primitive, or intrinsic/extrinsic in nature, etc. In the meantime, I mark another notation 'C(K,E)' from Baysan & Wilson 2017, 63. It denotes the power to causally bring about an instance of E under circumstances K. However, I will stick to the notation I introduced hereafter, since the condition of causal power attribution, viz. the first element of the tuple introduced in Baysan & Wilson 2017, is not my focus here.

¹⁶There are concerns about whether Wilson's theory is exhaustive. For example, Alyssa Ney argues that Wilson's theory leaves out the kind of emergence British emergentism defends (2022, para. 4). Here I mark this concern and will deal with it later in sec. 3. A preview is this: If Wilson accepts my amendment, then strong emergence on her view would be satisfactory for British emergentists.

(2021) tries to satisfy:

Ontological irreducibility. Special-science entities also seem distinct from, and distinctively efficacious with respect to, the microconfigurations upon which they depend. (p. 1)

Neutrality. Generally, no controversial theses pertaining to the nature of powers, properties, causation, laws and other disputable topics are presupposed. (p. 18)

In what follows, by marking two concerns about Wilson's accounts, I illustrate how it could be hard for Wilson's accounts, as it stands, to accommodate both these two desiderata at the same time.

The first concern is the weakness in defending the irreducibility of emergentlevel properties.¹⁷ According to Wilson, her account of weak emergence is compatible with physicalism, preferably the non-reductive kind (2021, 17). But I argue Wilson may fail to realize this ambition. My argument focuses on the Proper Subset of Powers Condition, which says an emergent property's causal powers are a non-empty proper subset of the emergent base's causal powers. From the Proper Subset of Powers Condition, it follows that every causal power of S is identical with some causal power of P, though the sets of the causal powers are not identical. But non-identity is also compatible with reduction. Here is how. Provided the Proper Subset of Powers Condition, and provided the causal theory of properties—the position that all the significance there is to a property is its causal powers and a property is identified and individuated by its causal powers—it follows that mental properties are ontologically just a part (i.e., a proper subset) of physical properties: The former is dubiously reduced to the latter.¹⁸

Notably, by lines of reasoning above, I am not saying Wilson's accounts necessarily fail to defend the irreducibility of emergent-level properties. Wilson can reply like this (2021, 84–94). Even if reduction to the physical goings-on is compatible with an emergent failing to be identical to its physical dependence base feature, it remains that reduction requires that the reduced entity be identical to "some or other" property which is appropriately taken to be physical (call it W-Reduction). But arguably, the allegedly reduced mental property could be identical to some non-physical properties.¹⁹ My

¹⁷Similar concerns can be found in Ney 2022, in para. 9 and in Baysan 2022, on p. 159. ¹⁸It is something like Kim's objection (2010, 110–112) to Shoemaker's theory of physical

realization in which the Proper Subset of Powers Condition is also given (2007, ch. 2).

¹⁹I owe this objection to Jessica Wilson.

comments on Wilson's reply go like this. I think her reply is reasonable but arguably weak: Its validity is based on some possibilities of how mental properties could be identified. Besides, I am not sure W-Reduction is the uncontroversial conception of reduction. One could say a mental property being identical to some physical properties in arguably every possible way of identification seems too demanding for a conception of reduction: Maybe all reduction requires is a mental property being identical to a physical property in one possible way, i.e., in the way they are identified in the actual world.²⁰ Though I am not arguing W-Reduction is false, it at least seems controversial. And most importantly, I doubt if this reply satisfies Wilson's best interest. The dialectic here is something like this. I propose one argument questioning Wilson's pursuit of neutrality by indicating a possible difficulty in defending irreducibility. Wilson replies that the neutrality could be saved if one particular conception of reduction is adopted. But why say something arguably controversial about reduction to save neutrality? From my perspective, the defense of irreducibility is Wilson's core commitment while neutrality is just a theoretical virtue. And in Wilson's defense, there is one easier way out: Just abandoning neutrality about the nature of properties. That is, just to reject the causal theory of properties, rather than stating that "nothing in what follows requires accepting that features are exhaustively individuated by powers" and "[p]erhaps they are, perhaps they aren't; perhaps features are also or ultimately individuated by quiddities or other noncausal aspects of features" (Wilson 2021, 33).

The second concern about Wilson's accounts is the lack of a qualitative distinction between weak and strong emergence. The original distinction in Wilson 2021 (p. 74) is mostly quantitative. On this account, whether a property is weakly or strongly emergent depends on two numbers: The number of its causal powers and the number of its emergent base's causal powers. I agree this distinction captures some difference between weak and strong emergence, and even in an arguably substantial way. And Wilson could also argue that her distinction is qualitative in the sense that a strongly emergent property should have at least one novel causal power.²¹

²⁰Which echoes the controversy over the laws of metaphysics: Suppose a metaphysical thesis (e.g., reductionism) is true, is it necessarily true (i.e., in a Leibnizian sense, true in every possible world)? Wilson dubiously says yes, of which I have my conservation. A sister discussion is about whether the possibility of philosophical zombie falsifies physicalism. In summary, the dispute here, at its core, is about the modal force a theory of emergence has (or should have). By posing W-reduction, a theory would then imply strong modal force, which itself is arguably in tension with Wilson's pursuit of neutrality.

²¹I owe this objection to Jessica Wilson.

All points above make sense. Nevertheless, people (me included) could be reasonably curious about whether another qualitative distinction could be given. That is, whether there is something different from causal powers that qualitatively differentiate weak emergence from strong emergence. I am not saying Wilsonian emergentism needs to give such a quantitative distinction or it fails. But I believe such a difference, if provided, could engender a more thorough understanding of what it takes for one thing to weakly or strongly emerge from another thing.

3. Wilsonian Emergentism + and its Merits

In section 3, I advance a proposal that modifies Wilson's accounts of emergence motivated by my concerns. My modification targets one foundation of Wilson's accounts of emergence: Her conception of the nature of properties. I have given a couple of reasons in section 2 showing how it could be difficult for Wilson to satisfy her theoretical ambitions and maintain the neutrality about the nature of properties at the same time. Wilson may, in addition, further commit to something controversial, trying to save both. But such fixes, even if successful, inevitably add to the theoretical burden of Wilsonian emergentism that is already heavy. In lights of this, I would like to explore one alternative. The dialectic, by analogy to marketing, is this. Suppose the theory of emergence is a product. By marketing neutrality, Wilson tries to sell the product to as many customers as possible. But I think there is another strategy: I target a portion of customers and, instead of plainly selling the product to them, I also try to make them feel at home by consuming my product. Presumably, the sale of the latter strategy is not necessarily worse than the former's. And in this vein, I suggest maybe we can take one step back and see how things go. What if we trade neutrality about the nature of properties for things like a stronger defense of ontological irreducibility? Section 3 is an exploration to this extent.

I introduced the causal theory of properties and showed why friends of Wilsonian weak emergentism may consider rejecting it in section 2. *Contra* the causal theory of properties, one idea is that properties also have a thing called 'quiddity.' A quiddity is a property's categorical, non-relational and purely qualitative essence, i.e., the primitive/basic suchness.²² Here is an

 $^{^{22}}$ In the literature, terms like 'qualitative aspect' and 'categorical aspect' are also employed. I grant that those terms can be used interchangeably. But I will stick to 'quiddity' henceforth. And the discussion of quiddity in contemporary metaphysics is, as far as I am concerned, pioneered by Adams 1979, in which the definition first appears on

illustrating example. Being an electron is a quiddity in the sense that 1) it is, *contra* haecceity (i.e., the primitive/basic thisness), not a property of being identical to a particular individual (e.g., persons, physical objects, and events) but a property that many individuals (in this case, particles known as electrons) share, 2) it is not a property of being related to particular individuals (e.g., being an electron of a hydrogen atom), and 3) it is not a property of being identical to (or related in one way or another to) an extensionally defined set that has an individual among its members (e.g., if being an American is to be analyzed as a relation to a set of actual people and places, then it is not a quiddity). Now I have two notions in hand: The notion of quiddity and the notion of causal power. One relevant debate is about whether only one of them can be the sole essence of a property. This debate is arguably about all (fundamental) properties. My focus here is somewhat narrower: I only care about properties relevant to emergence. But some relevant questions still exist: What is the essence of emergence-relevant properties? Only their quiddities? Only their causal powers? Some people may believe the sole essence of such properties are their quiddities (call them friends of quiddity). Others may believe the sole essence of such properties are their causal powers (call them friends of the causal theory of properties).

The disagreement between friends of quiddity and friends of the causal theory of properties, as I will illustrate, can be understood in this way. Consider the quiddity being an electron. Dispositions like having a spin quantum number of $+\frac{1}{2}$, having a rest mass of 0.5MeV and having an electric charge of 1–usually come along with the quiddity being an electron. The disagreement between two parties is, in some sense, about whether quiddities like being an electron are redundant. After all, what scientifically signify are dispositions: Given the standard model of particle physics, everything that scientists care about can be known from dispositions including mass, charge and spinning.²³ Friends of quiddity would say quiddities could never be redundant since they are essential to some properties. While friends of the causal theory of properties would say quiddities could be redundant since dispositions carry out most, if not all, roles the essence has. But such a disagreement is not

pp. 7–8.

²³Many philosophers have made similar points. As I quote the "disposition" entry from *The Stanford Encyclopedia of Philosophy*: "In response, it might be thought that subatomic particles are entirely characterized in terms of dispositions like spin and electric charge, and therefore that they possess no categorical properties on which their dispositions would supervene, in which case the possibility of grounding via supervenient structure is blocked. [...] For a similar point, see Strawson 1980; Blackburn 1990; Jackson 1998; Langton 1998; Hawthorne 2002; Lewis 2009" (Choi & Fara 2021, sec. 4.1).

about compatibility: The notion of quiddity is compatible with the notion of causal powers. Inspired by this idea, many hybrid views are proposed, and below is my version called the dual-aspect model of properties.²⁴ The basic idea is this:

The Dual-aspect Model of Properties. Each emergence-relevant property (relevant to emergence) is a composite that has both a quiddity and a set of causal powers.

To visualize, an emergence-relevant property can be construed as a twodimensional coordinate, in which one axis is the quiddity and the other is causal powers. Furthermore, I tentatively suggest that a property is identified and individuated by the dual-aspect coordinate (i.e., its quiddity and its causal powers taken together), rather than the quiddity alone nor the causal powers alone (more reasons later).

I now make three clarifications to distinguish my proposal from other versions of hybrid views before I apply the theory to emergence. First, my proposal is different, despite our theories' similar names, from the Dual-Aspect Account of properties which argues *dispositionality* and *qualitativity* are two aspects of *beings of properties*, and the notion of aspect is primitive such that 1) aspects are not any kind of entities, 2) aspects are no addition to beings, 3) aspects of a property are both intraworldly and interworldly determined by the nature of the property itself (where 'world' means possible worlds), 4) aspects can be considered through an epistemic act of partial consideration (i.e., abstraction), and 5) most crucially, aspects of a property supervene on the property (Giannotti 2021, 615–616).²⁵ It follows from Giannotti's account that properties are ontologically structureless entities. But I argue that my model implies properties are essentially structured composites. Second, my proposal is different from the powerful qualities view (aka the identity theory of powers). Unlike friends of the powerful qualities view, I disagree that being qualitative and being dispositional are two ways of being a property that have no real distinction, i.e., qualitative aspect and dispositional aspect are identical (Coates 2021, 8347). I must reject such identity so that the emergent property is irreducible to its emergent base (more details at the end of section 3). Third, my proposal partly resembles the compound view that all properties are mereologically composite entities consisting of dispositional

²⁴I owe the inspiration and the name of my proposal to Lian Cheng.

²⁵The notion of supervenience is, very roughly, a notion with a modal force that characterizes the covarying, dependent and non-reducible relation between a set of higher level (i.e., supervenient) entities and a set of lower level (i.e., subvenient) entities.

parts and qualitative parts (tentatively proposed in Taylor 2018, 1438–1439). In addition, I tentatively suggest that the qualitative aspect is the salient aspect of a property, or analogously, a quiddity anchors a property' identity. Meanwhile, the dispositional aspect only assists with the identification and individuation of a property. Now, instead of diving into objections and replies to my proposal about the nature of properties, as my argumentative strategy permits, I would like to move on to illustrate the benefits of applying this model to Wilsonian emergentism.²⁶

Granted the dual-aspect model of properties, it is natural to follow up by asking what the relation between an emergent property's quiddity and its emergent base's quiddity is. Consider two properties S and P. With respect to the relation between S's quiddity and P's quiddity, I tentatively suggest that friends of Wilsonian emergentism may answer by two conditionals. If S is weakly emergent from P, then S's quiddity is a qualitative replica of, and is numerically the same with, P's quiddity. And if S is strongly emergent from P, then S's quiddity is completely independent of, and is in no way generated/derived from, P's quiddity. Combining these conditions with Wilson's accounts, we then have:

Wilsonian emergentism+. Suppose a toke feature S emerges from a token feature P.

- I. If S is weakly emergent from P, then
- i) S cotemporally materially depends on P,
- ii) S has a non-empty proper subset of the token powers had by P, and
- iii) S's quiddity is a qualitative replica of, and is numerically the same with, P's quiddity.
- II. If S is strongly emergent from P, then
- i) S cotemporally materially depends on P,
- ii) S has at least one token power not identical to any token power of P, and
- iii) S's quiddity is completely independent of, and is in no way generated/derived from, P's quiddity.

 $^{^{26}}$ For a detailed discussion of objections to the compound view, my proposal's relative, see Livanios 2020, 282–290. And I shall paraphrase Livanios' conclusion that the "upshot of the preceding discussion is that none [...] offers a knockdown argument against [the compound view]" (2020, 289).

I think, compared to Wilson's accounts, there are two obvious merits coming from Wilsonian emergentism+. The first merit is to offer a qualitative distinction between weak and strong emergence. Besides Wilson's original (mostly) quantitative distinction, Wilsonian emergentism + further suggests whether a property is weakly or strongly emergent should also depend on whether it shares a (purely) qualitative quiddity with its emergent base. This distinction seems attractive for two reasons. For one thing, given Wilson's claim that "the base feature is physicalistically acceptable" (2021, 75), since a mental property's quiddity is a qualitative replica of its emergent base's quiddity (i.e., a physical quiddity) and is therefore physicalistically acceptable, the quiddity-based distinction can further justify why Wilsonian weak emergentism is compatible with physicalism. For another thing, since a strongly emergent property's quiddity is entirely novel, is totally independent of, and is therefore not grounded in its emergent base's quiddity, the quidditybased distinction also characterizes the robust novelty of strongly emergent entities that some emergentists demand.²⁷ And since the strongly emergent property's quiddity (i.e., a mental quiddity) is not grounded in its emergent base's quiddity (i.e., a physical quiddity), this distinction also explains why strong emergence is incompatible with physicalism by virtue of postulating fundamentally mental quiddity (as is suggested in Wilson 2021, on pp. 46–53). One potential complaint is some people may dislike the idea that a weakly emergent mental property shares a physical quiddity with its physical base. I have two disclaimers. First, having a physical quiddity does not imply that the mental property is reducible to its physical base (as I will argue in the following paragraph). Second, the alleged counter-intuitiveness does not come from my model but from the physicalist position itself, according to which every existence is ultimately physical. Quiddities are of course no exception.

The second merit of *Wilsonian emergentism* + is to defend the irreducibility of emergent-level properties. I have shown how the causal theory of properties probably fails to satisfy the ontological irreducibility desideratum in section 2. Similarly, given that a weakly emergent property inherits its quiddity from its emergent base, the theory that the sole essence of a property is its quiddity probably also fails to satisfy the ontological irreducibility desideratum. Likewise, given either line of reasoning above, and if a property's quiddity is identical to its causal powers, the powerful qualities view again probably fails to satisfy the ontological irreducibility desideratum. I think,

 $^{^{27}\}mathrm{Most}$ famously required by some British emergentists, see Alexander 1920, vol. 2, 45–47 and Morgan 1923, 9–10 for details.

the most promising defense of the irreducibility desideratum by far shall appeal to my proposal, that a property is identified and individuated by the composite of its quiddity and causal powers. For illustration, again, consider two properties S and P. S weakly emerges from P, which implies that their quiddities (i.e., vertical axes of two coordinates) are identical and their causal powers (i.e., horizontal axes of two coordinates) stand in a subset relation. However, horizontal and vertical axes taken together, there are two distinct coordinates—two distinct composites. S is therefore irreducible to P.

One residual concern is this. I can imagine Wilson asking: "It seems as if the basis for irreducibility here ultimately just relies on the powers of the emergent being a proper subset of the powers of the base. Why not just stick with that difference as a basis for irreducibility?"²⁸ It's a good point. The dialectic here is something like this. I argue that S is irreducible to P because S and P are two different combinations (of quiddities and causal powers). Wilson rebuts that S and P are two different combinations ultimately because they have different sets of causal powers, and the "two different combinations" point seems superficial. Our disagreement is about this question: Suppose A and B are two different things, and suppose A and C compose one thing while B and C compose another, is there anything special about the difference between two composed things? Wilson tends to answer no: The difference between two composed things is no more significant than the difference between A and B. This seems to be a substantial claim about part/whole relations, which is arguably disputable. What's more, Wilson's rebuttal probably undermines neutrality, a theoretical ideal for her, with respect to part/whole relations. By posing her claim, Wilson will trade the neutrality about part/whole relation for the neutrality about the nature of properties. Such a trade-off further calls the preferability of this move into question. And in a broader picture, no matter which token neutrality wins in the end, Wilson's theory has to sacrifice the other and, contra the motivation of maintaining neutrality in the first place, fails to be maximally accommodative. Above is my first reply. Besides, a weaker reply may go like this. Even if my proposal is no better than Wilson's accounts in defending the irreducibility of emergent-level properties and seems unnecessarily complicated, it still has some other merits worth considering (e.g., the first merit I introduced earlier). Since my purpose is just to propose another available schema rather than definitively defeating Wilson's accounts, I do not think Wilson's rebuttal poses a severe threat to me here.

 $^{^{28}\}mathrm{I}$ owe this point to Jessica Wilson.

4. Concluding Remarks

The following theses have been argued for in previous sections. Wilson's pursuit of ontological irreducibility is in tension with her pursuit of neutrality about the nature of properties, and such tension endangers the prospect of both (section 2). By proposing the dual-aspect model of properties and combining it with Wilson's accounts, I offer the account of *Wilsonian emergentism*+ that can qualitatively distinguish weak and strong emergence, and defend the irreducibility of emergent-level properties (section 3). My tentative conclusion is this: *Wilsonian emergentism*+ qualifies as a rival, Wilsonian account of emergence.

The last item on my agenda is to review the dialectic around emergence between Wilson and I, which is something like this. By advertising on the neutrality about the nature of properties, on the one hand, Wilson sends the following message to her fellow philosophers: "The theoretical burden of accepting my accounts of emergence is light; I do not pick a position on the nature of properties for you, feel free to choose the one you like." Wilson's strategy, if successful, can presumably win her theory many friends. However, as my reasoning shows, it is hard to maintain such neutrality and Wilson's other theoretical ambitions at the same time. Though Wilson aims at a winwin, it is likely that things turn out to be a lose-lose. And my proposal, as it stands, offers a rival strategy. On the other hand, by proposing Wilsonian emergentism+, the message I send to my fellow philosophers is this: "I am sorry you cannot pick the position you like about the nature of properties; but it might not be as bad as you think!" My "paternalistic" presupposition may seem discouraging at first glance, however, once the initial discomfort is overcome, a package of gains may prove surprising. Besides, the main Wilsonian commitments—the property-centric tradition, the causal powerbased strategy, the reconciliation of dependence and autonomy, and the pursuit of a properly metaphysical base that is not merely epistemic, nor purely modal, nor primitivist—are all preserved in my proposal, too. Though undoubtedly some people will be scared away, presumably some other people will eventually get on board and end up liking it. And from a forward-looking perspective, with respect to which theory of emergence is a better tool to conceptualize various phenomena in the world, it seems both Wilson and I stand a chance to claim the final prize.

I mark two last notes in closing. First, whereas my discussion is mostly anchored in the context of formulating non-reductive physicalism, my proposal may in principle generalize to composed objects, freedom in a deterministic world and agency, if they are also emergent entities as the last three chapters of Wilson 2021 explore. Second, even though the discussion of metaphysical emergence is still underpopulated, signs of popularity can already be seen.²⁹ And there is one thing that is predictable: Wilson's accounts of emergence will be studied for a considerable length of time in lights of its originality, ambition, and alas, controversy.

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²⁹See, e.g., Bryant & Yates forthcoming, a new anthology entitled *Rethinking Emergence*.

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