Hans Jonas and the phenomenological continuity of life and mind

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Abstract
This paper offers a novel interpretation of Hans Jonas’ analysis of metabolism, the centrepiece of Jonas’ philosophy of organism, in relation to recent controversies regarding the phenomenological dimension of life-mind continuity as understood within ‘autopoietic’ enactivism (AE). Jonas’ philosophy of organism chiefly inspired AE’s development of what we might call ‘the phenomenological life-mind continuity thesis’ (PLMCT), the claim that certain phenomenological features of human experience are central to a proper scientific understanding of both life and mind, and as such central features of all living organisms. After discussing the understanding of PLMCT within AE, and recent criticisms thereof, I develop a reading of Jonas’ analysis of metabolism, in light of previous commentators, which emphasizes its systematicity and transcendental flavour. The central thought is that, for Jonas, the attribution of certain phenomenological features is a necessary pre-condition for our understanding of the possibility of metabolism, rather than being derivable from metabolism itself. I argue that my interpretation strengthens Jonas’ contribution to AE’s justification for ascribing certain phenomenological features to life across the board. However, it also emphasizes the need to complement Jonas’ analysis with an explanatory account of organic identity in order to vindicate these phenomenological ascriptions in a scientific context.

Keywords Hans Jonas · Enactivism · Phenomenology · Philosophy of biology · Life-mind continuity

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1 Introduction

Hans Jonas’ philosophical biology has significantly influenced the understanding of life and mind within so-called ‘autopoeitic’ enactivism (AE). Yet Jonas’ influence remains controversial, particularly in relation to what we might call ‘the phenomenological life mind-continuity thesis’ (PLMCT), the claim that certain phenomenological features of human experience are central to a proper scientific understanding of both life and mind, and as such central features of all living organisms (Thompson, 2007: 129; 157). Critics object that AE’s reliance on Jonas for attributing certain phenomenological features, such as self-concern and purposiveness, to all organisms is problematic, especially in a scientific context. One shared worry is that Jonas’ and by extension AE’s arguments for this phenomenological attribution are based on an inference or projection from our own, lived experience of purposiveness and selfhood, thus introducing a questionable anthropomorphism into AE (De Jesus, 2016; Ward & Villalobos, 2016a, b; cf. Barbaras, 2010). In reply, recent authors seek to defend or adapt AE’s position by highlighting wider considerations drawn from Jonas (Hverven & Netland, 2021) and Merleau-Ponty (Kee, 2021) which may inform AE’s justification for applying certain phenomenological concepts to life as such. Similarly, this paper aims to further strengthen and clarify AE’s conception and justification of PLMCT through a close re-examination of AE’s chief inspiration for PLMCT: Jonas’ analysis of metabolism.

After clarifying the idea of PLMCT and its development within AE in Sects. 2 and 3, I examine recent discussions of AE’s version of PLMCT in Sect. 4, focussing on criticisms by Ward & Villalobos (2016a, b) and De Jesus (2016) and replies by Kee (2021) and Hverven & Netland (2021). I argue that these replies call for further discussion to defend PLMCT against its critics, particularly because they overlook important aspects of Jonas’ analysis of metabolism. Section 5. develops my reading of Jonas’ analysis which highlights its systematicity and transcendental elements. For Jonas, I argue, the attribution of certain phenomenological features to life as such is a necessary precondition for understanding how the metabolic mode of being of all living organisms is possible. Finally, based on this interpretation, Sect. 6 discusses a transcendental argument in favour of PLMCT as a means of clarifying the strengths and gaps of Jonas’ analysis. I conclude that my interpretation strengthens AE’s Jonas-inspired motivation of PLMCT against its critics, but that it also should be complemented by an explanatory account of organic identity, which Jonas does not provide.

2 Phenomenological life-mind continuity

According to the original ‘strong’ or ‘deep’ continuity of life and mind or ‘life-mind continuity thesis’ (LMCT), life and mind share a set of organizational and/or functional and/or behavioural properties (Godfrey-Smith, 1994; Wheeler, 1997; Thompson, 2007: 128 f.). In Clark’s words, ‘the thesis of strong continuity would be true if, for example, the basic concepts needed to understand the organization of life turned out to be self-organization, collective dynamics, circular processes, autopoiesis, etc., and if those very same concepts and constructs turned out to be central to a proper
scientific understanding of mind.’ (Clark, 2001: 118. Original emphasis). Following Clark, we might schematically express LMCT as follows:

**The Life-Mind Continuity Thesis (Schematic).**
There is a set S \{P_1, ..., P_n\} such that (a) S contains only organizational and/or functional and/or behavioural properties and (b) the properties P_1, ..., P_n in S are central to a proper scientific understanding of both life and mind.

Let’s call S the *continuity set*. According to LMCT, S only comprises properties of a certain kind, i.e. organizational, functional or behavioural properties. Although we shouldn’t overthink this qualification, it is noteworthy here because it demarcates the ‘original’ LMCT from other kinds of continuity in which S contains other kinds of properties.

LMCT is usually understood as an ontological claim about the nature of mind and life, rather than an epistemological or methodological claim about our grasp or explanation of these phenomena. According to LMCT, mind is literally life-like in virtue of sharing some (or all) of life’s organizational/functional/behavioural properties (Godfrey-Smith, 1994: 320; Thompson 2007: 128 f.). Alternatively, LMCT can be understood as a methodological claim, i.e. (roughly) as saying that certain biological concepts are central to a scientific understanding of cognition, without thereby implying that life and mind are ontologically similar or identical (Wheeler, 1997).

What about the *phenomenological* LMCT (i.e. PLMCT)? According to Thompson,

[…] the continuity of life and mind is not simply organizational, or functional or behavioural, but also phenomenological. In other words, the continuity includes the subjective and experiential aspects of mental life as well as the cognitive aspects […] certain basic concepts needed to understand human experience turn out to be applicable to life itself. (Thompson, 2007: 129).

In what sense are phenomenological concepts applicable to life itself? Elsewhere, Thompson explains the phenomenological dimension of LMCT as the insight that ‘certain existential structures of human life are an enriched version of those constitutive of all life.’ (Thompson, 2007: 157. My emphasis.; cf. Froese & Di Paolo, 2009: 440). As Wheeler (2011) emphasizes, it’s unclear how this ‘enrichment’, from simple organisms to humans, should be understood. Do certain human existential-phenomenological concepts apply equally to all organisms? Are these concepts suitable descriptions of life, as ‘applicable’ suggests, or are they integral to what life is, as ‘constitutive’ suggests?

Nevertheless, Thompson’s initial comments seem sufficient to formulate PLMCT schematically as follows:

**The Phenomenological Life-Mind Continuity Thesis (Schematic).**
There is a set S \{P_1, ..., P_n\} such that (a) S contains organizational and/or functional and/or behavioural properties and (b) S contains phenomenological properties and (c) the properties P_1, ..., P_n in S are central to a proper scientific understanding of both life and mind.
The schematic formulations of PLMCT and LMCT may both be substantiated differently depending on which properties compose S.\(^1\) However, given (b) of PLMCT, a substantiation qualifies as an instance of PLMCT only if S contains *phenomenological* properties. Here, I focus on one prominent instance of PLMCT: phenomenological life-mind continuity as developed within AE.

\[\text{3 Phenomenological continuity within autopoietic enactivism}\]

AE is rooted in Maturana & Varela’s (1980) notion of *autopoiesis*, originally proposed as the defining characteristic of living systems. An autopoietic system is a self-producing, topologically bounded network of interdependent processes which continuously regenerates the conditions of its own existence and distinguishes itself as a unity within the domain of processes in which it exists (ibid.: 78 f.). In a cell, the stock example of autopoiesis, physicochemical processes form a network of processes which recursively depend on one another, e.g. intracellular processes (re)produce the cell membrane, which in turn maintains a milieu in which these processes can occur. The membrane also distinguishes the cell as a unit in the physicochemical domain. However, according to AE, it is not this physical boundary which accounts for the cell’s identity or individuality (Di Paolo, 2009: 12; Thompson, 2011: 215), but rather its peculiar form of organization, which gives rise to what Varela (1979) called *autonomy*. An autonomous system, as originally understood (ibid.: Ch. 7), is *organizationally closed*, i.e. all constituent processes maintain a relationship of circular dependence, such that every constituent process (a) enables, and (b) is itself enabled by another constituent process (Di Paolo, 2009: 15 f.). Accordingly, organizational closure abstractly defines a system as a unity distinct from its surroundings, consisting of all and only those processes satisfying both (a) and (b). Put differently, the individuality of an autopoietic system resides in its closed form of organization, not in how that organization is realized.\(^2\)

An autopoietic system, like a cell, is an autonomous system in the domain of biochemical processes (Thompson, 2007: 44). But autonomy can occur at different levels since different kinds of processes can be organizationally closed, e.g. sensorimotor networks, immune systems, habits, or social interactions (Varela, 1979; Thompson,

\[\text{\(^1\) See Wheeler (2011: 164 ff.) and Godfrey-Smith (2016) for approaches to LMCT based on the concepts of representation and metabolism, respectively. See Kee (2021) for a Merleau-Pontian approach to PLMCT.}\]

\[\text{\(^2\) Recently, the notion of precariousness has been emphasized to make autonomy ‘non-trivial’ (Di Paolo, 2005; Di Paolo, 2009; Di Paolo & Thompson, 2014; Di Paolo et al., 2018: 25 ff.; Froese 2017). Precariousness is the condition that a constituent process will run down or stop when the enabling relations established by the operationally closed network are absent. In my understanding, precariousness is not a necessary condition for autonomy (organizational closure), but a means of substantiating organizational closure in view of explaining how autonomy relates to other enactive concepts, e.g. adaptivity and sense-making. However, precariousness doesn’t seem to add to the enactive answer to the abstract question of identity: ‘what distinguishes a network as an individual?’; it’s still the closure aspect of autonomy that does the work here. I will henceforth ignore precariousness as it is not essential for our discussion.}\]
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The enactive understanding of autonomy emphasises the co-dependence between identity-constitution and system-environment interactions which is central to AE’s understanding of cognition. In *The Embodied Mind* (Varela et al., 1991), this co-dependence underwrites the idea of structural coupling, understood as the history of environment-system interactions which maintain a system’s autonomy over time (cf. Maturana, 1975; Thompson, 2007: 45 ff.). With Weber & Varela’s (2002) rediscovery of Jonas, structural coupling underwent a phenomenological development, yielding the idea of sense-making (Di Paolo, 2005; Barrett, 2017). Drawing on Jonas, Weber & Varela argued that autopoietic systems (organisms) are intrinsically teleological and subjective beings. Following Di Paolo (2005: 433), when discussing their proposal, we should distinguish two notions of organic teleology. One follows Kant’s idea of a natural purpose: of a thing, e.g. an organism, in which the Aristotelian kinds of causality, nexus effectivus and nexus finalis, combine into a whole standing in both a causal and teleological relation to its constituents (Kant, 2000: 242 ff.). While an organism’s parts continually reproduce the whole by mutually causing each other, for Kant (2000: 244 f.), their doing so can only be understood by reference to an idea of the whole on which the existence of the parts depends in a finalistic way, just as the existence of this essay depends on my idea of writing it. However, for Kant, the idea of the whole only applies to organisms insofar as someone judging the whole must comprehend it in order to grasp the self-organizing manifold as a unity, i.e. an organism (ibid.; cf. Thompson, 2007: 134 f.). In this sense, for Kant, organic teleology rests in the observer’s mind, not in the organism itself.

Weber & Varela’s understanding of teleology goes ‘beyond Kant’ (2002: 212) ontologically and qualitatively. For them, an organism’s teleology qua autopoietic system is intrinsic, i.e. constitutive of the organization of the system: organisms are not just perceived as teleological, they are purposeful beings with their own goals. Furthermore, for Weber & Varela, this intrinsic teleology is internally related to subjectivity. Following Jonas, they describe organisms as subjective in the sense of being self-concerned, self-affirming individuals whose ultimate purpose is to maintain their existence (ibid.: 118).

It is unclear what sort of experience, if any, this notion of subjectivity or ‘point of view’ (ibid.: 116) entails. Thompson (2007: 161 f.) and Colombetti (2014: 19 f.) deny that the autopoiesis of simpler organisms, e.g. bacteria, implies consciousness or sentience understood as pre-reflective experience or self-awareness. But then what

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3 See Wheeler (2011), Thompson (2011) and Di Paolo (2009) for discussion.
4 The literature reveals conflicting usages of ‘intrinsic teleology’. Di Paolo (2005: 433) and Thompson (2007: 140) use ‘intrinsic teleology’ for Kant’s notion of teleology, which is misleading since Kant (2000: § 65 f.) thinks of the teleology of natural purposes as a principle of judgement of organisms, not as constitutive of their organisation. Weber and Varela use ‘intrinsic teleology’ both for Kant’s (2002: 100, 105, 106 f.) and their own, stronger sense of teleology (2002: 103, 116, 120), which Di Paolo (2005: 433) calls ‘projective teleology’ and which corresponds to sense-making. I use ‘intrinsic teleology’ in line with Jonas (Sect. 5) to mean a purposiveness which is a constitutive and necessary feature of organisms. Intrinsic teleology thus understood is implied by (but more narrow than) sense-making.
does it imply?\(^5\) Although I cannot settle this question here, intuitively the notion of self-concern seems to place certain phenomenological demands on what it is being ascribed to – as it should in order to inform an understanding of subjectivity which opens a phenomenological dimension (Kee, 2021: 2336 f.). It is hard to conceive of the idea of self-concern (a) without invoking some degree of affectivity and (b) without endowing this affectivity with a reflexive structure, such that the organism is able to relate its sensations to its existence as an individual. We will return to these points later.

With the Jonasian view of organisms as self-concerned beings, the enactive understanding of basic cognition in terms of sense-making – the ‘bringing forth’ of a world of significance – gains shape (Barrett, 2017).\(^6\) If organisms are self-concerned, intrinsically teleological individuals, it makes sense to think of their interactions with their environment as inherently meaningful (normative). For a self-concerned being, the environment becomes a ‘world’ in that environmental structures gain significance through their relevance for the being’s continuation (Di Paolo, 2005: 433, Thompson & Stapleton 2009: 24 f.).

Weber & Varela (2002) argued that the Jonasian understanding of organisms and sense-making follows from the autopoietic conception of life. With the introduction of self-concern, sense-making gains a projective, forward-looking character absent from the original idea of structural coupling (Barrett, 2017). A self-concerned bacterium can pre-emptively swim up a glucose gradient and thereby imbue glucose with significance through its sense-making – something that it wouldn’t do unless it was somehow concerned with its existence (Di Paolo, 2005: 436 f.).

As Di Paolo (2005) argued, autopoiesis alone cannot explain this projective teleology of sense-making. For an autopoietic system, there is only the question of whether to be or not to be, which, for it (unlike for Hamlet) only means whether its organization persists or not. A merely autopoietic bacterium won’t actively swim up a sucrose gradient since all that matters to it is to conserve its autopoietic organization, which will be conserved (until it’s about to die) whether or not it beats its flagella (Di Paolo, 2005: 436 f.). Given the all-or-nothing norm of autopoiesis, a merely autopoietic system can at best react to external perturbations. It cannot act in the sense of future-oriented activity necessary for sense-making (Barrett, 2017).

To explain sense-making, Di Paolo introduced the notion of adaptivity, understood as a system’s ability to regulate its activity in response to identifying tendencies (in itself or the environment) as moving it closer or further away from the breakdown of autopoiesis (death) (Di Paolo, 2005; Di Paolo & Thompson, 2014). An adaptive bacterium will pre-emptively swim up a sucrose gradient, being able to distinguish sucrose as moving it away from autopoietic collapse and regulate its activity accordingly, e.g. approach sucrose.

Following Thompson (2007: 158; 2011: 211 f.) – although with some omissions – we can now summarize the aspects of AE relevant for PLMCT.

(1) Autopoiesis and adaptivity are jointly sufficient for life.

\(^5\) See Colombetti (2014: Ch.1) for discussion.

\(^6\) For earlier conceptions of sense-making, see Varela (1991, 1997).
(2) Autopoiesis is sufficient for (biological) autonomy.
(3) Autonomy and adaptivity are jointly sufficient for sense-making and intrinsic teleology.
(4) Sense-making is basic cognition.
(5) Hence, by (2) and (3), autopoiesis and adaptivity are jointly sufficient for sense-making and intrinsic teleology.
(6) Hence, by (1), (4) and (5), life is sufficient for cognition and intrinsic teleology.
(7) Hence, by (6), sense-making (cognition) and intrinsic teleology are necessary for life.

As Thompson notes, (7) represents one version of LMCT: ‘wherever there is life there is mind.’ (2011: 212. Original emphasis). Although Thompson doesn’t say so explicitly, (7) is a phenomenological continuity thesis, since cognition is identified with sense-making, i.e. the intrinsically teleological, projective and self-preserving conduct of a system, involving the subjective notion of intrinsic teleology inspired by Jonas’ idea of self-concern. With this in mind, we can express (7), i.e. AE’s version of PLMCT, more precisely as follows:

**The Phenomenological Life-Mind Continuity Thesis (within AE).**

There is a set S \{autopoiesis, autonomy, adaptivity, sense-making (intrinsic teleology, self-concern)\} such that the properties in S are central to a proper scientific understanding of both life and mind.

This formulation satisfies the schematic formulation above. For (a) S contains organizational/behavioural/functional properties (autopoiesis, autonomy (organizational closure) and adaptivity); (b) S contains phenomenological properties (sense-making, intrinsic teleology and self-concern); and (c) all properties, according to AE, are central to a proper scientific understanding of both life and mind. Henceforth, ‘PLMCT’ refers to this AE-version.

Arguably, PLMCT is an ontological (and methodological) continuity claim. (7) does not say that sense-making and intrinsic teleology are merely useful ways of thinking about life. It declares them as necessary properties of life itself. As Di Paolo says, ‘life-mind continuity is [at] its core [a] methodological, epistemological and ontological attitude’ (2018: 75). This ontological understanding of PLMCT is also what the critics seem to have in mind when objecting to AE’s reliance on Jonas (Sect. 4).

PLMCT is controversial in two directions. On the ‘upper end’, there is the question of the ‘cognitive gap’ (De Jaegher & Froese, 2009: 444): whether the concepts in S may explain higher forms of cognition, e.g. sensorimotor skills, reasoning, language, and social interaction. This question underlies much recent work (e.g. Di Paolo et al., 2017, Di Paolo et al., 2018). On the ‘lower end’, there is the question of whether the

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7 It’s debatable whether life is also necessary for sense-making and intrinsic teleology. See Wheeler (2011) and Thompson (2011) for discussion.
8 These distinctions need not be exclusive or clear-cut.
phenomenological features of sense-making are necessary or helpful for the scientific understanding of life as such. Henceforth, I shall focus on the latter issue.

4 PLMCT: Sate of the dialogue

AE has come under attack for its appropriation of Jonas. Ward & Villalobos (2016a, b) read Jonas as resting his attribution of intrinsic teleology to all organisms on the phenomenology of human experience. Consequently, they object, adopting a Jonasian notion of sense-making is scientifically questionable since the ascription of human features, e.g. teleology and self-concern, to non-human entities, when based on human experience alone, amounts to a scientifically unacceptable anthropomorphism (ibid.). Similarly, De Jesus deplores that ‘[i]nsofar as AE follows Jonas in taking the first-person embodied experience as the basis for attributing teleology, meaning and sense-making to nonhuman lifeforms, it becomes difficult to see this other than an anthropomorphic projection on the part of an external observer’ (2016: 283. Original emphasis). Furthermore, on De Jesus’ view, Jonas’ attribution is problematic because it resembles a reasoning from analogy. Jonas, on De Jesus’ view, reasons from the experience of inwardness and teleology, via the similarity of human behaviour and embodiment to that of other organisms, to the presence of these features in nonhuman lifeforms (De Jesus, 2016: 279; 283).

These criticisms share the concern that Jonas’ (and by extension AE’s) ascription of sense-making and intrinsic teleology to organisms is based on a problematic inference or projection from human experience (cf. Barbaras, 2010: 95). Accordingly, let’s call this ‘the inferential reading’ of Jonas.

Against this, Hverven & Netland (2021) argue that Jonas’ case for the intrinsic teleology of organisms comprises much richer considerations than a projective inference from human experience. Specifically, they stress the importance of felt, concrete encounters between living bodies for Jonas’ understanding of organisms. As they explain, the neglect of Jonas’ considerations concerning the experience of otherness in encounters between human beings and other lifeforms – a neglect also affecting enactivist readings of Jonas (e.g. Weber & Varela 2002: 110; Thompson 2007: 163) – invites the inferential reading (Hverven & Netland, 2021: Sect. 6.2).

Hverven & Netland (2021: Sect. 6.3) argue that, for Jonas, the experience of otherness in encounters is a precondition for our experience of inwardness and selfhood (cf. Di Paolo & Froese 2009). It is only through recognising the inwardness of others in concrete encounters that we come to have a sense of inwardness in the first place. Hence, the inwardness of others is not to be recovered from our private experience but is prior to it (Jonas, 1971: 507).

Complementary to Hverven & Netland, Kee’s (2021) response to De Jesus discusses wider phenomenological resources beyond Jonas to motivate PLMCT. Kee likewise emphasizes the idea of unmediated perceptual (rather than inferential) knowledge of other minds. In addition, Kee suggests to swap the Jonasian, metabolism-based notion of sense-making, according intrinsic teleology to any organism, with a Merleau-Pontian behaviour-based notion, reserving sense-making to sentient organisms (ibid.).
Both replies to PLMCT’s critics certainly enlarge AE’s resources, both within and beyond Jonas, for motivating PLMCT. However, they also have certain shortcomings. Kee’s proposal is hard to reconcile with the scope of PLMCT. As Kee (2021: 2337 ff.) emphasizes, the Merleau-Pontian notion of sense-making applies only to sentient organisms. Since only some organisms are sentient, the phenomenological dimension of life-mind continuity, when underscored by a Merleau-Pontian notion of sense-making, doesn’t apply to all organisms. Although Kee leaves open the possibility of exploring life-mind continuity all the way ‘down’ to unicellular organisms, the suggested Merleau-Pontian approach effectively excludes non-sentient organisms from the phenomenological dimension of life-mind continuity. As Kee, expanding on Merleau-Ponty, notes, ‘[i]t is at the level of behaviour, not that of basic metabolism, that we require phenomenological description. Sentience, or minimal, pre-reflective experience, is a necessary condition for the kind of sense-making that is of interest to phenomenologists and phenomenological enactivists.’ (2021: 2338). Such a ‘sentience-constraint’ for ascribing phenomenological features may soothe those sceptic towards the ‘lower end’ of PLMCT. But for the purposes of an all-encompassing PLMCT, AE-proponents should consider other options before turning to Kee’s proposal.

Hverven & Netland’s discussion poses two problems in relation to AE’s motivation of PLMCT. First, as they concede, Jonas’ claim that concrete encounters are a precondition for inwardness primarily concerns human encounters. It’s true, as Hverven & Netland (2021: Sect. 6.4) show, that Jonas also sees the mutual recognition of organisms in encounters as reaching across different lifeforms. On Jonas’ view, the behaviour of other organisms is expressive of a self-concerned identity, which actively strives to maintain itself. Our natural ability to perceive this active, purposive identity in other organisms seems to be constitutive of our knowledge of their aliveness (Jonas, 2016: 2–6). Since this active identity is expressed by nonhuman and human organisms alike, it seems we may extend the idea of concrete encounters (and the inwardness it indicates) to non-human organisms.

But even if we accept this extension of encounters across species, does this justify the attribution of a self-concerned, intrinsically teleological identity to other organisms? Critics might grant Jonas’ point that we naturally perceive an active, internal identity in other (even simple) lifeforms. They might also accept that, for humans, this perception is a precondition for our having a sense of self. But they might nonetheless deny that (a) this perception is veridical, and that (b), even if veridical, the perceived purposive identity implies an intrinsic teleology or subjectivity in the observed organism. While denying (a) or (b) may be implausible where humans or most animals are concerned, it seems reasonable (in a scientific context) with regards to e.g. unicellular organisms, fungi, and plants. Faced with such reasonable scepticism, to simply declare the purposive inwardness of other organisms to be there in virtue of our experience of it in encounters seems to beg the question.

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9 Given a sufficiently broad notion of behaviour, it might seem like this conception of sentience does apply to all organisms (thanks to Mike Wheeler for emphasising this point). Here, it is enough to stress that Kee (2021: 2336 ff.) and Thompson (2007: 161 f.) reject such a broad conception of sentience.
To appease the sceptic of nonhuman inwardness and teleology, Jonas’ account of encounters should be complemented by answers to two questions, corresponding to (a) and (b) above.

(i) Why can the perception of active identity in (even simple) organisms not plausibly be denied as non-veridical?
(ii) Why must the perceived active identity be of a kind which, pace Kee (2021), requires a \textit{phenomenological} level of description, in terms of intrinsic teleology and self-concern, \textit{across the phylogenetic scale}?

As one anonymous reviewer remarked, (i) and (ii) might seem to ask for \textit{too much} justification, especially since Jonas’ arguments might be understood as more pragmatic, rather than attempts to persuade the radical sceptic of non-human purposiveness and self-concern. In response, I should emphasise that my ultimate concern here is \textit{AE’s} Jonas-inspired (rather than Jonas’ own) case for PLMCT. As a scientific approach, \textit{AE} should, I think, reply to (i) and (ii) since, in a scientific context, denying (a) and (b), especially where simpler life-forms are concerned, seems reasonable (and is a standard position among biologists). Relatedly, let me stress that, when arguing below that Jonas’ analysis of metabolism does (to some extent) answer (i) and (ii), I am not seeking to vindicate Jonas’ ambition to establish self-concern and teleology as ontological features of organisms. My more modest goal is to reinstate the justificatory force of this analysis for \textit{AE’s} motivation of PLMCT in relation to the critics’ objections. Whether it was Jonas’ own ambition to establish purposiveness and self-concern as real, ontological features of organisms and whether he succeeded in realising it, is not essential to my discussion.

The second problem with Hverven & Netland’s proposal is that, as far as Jonas’ analysis of metabolism is concerned, it overlooks important aspects of Jonas’ argument, and, consequently, underestimates the potential contribution of Jonas’ analysis of metabolism to justifying PLMCT – or so I shall argue. Furthermore, although \textit{AE} may benefit from the considerations highlighted by Hverven & Netland (2021) and Kee (2021), specifically the phenomenology of intersubjectivity, it remains the case that Jonas’ analysis of metabolism is \textit{the} central motivation for \textit{AE’s} development of PLMCT. In Weber & Varela’s words, it is where Jonas’ philosophy of organism ‘joins directly with the autopoiesis approach’ (2002: 112; cf. Thompson, 2007: Ch. 6). For the above reasons, I suggest a rereading of Jonas’ analysis of metabolism in relation to \textit{AE’s} case for PLMCT.

5 Jonas’ analysis of metabolism

In a much-cited passage, Jonas writes:

\begin{quote}
[T]he teleological structure and behaviour of organism is not just an alternative choice of description: it is, on the evidence of each one’s own organic awareness, the external manifestation of the inwardness of substance. To add
\end{quote}
the implications: there is no organism without teleology; there is no teleology without inwardness; and: life can be known only by life. (2001: 91).

Jonas appears to make three claims here:

(A) Teleology is a necessary feature of organisms (‘not just an alternative choice of description’ / ‘there is no organism without teleology’).

(B) Inwardness is a necessary condition for teleology (‘there is no teleology without inwardness’).

(C) The teleology and inwardness of organisms is recognized in virtue of one’s own lived experience (‘on the evidence of each one’s own organic awareness’ / ‘life can be known only by life’).

Initially, Jonas seems to infer (A), and by implication (B), from (C). As he writes, it’s on the evidence of one’s own organic awareness that inwardness and teleology are recognized in other organisms.

But is this inference valid? (A) seems to be a factual or ontological claim about the teleological nature of living organisms, while (C) seems to be an epistemological claim about the source of our knowledge of this teleological nature (cf. De Jesus, 2016: 277 f.). But the latter sort of claim generally does not justify the former sort: a fact about how or why I come to know that \( p \) presupposes that \( p \) (assuming knowledge is factive) but it does not by itself justify my claim that \( p \).

We can relate this point to Kant’s (1998: A84ff.) distinction between ‘questions of fact’ and ‘questions of right’ in the examination of concepts. As Stroud (1968: 241) explains, to ask a question of fact about a concept \( C \) is to ask what has led to, and what is involved in, our having \( C \). In contrast, a question of right asks whether \( C \) has ‘objective validity’, i.e. whether our use of \( C \) is justified in that it picks out something real. Importantly, answers to questions of fact are not thereby answers to questions of right. I may tell a true story of how we come to have the concept of gender, and what, in today’s society, is involved in our having it. But this story would not justify our use of the concept; it wouldn’t establish whether ‘gender’ picks out a real phenomenon.

Similarly, there seem to be two different questions at issue in Jonas, (1) being a question of fact, (2) a question of right.

(1) How come we have knowledge of the concepts teleology and inwardness, and what is involved in our application of them to other organisms?

(2) Is the application of the concepts teleology and inwardness to all organisms true/justified/valid?

Jonas’ claim (C) appears to be (part of) his answer to (1), whereas claim (A) seems to be (part of) his answer to (2). If (A) and (C) map onto Kant’s distinction in this way, it explains why we should be wary of Jonas’ step from (C) to (A). For, just as epistemological claims about how we come to know that \( p \) presuppose, but don’t by themselves justify factual claims to the effect that \( p \), so answers to questions of fact don’t by themselves justify the objective validity of a concept \( C \). Accordingly, (C) i.e. that the teleology and inwardness of organisms are recognized on the basis of
our own lived experience presupposes (A) and, by implication, (B) i.e. that teleology and inwardness are necessary features of organisms. But (C) does not justify (A) and (B), i.e. it does not provide independent reasons for why we should think that life is intrinsically teleological and inward in the first place.

The questionable step from (A) to (C) seems to underlie the critics’ inferential reading of Jonas (De Jesus, 2016: 278 ff.; Ward & Villalobos 2016a: 207; Barbaras 2010: 95); and understandably so, as the foregoing considerations illustrate. To defend his claims, Jonas should justify (A) independently of (C). Furthermore, he must explain why (B) is entailed by (A). Thus, Jonas’ needs to answer two questions.

\[ Q_A – Why is teleology a necessary feature of organisms? \]
\[ Q_B – Why is inwardness a necessary condition for teleology? \]

Let us consider Jonas’ answers to these questions in turn.

5.1 \( Q_A – Why is teleology a necessary feature of organisms? \)

As most commentators agree (Barbaras, 2010; Hverven, 2020; Hverven & Netland, 2021; Weber & Varela, 2002; Coyne, 2021: Ch. 2), the pivotal concept in Jonas’ philosophy of organism is metabolism, i.e. the constant renewal of the organism’s material parts, e.g. molecules, cells, organs etc. Metabolism, according to Jonas, is ‘a remarkable mode of being’ (2001: 75) which is ‘all-pervasive’ (ibid.: 76) in living systems (cf. Jonas, 1968). It is remarkable since it is so unlike the mode of existence of material particles. ‘The material particle’, Jonas says, ‘is simply what it is, immediately identical with itself without [the] need to maintain that self-identity as an act of its existence’ (ibid.: 81). A metabolizing system, however, can only exist ‘by not remaining the same matter’ (ibid.: 76. Original emphasis). Thus, for Jonas, metabolism is not an accidental feature of living systems. It’s all-pervasive since the organism must metabolize to survive. What necessary features might be derived from this metabolic mode of being?

First, metabolism requires constant activity by the organism, since, in order to metabolize, an organism must gather vital resources outside itself (Barbaras, 2010, cf. Coyne, 2021: 57). A living system’s activity thus aims beyond itself, towards its environment. It is oriented towards what is currently lacking, but which is required for the maintenance of metabolism. Life is, in Jonas’ words, self-transcendent (2001: 86 f.). Jonas understands this transcendence not only in a spatial sense, as movement towards vital objects, but also in a temporal sense. Since an organism must constantly act to metabolize, and since metabolism pervades its whole mode of being, an organism’s existence is guided by what it is going to be, rather than by what it was. An organism’s mode of being transcends into the future, it is inherently forward-looking. This temporal transcendence, Jonas writes, ‘is the root of the teleological or finalistic nature of life’ (ibid.: 86), and he goes on to explain:

[…] finalism is in the first place a dynamic character of a certain mode of existence […], and only in the second place a fact of structure or physical organization […]. (ibid.)
As this brings out, for Jonas, teleology is *primarily* a dynamic, future-oriented way to be, a ‘character of a certain mode of existence’, and only *derivatively* pertains to material arrangements. By itself, this Aristotelian understanding of teleology bears no internal relation to life, nor to inwardness or self-concern. The necessary relation between teleology and life seems to hold because (a) all living organisms metabolize, (b) metabolism requires constant activity and (c) the character of this activity must be teleological, i.e. dynamic and future-oriented. This reasoning seems to underlie Jonas’ answer to Qₐₐ.

5.2 Qₐₐ – Why is inwardness a necessary condition for teleology?

Since metabolism requires constant activity, any necessary condition for this activity will be a necessary feature of organisms. On Jonas’ view, the character of this activity is teleological in being dynamic and future-oriented. Why is inwardness required for this dynamic, future-oriented activity?

Jonas’ key to answering this question is the insight that an organism’s teleological activity, as guided by its metabolic needs, is inherently *selective*. Depending on which materials are essential for maintaining its metabolism, an organism will approach certain things, be indifferent towards some, and avoid others. But how can we make sense of such ‘selective modes of relation’ (Jonas, 2001: 84. Emphasis omitted.) structuring an organism’s activity towards its environment?

Here, for Jonas, inwardness must be invoked to explain the selectivity structuring an organism’s activity. Only if an organism exhibits an ‘exposure to affections’ (Jonas, 2016: 58. Original emphasis.), only if its environmental encounters have a felt quality to them, can we understand the organism’s *active selection* of certain conducts over others. Since this active selectivity characterizes the teleology of *any* organism, i.e. its dynamic, future-oriented way of being, it follows that the qualitative aspect of life, its ability to be affected by its surroundings, is a necessary feature of any organism. As Jonas explains in *Organism and Freedom*:

This affectivity of all living things complements their spontaneity; […] it yet provides […] the very means by which the organism carries on its vital com-

merce with the environment, i.e., with the conditions of its continued existence.

Only by being sensitive can life be active, only by being exposed can it be autonomous. […] Receptivity, this passive side of life’s transcendence, enables it to be selective and ‘informed’ instead of a blind dynamism. (2016: 58 f.)

In summary, inwardness is a necessary feature of an organism because the future-oriented activity involved in metabolism is inherently selective, and this selectivity requires sensitivity or affectivity on part of the organism. This seems to be Jonas’ answer to Qₐₐ.

There is, however, an ambiguity in Jonas’ notion of inwardness. Whilst the selectivity of organic activity requires affectivity, this qualitative dimension of the organism-environment relation is characterized as *sensitivity* and *receptivity*, which, as

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10 Cf. Morris (2013: 62).
Jonas says, pertain to ‘the passive side of life’s transcendence’. But Jonas also claims that ‘inwardness – whether we call it feeling; irritability and reactivity to stimulus, or appetition and nisus – in even an infinitesimal degree of awareness harbours the supreme concernedness of organism with its own being and continuation of being (that is, it is self-centred)’ (Jonas, 2016: 59. My emphasis. Cf. Jonas, 2001: 84). But how do we get from passive receptivity to self-centred concern? This question is important, since Jonas’ idea of self-centred concern is crucial for AE’s phenomenological notion of sense-making, and hence crucial for PLMCT. We will return to it later.

5.3 Taking stock

Let us summarize the reconstruction of Jonas’ analysis of metabolism so far.

Q_A – Why is teleology a necessary feature of organisms?

(1) All organisms metabolize.
(2) Metabolism requires constant activity.
(3) The activity required for metabolism must be teleological, i.e. future-oriented and dynamic.

Q_B – Why is inwardness a necessary condition for teleology?

(1) The teleological activity required for metabolism is inherently selective.
(2) Selective activity requires inwardness (affectivity/sensitivity).

Although this bullet-point presentation mutilates the eloquence of Jonas’ thought, it captures an underappreciated aspect of his approach, namely its systematicity. Far from simply projecting features of human experience onto organisms, Jonas’ claims are based on a systematic analysis of the concept of metabolism and its implications. Indeed, not once in my reconstruction of Jonas’ answers to Q_A (Sect. 5.1) and Q_B (Sect. 5.2) was there any reliance on the phenomenology of human experience. As Jonas writes in the postscript to Chapter II of *Organism and Freedom*,

> It will have been noted that the fundamental ontology of organism has here been based on the fact of metabolism alone, and that consequently only those characteristics of life have been considered which could be developed from this foundation. (2016: 67).

Once the systematicity of Jonas’ thought is acknowledged, the inferential reading appears to overemphasize Jonas’ appeal to human experience. Nevertheless, this is not to say that lived experience is insignificant for Jonas’ analysis of metabolism, as we shall see.
5.4 Metabolism of what?

For Jonas, the central question for understanding metabolism is that of organic identity, i.e. what kind of identity must an organism have for metabolism to be possible? Or indeed: what fundamentally is the organism? For Jonas, this question is profoundly ontological, it concerns the fundamental nature of life (2016: 67). To answer it is to explain what ‘distinguishes the living during any stretch of its existence […] from the non-living’ (ibid. Original emphasis).

Without an account of organic identity, Jonas’ view concerning the intrinsic properties of organisms loses its ontological footing. Put somewhat provocatively: without an identity, there is no self. Without a self, there is no self-concern and no inwardness. Without self-concern and inwardness, there is no teleology; and without teleology, there is no organism. In Jonas’ words, without an account of organic identity ‘all the features of a self-related autonomous entity would, in the end, appear as purely phenomenal, that is, fictitious’ (2001: 78.). An account of organic identity provides Jonas’ philosophy of organism with ontological plausibility; it provides, if you like, a bearer of inwardness and intrinsic teleology.

Initially, Jonas seems to propose a purely formal account of identity. Jonas frequently talks about the organism’s freedom and identity – its ability for dynamic, future-oriented (i.e. teleological) activity undetermined by mechanical laws – as ‘a certain independence of form with respect to its own matter’ (2001: 81.). So why not simply identify an organism’s persisting form of organization with its identity?

However, Jonas rejects a formal, organizational notion of identity. Although I cannot provide a complete exposition of his argument here, Jonas’ central reason comes out in these passages:11

[...] to understand the individuality of the organism, we have to transcend even the aspect of form [...] we have now to take seriously the reflexive pronoun »itself«, i.e., to place the principle of identity in that which exercises this freedom of form – something which abstract form as such cannot do. In short, the ontological individual requires, behind the continuity of form which it shares with the wave or the flame, internal identity as the subject of its existing in actu. (Jonas, 2016: 54 f. Original emphasis.)

[...] form as such shows wholeness [identity] rather than provides it, and its persistence under the conditions of metabolic turnover qualifies for the attribution of individuality only if behind it is assumed a principle of identity operative in the mere morphological fact. (Jonas, 2016: 60).

For Jonas, an organism’s organizational form is a ‘morphological fact’ concerning the persistence of a structure or set of relations. It does not explain, but rather shows an internal identity or wholeness, which operates ‘behind’ the form and actively holds it together.

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11 See Jonas (1968), Barbaras (2010) and Coyne (2021: 48 ff.) for more discussion.
Jonas’ rejection of a formal notion of organic identity makes sense given his analysis of the necessary properties of life as derived from metabolism. For that analysis places constraints on the kind of identity that organisms can have. Since metabolism requires constant, future-directed activity, organic identity must account for the possibility of action. Specifically, it must explain the possibility of self-directed action, whose fundamental telos is to preserve the conditions of its own possibility. For Jonas, a purely formal kind of identity does not account for this capacity of self-directed action. Rather, the form must itself be regarded as the product and expression of an internal identity, a ‘wholeness [which] is self-integrating in active performance’ (Jonas, 2001: 79). Formal continuity throughout metabolic flux can only be understood on the assumption of an internal identity, which is ‘interpolated’ onto an organism.

It is by this interpolation of an internal identity alone that the mere morphological (and as such meaningless) fact of metabolic continuity is comprehended as an incessant act; that is, continuity is comprehended as self-continuation. (Jonas, 2001: 82. Original emphasis).

Much in the interpretation of Jonas turns on how we understand this ‘interpolation’. According to Barbaras (2010), it amounts to a projection from our experience of internal identity onto metabolic, i.e. living systems. It’s a projection because, on Jonas’ view, no external (i.e. non-inward, non-teleological) description of morphological or material facts – in terms of structure, material, dynamics etc. – by itself justifies the attribution of an internal identity (ibid.: 95; Jonas 2001: 82, 86 ff.). Hence, the idea of internal identity must be sought beyond the external realm, in the ‘domain of interiority’ (Barbaras, 2010: 95), i.e. (human) experience.

As Hverven & Netland (2021: Sect. 5) acknowledge, Barbaras’ reading of Jonas is understandable. Prior to the passage above, Jonas wonders on what basis an observer infers the presence of internal identity ‘which is spontaneously assumed on [an organism’s] external, morphological evidence’ (2001: 82). His answer is: ‘organic existence with its own experience’ (ibid.). Thus, Jonas does seem to suggest that the inwardness of other organisms is recognized on the basis of our experience.

However, as Hverven & Netland (2021: Sect. 5) convincingly argue, Barbaras’ interpretation ascribes to Jonas a Cartesian split between external and internal facts. But Jonas explicitly rejects this dualist worldview in the face of the ‘inwardness of substance’ (2001: 91) which we know as real features of life (Hverven & Netland, 2021: Sect. 5; cf. Pommier, 2017). Instead, on Hverven & Netland’s view, the passage above.

[...] can be read as saying that the recognition of other beings as acting, real wholes is primordial in our experience, prior to the scientific view of organisms as extended matter; and that the experience of the morphological evidence of other living beings for us is expressive and meaningful, something that can be understood and interpreted, and that this is more basic than the view of them as mere extended matter. (Hverven & Netland, 2021: Sect. 6.2. Original emphasis).
I think this interpretation is not incorrect, but insofar as it seems to rest on three aspects of Jonas’ framework, it does not, I will argue, capture Jonas’ main justification for ascribing inwardness and teleology to other organisms.

Aspect one is Jonas’ idea, discussed earlier, that the recognition of life in others occurs through concrete encounters, not an inference from our experience. Aspect two is that Jonas’ attribution of inwardness and teleology to metabolic systems is understood as an interpretation of metabolism based on our natural ability to distinguish living from non-living things in concrete encounters. The idea is that, given our primordial capacity to experience (nonhuman) others as alive in encounters, we can ‘let this “life experience” […] inform our understanding of the scientific concept of metabolism’ (ibid.: Sect. 6.4. Original emphasis). Aspect three is that our experience of other organisms as subjective, purposive beings is based on a perception of ‘like-ness’ (ibid.: Sect. 6.4) between their embodiment and behaviour and ours. On Hverven & Netland’s reading, metabolism figures as the ‘abstract minimal requirement for bodily similarity’ (ibid.: Sect. 6.4) or ‘as a sort of “gesture” towards those bodies where life is expressed, and experienced, as concrete.’ (ibid.: Sect. 5).

Taken together, these aspects suggest that the role metabolism plays in Jonas’ understanding of life is that of being a ‘sign’ or ‘gesture’ towards living bodies – a sign which we are naturally able to understand as such because of our primordial capacity to distinguish life from non-life in concrete encounters; a capacity which, in turn, seems to be based on or ‘track’ a perception of behavioural and bodily similarity.

On an uncharitable reading, the idea that our experience of otherness in encounters tracks likeness might seem to reintroduce an element of analogical reasoning into Jonas’ argument, which De Jesus (2016: 278 f.) understandably criticizes. However, even if we reject such a reading – in resonance with Hverven & Netland’s emphasis on encounters12 – and grant that likeness and, more specifically, metabolism accurately gestures towards living organisms, would this justify the attribution of purposive inwardness to them? Someone sympathetic to the idea of non-human purposive inwardness might think so. But the critics will probably be unmoved. For, to recall our questions (i) and (ii), their point is that the perception of an active, purposive identity in metabolic systems, no matter how primordial and concrete, can reasonably be denied as non-veridical – as an illusion that we are naturally disposed to but which does not withstand scientific scrutiny. To emphasise our ‘life experience’ in encounters is not a reply to this worry. It is more like an insightful account of an experience and psychological capacity which, for the critics, is a misleading guide to the ontology of organisms. On their view, the phenomenological pull which this experience naturally exerts on our understanding of metabolism is precisely what is to be avoided in a scientific context.

To reply to the critics, Jonas should be able to justify his attribution of inwardness and purposiveness independently of concrete encounters. And indeed, we find the outlines of such a justification in Jonas’ analysis of metabolism.13 For Jonas seems to think that his phenomenological understanding of metabolism is, in a transcendental

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12 Thanks to an anonymous reviewer for emphasising this point.

13 My reading is, I think, compatible with Hverven and Netland’s reading. But its emphasis is different, as will emerge below.
sense, necessary (and in this sense cannot be reasonably denied, see Sect. 6). In the two passages quoted above he says that the fact of metabolism can only be understood as an act of constant self-renewal through the attribution of an internal identity which is ‘operative in the mere morphological fact’ (Jonas, 2016: 60) of persisting organizational form. The ‘interpolation’ of internal identity, it seems, is not (only) a natural interpretation of metabolism. Rather, for Jonas, it is a necessary precondition for our making sense of metabolism as the mode of being of living systems at all. If we didn’t ‘spontaneously assume’ (2001: 82) the presence of a self-producing, active identity invested in a metabolic network, we would, in Jonas’ eyes, be unable to understand how the metabolic mode of being is possible in the first place.14

To clarify, Jonas is not saying that a ‘scientific’, i.e. non-teleological, non-subjective description of metabolism is impossible or inadequate. A biochemist can describe metabolic processes without invoking any notion of an internal, self-integrating identity (cf. Jonas, 2001: 91 f.). Jonas’ point is only that an exclusively non-teleological, non-subjective understanding of metabolism, e.g. in terms of shape, function or organization, is literally incoherent. Such a purely formal description of metabolism is meaningless because it suppresses the crucial element which accounts for the description’s being a description of a living system, namely the fact that the possibility of the system’s metabolic mode of existence can only be understood by conceiving of its form as being maintained through the activity of a self-integrating, internal identity.

But where does this idea of internal identity come from? If it is itself a precondition for making sense of metabolism, then, unlike inwardness and teleology, it cannot be derived from the concept of metabolism without circularity. It is at this point that human experience enters Jonas’ analysis. As Jonas stresses, the idea of internal identity or active self requires ‘organic existence with its own experience’ (2001: 82), i.e. the idea is only accessible from the phenomenological perspective of a living being.

If the concept of internal identity is a precondition (in the transcendental sense explained above) for understanding metabolism, and if the concept of internal identity is only accessible to a living being, it follows that lived experience is a precondition for the understanding of metabolism. Since metabolism is life’s defining mode of being, this is one way to understand Jonas’ dictum that ‘life can be known only by life’ (2001: 91).

My interpretation is indebted to Thompson’s (2007) discussion of Jonas. Following Jonas’ understanding of metabolism, Thompson maintains that the concepts organism and autopoietic selfhood cannot be understood from some exclusively objective, observer-independent standpoint. As Thompson puts it ‘the source of the meaning of these concepts is the lived body, our original experience of our own bodily existence’ (2007: 164). Since, for Thompson, these concepts are necessary ‘to account for certain observable phenomena’ (ibid.), e.g. life, our lived experience is a precondition for the understanding of living systems, i.e. ‘life can be known only by life’ (ibid.).

14 Coyne interprets Jonas the other way, as saying that ‘metabolic self-organization’ is a condition of possibility for an organic ‘singular self’ (2021: 56; cf. 59 f.). However, if my reading is correct, Jonas’ understanding of metabolic self-organization already presupposes the existence of a self (internal identity). It does not explain its possibility.
life’. Thompson calls this understanding of Jonas’ dictum ‘a transcendental one in the phenomenological sense’ (ibid.), writing that.

 [...] the theory of autopoiesis provides a naturalistic interpretation of the teleological conception of life originating in experience, but our experience of our own bodily being is a condition of possibility for our comprehension of autopoietic selfhood. (Thompson, 2007: 164).

Reapplied to Jonas, this passage captures his transcendental position explained above. Following Thompson, we can say that Jonas’ analysis of metabolism provides a necessary interpretation of the teleological, subjective conception of life originating in experience, but our experience of organic existence is a condition of possibility for our understanding of metabolism. However, in relation to claims (A), (B) and (C), this claim should be understood clearly to avoid misconceived criticisms of Jonas.

First, the claim that the teleological, subjective conception of life originates in experience should be understood as saying that the concepts of teleology and inwardness, which are, according to Jonas, necessary features of any metabolizing system, originate in our experience. As Thompson says, these concepts wouldn’t mean anything unless we experienced teleology and inwardness. This is how we can understand (C).

However, we shouldn’t think that, therefore, Jonas’ justification for attributing intrinsic teleology and inwardness is exclusively based on human experience. Jonas does not justify his claim that teleology (cf. (A)) and inwardness (cf. (B)) are necessary features of life on the basis of (C). Rather, Jonas’ justification for these claims is to be found in his analysis of metabolism, establishing the properties of teleology and inwardness as necessary features of any metabolizing system (Sect. 5.1–5.3). Thus, Jonas’ phenomenological conception of metabolism does not originate in experience, if ‘originate in’ is understood as ‘justified on the basis of’.

Secondly, it should be stressed that, for Jonas, the ultimate condition of possibility for our understanding of metabolism is the experience of internal identity (selfhood). For it is only through our experience that we know the idea of internal identity as a reality, and hence it’s only through our experience that the teleological, subjective conception of metabolism gains ontological plausibility (Weber & Varela, 2002: 110). Our experience of internal identity allows us to say ‘what no disembodied onlooker would have cause for saying’ (Jonas, 2001: 79): that there exists a kind of identity which accounts for the possibility of spontaneous, future-directed action, and whose fundamental telos is the preservation of its own integrity.

Finally, we should reemphasize that, for Jonas, the ‘interpolation’ of this internal identity onto metabolic networks is not a projection, but a necessary precondition for our understanding of metabolism. In connection with the previous point, we might

15 Following Jonas (2001: 79–83; 2016: 59 ff.; 1968), by the experience of internal identity I mean the intuitive experience of active selfhood, of ‘a wholeness [which] is self-integrating in active performance’ (2001: 79), underlying Jonas’ idea of internal identity introduced earlier. This understanding is compatible with Jonas’ (1971) idea, emphasised by Hverven & Netland (2021) – see Sect. 4 above – that our experience of selfhood is preconditioned and shaped by the experience of otherness in encounters (cf. Thompson, 2007: Ch. 13).
summarize Jonas’ position as follows: it’s through the attribution of internal identity alone that metabolism is conceivable as a possible mode of being. It’s through our lived experience of internal identity alone that the metabolic mode of being is ontologically plausible as a real mode of being characteristic of living organisms.

6 Discussion

My reading highlights the systematicity and transcendental flavour of Jonas’ approach. Jonas develops a detailed analysis of metabolism, considered as life’s defining mode of being, and the necessary properties of organisms that derive from it. Furthermore, regarding the fundamental question of organic identity, Jonas arrives at a transcendental claim: the attribution of internal identity to metabolic systems is not straightforwardly derivable from metabolism itself. Rather, it is itself a necessary precondition for our understanding of how the metabolic mode of being is possible.

Based on this claim, we might formulate a ‘transcendental’ argument in favour of phenomenological continuity.

(P1) The mode of existence common to all organisms is the metabolic mode of existence, i.e. all organisms are metabolizing systems.

(P2) We can grasp the possibility and hence the existence of the metabolic mode of existence only through attributing an active, internal identity onto a metabolizing system.

(C) Therefore, we can grasp the existence of organisms only through attributing to them an active, internal identity.

How does this argument fare in relation to questions (i) and (ii)?

6.1 Still only a projection?

Let’s start by considering the following objection.

Even if (C) is true, the attribution of purposive, internal identity invoked in (P2) is only a heuristic for us to grasp the metabolic mode of existence of organisms. It is an epistemological principle, not an ontological one, i.e. purposive, internal identity is a feature of our understanding of organisms, not of organisms themselves. Hence, it is still only a projection.

This objection, found in similar form in De Jesus (2016: 277 f.), invokes a distinction between epistemological and ontological principles (which De Jesus (2016: 274; 277 f.) relates to Kant’s distinction between regulative and constitutive principles). In response, as Kee (2021: 2330 f.) suggests, one might reject the Kantian dichotomy between the ‘epistemological value’ and ‘ontological validity’ (De Jesus, 2016: 278) of explanatory principles – both given Kant’s superseded understanding of human cognition and post-Newtonian theories for understanding the dynamics and emergent properties of living systems (cf. Thompson, 2007: 138 ff.).
However, Kant aside, let’s suppose there is an important distinction between epistemological and ontological principles; and further, that Jonas’ attribution of internal identity, as employed in (P2), is an epistemological principle. It still doesn’t follow that the attribution is a heuristic, provided ‘heuristic’ is understood in the usual sense of a ‘contingent explanatory aid’. For Jonas’ point is that the attribution is necessary, in the transcendental sense explained above. If Jonas is right, it’s not as if we could have an intelligible understanding of organisms without it. The attribution is not useful. Rather, it is the very condition for our understanding of metabolism.

If that’s correct, the transcendental argument seems to answer question (i). As mentioned earlier, given the reasonable denial of the perception of an active, internal identity in (simple) organisms as non-veridical, to insist, based on our experience of living otherness in encounters, that there exists such an internal identity is not a satisfactory reply. In contrast, the argument provides independent grounds against denying the perception of an active, internal identity in organisms. For, if (C) is true, such a denial is incoherent, i.e. it undercuts our de facto understanding of organisms as metabolizing systems. It tries to pull away the conceptual rug on which the intelligibility of the denial of the ascription of internal identity rests in the first place.

One might insist that, since the meaning of the concept of internal identity originates in our experience, the transcendental sense of necessity involved in the argument above is observer-relative, and hence not ‘objective’ or ‘ontologically valid’. Indeed, doesn’t the ‘we’ in (P2) and (C) unmask Jonas’ claim as epistemologically contingent after all? A proper answer to this question, I think, requires a fuller discussion of the ontological commitment of transcendental arguments generally, which I cannot engage in here. Nevertheless, we can already say that, pace De Jesus (2016: 274–277), it is not lived experience which justifies Jonas’ attribution of internal identity. What establishes the necessity of the attribution, and in this sense justifies it, is Jonas’ systematic analysis of metabolism. It is only because organisms (qua metabolizing systems) must be granted intrinsic teleology and inwardness that the attribution of internal identity is necessary. Put differently, the attribution is necessary given the necessary properties of organisms which Jonas’ derives from the concept of metabolism. Since this derivation makes no explicit appeal to our experience of internal identity (Sect. 5.3) – this comes later in Jonas’ analysis (Sect. 5.4) – it seems unfair to dismiss it as epistemologically contingent or anthropomorphic.

6.2 The missing account of identity

Does the transcendental argument answer (ii)? Since the attribution of internal identity pertains to metabolism, a characteristic of all organisms, (C) seems to establish that the attribution is justified across the phylogenetic scale. However, even if we grant this point, it leaves the second aspect of (ii) unanswered: why must the perceived identity be of a kind which requires a phenomenological level of description?

This question, adopted from Kee (2021: 2336–2338), demands a closer look at Jonas’ understanding of inwardness. As mentioned earlier, on the one hand, Jonas describes inwardness as affectivity, understood as an organism’s sensitivity and receptivity to environmental events, e.g. to explain a Lizard’s purposive movement, e.g. escape, in response to poking it, Jonas thinks we necessarily assume that the
Lizard moves because it’s sensitive to the poking (2016: 2 f.; cf. Hverven & Netland, 2021). On the other hand, Jonas characterizes inwardness in terms of selfhood and self-centred concern. Thus, Jonas’ understanding of inwardness seems to involve two aspects, which we might call (a) the ‘affective’ and (b) the ‘self’ aspect.

These aspects match the intuitive ‘phenomenological demands’ introduced earlier when discussing the enactive, self-concern based conception of subjectivity: (a) registers the affective aspect, i.e. the presence of sensitivity or affectivity, whereas (b) registers the reflexive aspect, i.e. the fact that affectivity belongs to an individual (it is self-referential). How are these aspects related?16

As far as Jonas is concerned, he sees an intimate relation between (a) and (b). In Organism and Freedom, after having established sensitivity as a necessary condition for dynamic, purposive activity (cf. Sect. 5.2), Jonas asks: why does the lizard move in the first place? He replies:

[…] some elemental urge or drive or tendency we necessarily assume, from the deepest familiarity with our own acting, to be interposed between the mere and in itself ineffectual receptivity of sense and the activity of movement consequent upon it. (2016: 4).

Without presupposing some drive in an organism we cannot, Jonas thinks, understand its teleological activity. To inform a purposive movement, an organism’s sensations, e.g. of being poked, must not only reveal the structure of its environment. They must also be existentially relevant, i.e. bear on the organism’s inner tendency to persist. In Jonas’ words, they must be ‘met at the receiving end by a self-concern’ (2016: 4). Organic affectivity must be, so to speak, the affectivity of ‘somebody’ – an identity or self – in order to explain its relation to purposive activity (cf. Morris, 2013: 62). This resonates with a passage quoted earlier where Jonas says that the affective aspect of inwardness ‘harbours the supreme concernedness of organism with its own being and continuation of being (that is, it is self-centred)’ (2016: 59. My emphasis). It is no accident that the notion of self – ‘unavoidable in any description of the most elementary instance of life’ (ibid.: 55) – naturally complements Jonas’ understanding of concern. For it registers a reflexivity or self-centredness implied by the affective aspect of inwardness, which, in Jonas’ view, is necessary to explain the purposive activity of organisms. Thus, for Jonas, (a) and (b) seem to be internally related in that the former implies the latter.17

If that’s correct, a Jonasian answer to the second aspect of question (ii) might run as follows: the attributed internal identity of organisms demands a phenomenological level of description because the inwardness required to explain their purposive activity must be of a kind which satisfies the phenomenological demands of such a

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16 It might seem like (a) and (b) cannot be grasped separately and hence this question is confused. This is not obvious to me, e.g. Colombetti (2014: Ch. 1), whose notion of ‘primordial affectivity’ combines (a) and (b), seems to presuppose a similar conceptual distinction between an organism’s identity and its affectivity. See also Fn. 17. Thanks to two reviewers for pressing this point.

17 Jonas seems to think that the implication also holds the other way (2016: 2 f.). Nevertheless, he treats (a) and (b) as conceptually distinct (although interdependent) aspects of inwardness, corresponding roughly to what he calls the ‘passive’ and ‘active’ side of life (2016: 3 f.; 58 f.).
description, i.e. it has an affective and reflexive element. Would this reply satisfy the critics?

Insofar as Jonas’ transcendental attribution of internal identity is systematically motivated by his analysis of metabolism, it seems that this attribution, and the phenomenological level of description it demands, cannot simply be denied as a projection or heuristic (for the reasons explained in Sect. 6.1). Nevertheless, in view of justifying an ontological conception of PLMCT, the critics might remain sceptical for the following reason: Jonas lacks an explanatory account of the organic identity of organisms.

Jonas carefully distinguishes the idea of organic, internal identity – of an ‘integrative principle’ (2016: 61) – from that of inwardness, but he sees an intimate relation between the two. In my view, his transcendental attribution of internal identity is tied up with his contention that organic inwardness (as implied by metabolism, Sect. 5.2) is inherently reflexive, i.e. self-centred, and that, consequently, we must assume that there exists an internal identity in order to understand how metabolism is possible. However, although this attribution is systematically motivated, it does not explain how this identity is constituted. Jonas’ analysis justifies the assumption that there must be one and explains which properties it instantiates, but it does not provide an explanatory account or scientific theory of its natural emergence.18 Thus it seems that, as explained earlier, for Jonas the ontological plausibility of the idea of internal, purposive identity derives ultimately from our experience. To this extent, the critics are right to stress that Jonas does not provide an independent explanatory account of the purposive identity of non-human organisms (Ward & Villalobos, 2016a: 207; cf. De Jesus, 2016: 278 ff.)

7 Conclusion

The lack of an explanatory account of internal identity does not imply that Jonas’ phenomenological descriptions of organisms are philosophically unmotivated or based solely on human experience. But it suggests that AE’s main inspiration for applying its phenomenological notion of sense-making to all organisms, namely Jonas’ analysis of metabolism, should be complemented by an explanatory account of internal, organic identity in order to be scientifically acceptable. For as long as the ontological plausibility of the identity of organisms derives primarily from our experience, the lack of such an account justifies the critics’ scepticism towards Jonas’ attribution of phenomenological features to all organisms, at least in a scientific context (Ward & Villalobos, 2016a: 207; cf. De Jesus, 2016: 278 ff.)

Nevertheless, insofar as Jonas’ phenomenological view of organisms is based on a systematic analysis of metabolism, it deserves to be taken seriously, and cannot simply be dismissed as an anthropomorphic projection. On the developed interpretation, the justificatory force of Jonas’ analysis lies precisely in revealing the conceptual presuppositions, involving phenomenological concepts of intrinsic teleology,

18 As Di Paolo says, Jonas insights are ‘valuable signposts but they do not yet constitute explanations, least of all scientific ones’ (2005: 432).
inwardness and internal identity, which underwrite our understanding of metabolism, considered as life’s defining mode of being. For Jonas, these presuppositions are such that anyone who really examines this ‘remarkable mode of being’ will, on pain of incoherence, have to acknowledge them as implicit, necessary assumptions pervading our understanding of living things.

I do not claim to have shown that Jonas’ arguments establish the ontological character of organic inwardness and intrinsic teleology. Depending on one’s understanding of transcendental arguments, ontology and what is acceptable in a scientific context, one may find reasons to deny Jonas’ phenomenological attributions. Nevertheless, in view of AE’s motivation of PLMCT, I hope to have reinstated the justificatory strength of Jonas’ analysis of metabolism, showing why such a denial may not be as coherent as it seems.

If we take Jonas’ arguments for the purposiveness and self-concern of all organisms seriously, we need an account of organic identity which explains these aspects of life, even at the lowest level. The enactive conception of organic identity, as explained in Sect. 3, may be able to fill this explanatory gap. However, this seems to be still a matter of debate (Ward & Villalobos 2015, 2016b; Barrett, 2017; Barandiaran, 2017; Di Paolo, 2018; Di Paolo et al., 2018: 33–36). The contribution of the present paper, I hope, is not to suggest that AE cannot address the question of organic identity, but to bring out its significance for understanding (P)LMCT and the insights which Jonas continues to offer for an enactive approach towards answering it.

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