



# Creativity and *Yóu*: the *Zhuāngzǐ* and scientific inquiry

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## Abstract

Might traditional Chinese thought regarding creativity not just influence, but also enrich, contemporary European thought about the same? Moreover, is it possible that traditional Chinese thought regarding creativity might enrich contemporary thought both in a more broad, holistic sense, and more specifically regarding the nature and role of creativity as it pertains to scientific inquiry? In this paper, I elucidate why the answer to these questions is: *yes*. I explain in detail a classical Chinese conception of creativity rooted in Zhuangist philosophy and which centrally involves spontaneity engendered by embracing *yóu*遊, or “wandering”, rather than novelty or originality (even if processes or products that issue from such spontaneity very often are, or strike us as, novel or original). I then illustrate how this conception of creativity can be used to enrich contemporary thought regarding the nature and role of creativity both in general and as it pertains to scientific inquiry in particular, as well as how to engender creativity, by arguing that it might allow us to: i) more easily remove what is frequently an obstacle to creativity (*viz.*, that of striving for novelty or originality, or even creativity itself, whatever it is taken to involve), and; ii) better understand creative agents as being more intimately connected with, and as processes within and products of, their environments (and thus better promote both extraordinary and ordinary creativity). Finally, I conclude by briefly remarking on how exploring various cultural perspectives on creativity promises to help us to better comprehend and promote creativity, by encouraging us to become more creative about creativity itself.

**Keywords** Zhuangzi · Creativity · Spontaneity · Play · Extended cognition

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## 1 Introduction

Across a number of cultures, it is common to think that creativity centrally involves novelty or originality.<sup>1</sup> For example, this way of thinking about creativity is common in ancient to current European<sup>2</sup> thought, regardless of whether creativity is, say, taken to be of *divine* origin (emanating from one God or sets of gods) or *worldly* origin (emanating from single worldly entities or sets of single worldly entities, human or otherwise).<sup>3</sup> (Cf. Niu & Sternberg, 2006) In other words, regardless of whether it is held that the origins of creativity are divine or worldly, it is common to think that creativity centrally involves the generation of something substantively new or original. Indeed, this is so common that this view is considered by some to be a truism, or at least the product of an emerging consensus.<sup>4</sup> (Cf. Gaut, 2010, 1039).

This way of thinking about creativity, however, is not universal. Elsewhere, creativity has been understood as centrally involving spontaneity rather than novelty or originality: that is, as centrally involving contextually unanticipated developments, whether new or original, or not.<sup>5</sup> On this alternative way of thinking about creativity, a creative entity is conceived more along the lines of a *facilitator* than an *innovator*, participating in a creative process that has been unfolding and that could yield all manner of results, rather than invariably generating anything substantively different.

In particular, this alternative way of thinking about creativity is common in classical Chinese thought, regardless of whether creativity is taken to be of *cosmic* origin

<sup>1</sup> The term “centrally involves” is used to leave it open as to whether the concept of creativity is a *definitional concept* that includes, as a necessary condition, novelty or originality; or, whether the concept of creativity is a *non-definitional* concept that lacks necessary and sufficient conditions but that includes novelty or originality in some other way. (Cf. Margolis & Laurence, 2019)

<sup>2</sup> The term “European” is used to replace what other commentators have discussed using the term “Western”, as the supposed distinction between “Western” and “non-Western” or “Eastern” is fraught—although, the supposed distinction between “European” and “non-European” may turn out to be in some ways problematic as well. Further, “European” should be taken to refer to the cultures and traditions of Europe and to those whose cultural origins are most heavily influenced by European cultures or traditions. (Cf. Niu & Sternberg, 2006)

<sup>3</sup> Note that some instances of “divine” creativity may also have “worldly” origins and vice versa, as these two ways of thinking about sources of creativity are not mutually exclusive. Also, while divine creativity is the focus of much historical European scholarship, contemporary scholars tend to focus on worldly creativity, especially in the social sciences and sciences. (Cf. Fara, 2002; Niu & Sternberg, 2006)

<sup>4</sup> As Adrian Currie and Marta Halina argue, the developing consensus in analytic philosophy of creativity—based largely on so-called “conceptual analysis”, and relying on philosophical “intuitions” or “judgments”—is that a product is creative only if it is original, valuable, and due to the right kind of agency being exercised. (Currie & Halina, 2019, 8) I return to the issue of whether conceptual analysis is the best strategy for determining the nature and role of creativity in the conclusion of this paper.

<sup>5</sup> What spontaneity consists in is discussed further in section 2.2; for more on this conception of spontaneity, see, e.g., Bruya (2010). For more on how spontaneity can come apart from novelty or originality, see en. 17. Also, this of course is not to deny that spontaneity is sometimes taken to play a role in European accounts of creativity. (For a recent account see, e.g., Kronfeldner, 2018, which includes originality and spontaneity as core aspects of creativity.) Rather, the crucial point is not that spontaneity does not play an important role in some European accounts of creativity; rather it is that they tend to nonetheless include originality as a necessary condition for creativity. (In this connection see, e.g., Currie, 2019.) The view explored here denies that necessity.

(emanating from *Tiān*天 (“Heaven”)<sup>6</sup> or *Dào*道 (“[the] Way”)<sup>7</sup> as a whole) or *worldly* (or *sub-cosmic*) origin (emanating from single worldly entities or sets of single worldly entities, human or otherwise). The degree to which *Tiān* or *Dào* are considered to be natural phenomena can be helpfully considered when deliberating about how best to characterize the former view regarding the origins of creativity. For, to the extent that *Tiān* or *Dào* are considered to be largely if not wholly natural phenomena, one might appropriately consider the origins of creativity to be natural, rather than supernatural. Moreover, whatever the way in which one chooses to characterize the former, cosmic view regarding the origins of creativity, it can nonetheless be contrasted with the latter, worldly (or sub-cosmic) view, according to which the origins of creativity are worldly in that creativity resides in single worldly entities or sets of single worldly entities (falling short of the whole of *Tiān* or *Dào*). (Cf. Niu & Sternberg, 2006).

It is interesting to note, however, that in contemporary Chinese thought creativity is frequently conceived—just as it is in ancient to current European thought, though not necessarily classical Chinese thought—as centrally involving novelty or originality. Concerning this shift, traditional European thought regarding creativity has possibly played some role.<sup>8</sup> Regardless of whether this is so, the following questions can nonetheless be posed: Might traditional Chinese thought regarding creativity not just influence, but also enrich, contemporary European thought about the same? Moreover, is it possible that traditional Chinese thought regarding creativity might enrich contemporary thought both in a more broad, holistic sense, and more specifically regarding the nature and role of creativity as it pertains to scientific inquiry? In this paper, I elucidate why the answer to these questions is: *yes*. In section two, I explain in greater detail a classical Chinese conception of creativity rooted in Zhuangist philosophy and which centrally involves spontaneity engendered by embracing *yóu*遊 (or, 游), or “wandering”, rather than novelty or originality (even if processes or products that issue from such spontaneity very often are, or strike us as, novel or original). In section three, I then illustrate how this conception of creativity can be used to enrich contemporary thought regarding the nature and role of creativity both in general and as it pertains to scientific inquiry in particular, as well as how to engender creativity, by arguing that it

<sup>6</sup> A note on translating “天” or “*Tiān*” as “Heaven”: according to Stephen Angle, “[a] quick summary of the career of *tian* runs something like the following. Early meanings include ‘the sky’ and the name of the Zhou people’s sky deity. During the classical era, many texts continue to imbue *tian* with what we can loosely call normative and religious significances, though compared to the early Zhou, *tian* in the classical period is often considerably abstracted or naturalized.” (Angle, 2018, 169) For more on translating “天” or “*Tiān*”, see, e.g., Yang (2008), Huff (2017), and Angle (2018).

<sup>7</sup> As Bryan Van Norden explains, “This crucial philosophical term has five related senses. ‘*Dao*’ can mean a path or road (as in the modern Chinese compound “*dàolù* 道路,” roadway). In both Chinese and English, there is a natural metaphorical extension from ‘way’ in the sense of a literal *path* to ‘way’ in the sense of a *way to do something*. Closely related to this is ‘Way’ as the *linguistic account of a way of doing something*. From these senses, ‘Way’ came to refer to the *right way to live one’s life and organize society*. Eventually the term also came to mean the *ultimate metaphysical entity* that was responsible for the way the world is and the way that it ought to be... [However,] [a]lthough it can have any of these five senses, the primary meaning of *dao* (for most Eastern Zhou [i.e., pre-Qin] thinkers) is the right way to live and organize society.” (Van Norden, 2011, 11) The fifth sense of the term, however, is often considered to be in play in so-called “Daoist” texts such as the *Zhuāngzǐ*. Like many commentators, I use the capitalized *Dào* to refer to the so-called “Great *Dào*” 大道, the totality of [e.g.] objects, events, and processes that constitute the cosmos, with the lowercase *dào* referring to one or more distinct ways or paths within *Dào*. (Cf. Fraser, 2014a 546, fn. 16)

<sup>8</sup> For more detail see, e.g., Niu & Sternberg (2006).

might allow us to: i) more easily remove what is frequently an obstacle to creativity (viz., that of striving for novelty or originality, or even creativity itself, whatever it is taken to involve), and; ii) better understand creative agents as being more intimately connected with, and as processes within and products of, their environments (and thus better promote both extraordinary and ordinary creativity).<sup>9</sup> Finally, in section four, I conclude by briefly remarking on how exploring various cultural perspectives on creativity promises to help us to better comprehend and promote creativity, by encouraging us to become more creative about creativity itself.

## 2 Creativity and spontaneity in the *Zhuāngzǐ*

### 2.1 Creativity and *Yóu*, part 1

A perspective shared by a variety of classical Chinese philosophers concerns what has been termed, “the unity of nature and human thought”; or, perhaps better, the *continuity* of nature and human thought.<sup>10</sup> On this view, humans are considered to be part of nature, rather than separate from it. Thus, worldly (or sub-cosmic) creativity (including human creativity), instead of conceived as distinct from cosmic creativity, is conceived as continuous with—or even as an aspect of—cosmic creativity. Classical Chinese philosophy hence contains a number of discussions of how human creativity can be attained or exercised through experiencing and interacting with cosmic creativity.

Daoist philosophy in particular is often claimed to have had the greatest lasting impact on Chinese conceptions of creativity, specifically as they pertain to artistic and aesthetic creativity. On one influential interpretation of Daoist classics, including foundational texts like the *Dàodéjīng* 道德經 (or, alternatively, the *Làozǐ* 子)<sup>11</sup> and the *Zhuāngzǐ* 子, creative processes are processes of inner apprehensions of *Dào*: partially explicable as, for example, “the totality... [e.g., of objects, events, and processes] that constitute [s] the cosmos” (Fraser, 2014a, 546, fn. 16) or “the ultimate metaphysical entity ... responsible for the way the world is and the way that it ought to be” (Van Norden, 2011, 11).<sup>12</sup> When these occur, distinctions between subject (i.e., self) and object (i.e., not-self) either vanish, or at least fade into the background (as they are seen

<sup>9</sup> Roughly, “extraordinary” creativity is creativity that is taken to be “rare” and “ordinary” creativity is creativity that is taken to be common or “everyday”. (Cf. Currie & Halina, 2019, 5–6)

<sup>10</sup> The former way of explicating this view is taken from Niu and Sternberg (2006, 30). However, the latter may be preferable for a number of reasons, including the following, due to an anonymous referee: “There is a sense that human beings are ‘natural’, in the sense of our being embedded agents within the world—among the ‘ten thousand things’, as the *Zhuāngzǐ* says. But talk of unity is complicated by two further emphases. First, humans have certain distinctive capacities or features, ones which serve to simultaneously distinguish us as certain special kinds of things (most notably, creatures able to apprehend the Way) while also, to a degree, setting us apart from the world—alienating us from it, such that the unity with the world enjoyed by other creatures is all too easily lost. Second, there is the lament across all the Schools that human existence, as it has come to be, encourages alienation from the world—upsetting the more innocent, natural sense of integration with the world enjoyed by other creatures (the Daoists, Zhuangzi and Liezi, are especially good on this). It is unclear, for the Daoists, whether human beings, as they have come to be, could actually attain the desired sort of unity: too much has gone wrong, for too long for that to be an attainable existential possibility.”

<sup>11</sup> For the uninitiated, the *Dàodéjīng* and the *Làozǐ* are two different names for one and the same text.

<sup>12</sup> For more on *Dào* and its relationship to *dào*, see en. 7.

to be, e.g., perspective-dependent). (Cf. Niu & Sternberg, 2006, 30–31; Fraser, 2014a, 546–547 and 2014b, 17; Mattice, 2017, 264).

All this is suggested, for example, at the outset of the second chapter of the *Zhuāngzǐ*, the *Qiwùlùn* 齊物論, translatable as, “Equalizing Assessments of Things”<sup>13</sup>:

Sir Shoestrap of Southwall was leaning against his armrest on the ground, gazing upward and releasing his breath into the heavens above—all in a scatter there, as if loosed from a partner.

Sir Swimmy Faceformed stood in attendance before him. “Who or what is this here?” he asked. “Can the body really be made like a withered tree, the mind like dead ashes? What leans against this armrest now is not what leaned against it before.”

Sir Shoestrap of Southwall said, “How good it is that you question this, Yan! What’s here now is this: I have lost me. But could you know who or what that is? You hear the piping of man without yet hearing the piping of earth; you hear the piping of earth without yet hearing the piping of Heaven.”

Sir Swimmy Faceformed said, “Please tell me more.”

Sir Shoestrap of Southwall replied, “When the Great Clump belches forth its vital breath, we call it the wind. As soon as it begins, raging cries emerge from all the ten thousand hollows, and surely you cannot have missed the rustle and bustle that then goes on. The bulges and drops of the mountain forest, the indentations and holes riddling its massive towering trees, are like noses, mouths, ears; like sockets, enclosures, mortars; like ponds, like puddles! Roarers and whizzers, scolders and sighers, shouters, wailers, boomers, growlers! One leads with a “yeee!,” another answers with a “yuuu!” A light breeze brings a small harmony, while a powerful gale makes for a harmony vast and grand. And once the sharp wind has passed, all these holes return to their silent vacuity. Have you never seen all their tempered attunements, all their cunning contentions?

Sir Swimmy Faceformed said, “So, the piping of the earth means just the sound of these hollows. And the piping of man would be the sound of bamboo panpipes. What then is the piping of Heaven?”

Sir Shoestrap said, “It is the gusting through all the ten thousand differences that yet causes all of them to come only from themselves. For since every last identity is only what some one of them picks out from it, what identity can there be for their rouser? (Ziporyn, 2020, 11–12)

<sup>13</sup> Ziporyn (2020, 11). Ziporyn notes in his 2009 translation that in translating the title of this chapter this way, an attempt is made to preserve its ambiguity, as it can be parsed either as 2–1 or as 1–2, thus meaning either “Assessments that Equalize Things” or “Equalizing the Assessments Made by All Things and, by Extension, All Things So Assessed.” (Ziporyn, 2009, 9, fn. 1)

One idea imparted by this passage is that “the piping of Heaven” somehow pervades or courses through all the myriad things while at the same time causing “all of them to come only from themselves.” The identity of the “rouser” of “the piping of Heaven” is left unspecified; however, it is implied to be that which ultimately enables the world’s creative processes. In other words—although it is not explicitly referred to in this passage—*Dào*, perhaps. This is something that Sir Shoestrup of Southwall is able to realize, having “lost” himself, and appears to be attempting to encourage Sir Swimmy Faceformed to realize, too, so that he can more fully experience and interact with creative processes of the cosmos.

Another aspect of the *Zhuāngzǐ* that is both widely discussed and relevant for explicating the conception of creativity under discussion concerns its use of skeptical arguments and paradoxical statements to call into question conventional ways of thinking and acting, with the apparent aim of encouraging readers to consider alternative approaches to thought and action. These alternative approaches are generally considered by interpreters to be characterized by features such as spontaneity, flexibility, creativity, and playfulness; rather than excessively rigid reliance on self-serving plans, characterizations of prior experiences, and fixed preconceptions. Further, these alternative approaches can in turn be interpreted as engendered by a specific response to Zhuangist skeptical critiques: the embracing of *yóu*遊 (or, 游), translatable as “wandering”, “roaming” or “rambling”. Additionally, as will be discussed in section 3.2, *yóu* is also frequently associated with play.

To explain what embracing *yóu* involves, what it is like, and how it relates to other relevant terms and concepts in the *Zhuāngzǐ*, I will draw on the work of Chris Fraser, who over several papers provides a particularly detailed and insightful account. Various passages in the text, Fraser explains, suggest that human beings have a distinctive capacity to experience and interact with a plurality of distinct *dào*道 (“ways” or “paths”) within the totality that constitutes the aforementioned holistic *Dào* of the cosmos. Embracing *yóu* is a mode of activity in which we employ this capacity. Unlike the pursuit of a single, fixed *dào*, embracing *yóu* involves meandering through life without a fixed destination, flexibly adapting to circumstances and “riding along with things” in general without depending on any one thing in particular.<sup>14</sup> (Fraser, 2014a, 555).

As Fraser discusses, the notion of *yóu* is introduced in the first major section of the first chapter of the *Zhuāngzǐ*, the *Xiāoyáo yóu* 逍遙遊, whose title he translates as “Meanderingly Wandering”.<sup>15</sup> On his reading, this section represents embracing *yóu*

<sup>14</sup> *Yóu* can, in Fraser’s terms, therefore be interpreted as a “second-order” *dào* by which we explore the various “first-order” *dào* open to us—a meta-*dào* of recognizing and taking up potential paths presented by interactions between agents’ personal capacities and motivations and the circumstances in which they find themselves. Individual instances of *dé* 德, translatable as, e.g., “virtuosity” or “potency”, can hence be understood as, in effect, agents’ proficiency by which they *yóu* through [the] *Dào*. (Fraser, 2014a, 555) While Fraser himself discusses *yóu simpliciter*, in an attempt to remain neutral between his interpretation and that of commentators like Michael Nylan (according to which *yóu* is less an ideal than it is an inescapable feature of life), I’ve elected to use the expression “embracing *yóu*” instead, as in Fraser’s terms, *yóu*-ing appears to entail embracing *yóu*. (Cf. Nylan, 2017, 416)

<sup>15</sup> Regarding the matter of translating the title of the first chapter of the *Zhuāngzǐ*, Michael Nylan writes: “I would not deny that the famous binomial term *xiaoyao* gains the delicious meaning of ‘free and easy wandering’ during the Six Dynasties period (third–sixth centuries), only that in the sole Han-era reading, *xiaoyao* indisputably means ‘befuddled’.” (Nylan, 2017, 416)

as being at the top of a hierarchy of four types of activities and corresponding attitudes or perspectives. The first level is occupied by human counterparts to the dove and quail appearing earlier in the text: people with just enough competence to fill one office, impress one community, or convince one ruler to employ them. The second is occupied by those who are “larger”, such as Sòngzǐ, who distinguishes between the quality of his own conduct and society’s opinion of him, and who is concerned with neither praise nor blame. The third is occupied by those who are still “larger”, such as Lièzǐ, who is unconcerned with fortune and who can ride breezily on the wind for a fortnight at a time—the human analogue of the Péng bird discussed at the outset of the chapter (and indeed, the *Zhuāngzǐ* anthology as a whole). Yet, as Fraser indicates, even Lièzǐ and the Péng bird have something on which their form of life depends or is contingent: namely, the wind. However, the text proposes that one could surpass them both by occupying the fourth level, “mounting the norms of heaven and earth,” “riding the fluctuations of the six *qì*,” and thus “wandering in the limitless,” for “then how would one be dependent on anything?” (Fraser, 2014a, 551).

On Fraser’s account, a plausible interpretation of these remarks is that: if we follow the cosmos as our guide and ride along with natural processes of change, wandering through life without any fixed limits or boundaries, we cease to depend on anything in particular as a precondition for our activity. Instead, our orientation is such that we can constantly adapt to new circumstances as we encounter them, utilizing, provisionally, whatever resources happen to be available, flexibly. Moreover, he points out that—at least as it is depicted in the passage discussed above—embracing *yóu* can be understood as involving at least five notable features. First, it transcends “contingency” (*dài* 待), or reliance on conditions external to the agent, in two senses: it neither depends on specific conditions nor is it subject to the effects of chance. Agents can embrace *yóu* no matter what particular circumstances they are presented with, and should chance occurrences radically change their circumstances, they can continue to embrace *yóu*. Second, it has no set, predetermined direction or norm. Rather, it consists in continual adaptation to change: riding along with fluctuations of various natural forces and roaming in what has no fixed limits or boundaries. Third, it is grounded partly in an understanding of the potential range of alternative forms of life, as illustrated by Sòngzǐ’s and Lièzǐ’s grasp of differences between mainstream, prevailing values or mores and their own. Fourth, it involves a readiness to transcend the limits or boundaries associated with any such values and mores. Fifth, and finally, it is associated with a pleasant, easygoing attitude, similar to those of Sòngzǐ and Lièzǐ, but—as the text implies—even more open to and accepting of change. (Fraser, 2014a, 551–552).

Fraser proposes in addition that his account represents a distinctive, Zhuangist conception of human agency, in general. (Fraser, 2014a, 552) If this is so, we should note that it therefore also at least partially represents a distinctive, Zhuangist conception of *creative* human agency in particular—and perhaps, of creative agency more broadly construed, as will be discussed in section 3.2. Moreover, Fraser connects his explorations regarding *yóu* with a Zhuangist conception of freedom that centrally involves freedom from the bonds of intense, disruptive emotions, which tend to interfere with agents’ fully exercising their agency in the way under discussion. It is important to note that Fraser is careful to target “intense, disruptive” emotions here because, as he notes, various sections of the text seem to endorse mild, helpful emotions, such as being “at

peace with the moment”. Further, these mild, helpful emotions are claimed to be typical signs of the sense of ease, security, confidence, and equanimity that Philip J. Ivanhoe characterizes as aspects of “metaphysical comfort”, and suggests to be constituents of the untutored spontaneity valorized in early Daoist texts such as the *Zhuāngzǐ*. (Ivanhoe, 2010; in Fraser, 2014a) According to Fraser, such spontaneity seems to be identical to the adaptive, creative responses that he associates with embracing *yóu*—and hence, I will add, to understanding the Zhuangist conception of creativity explored here. (Fraser, 2014a, 2014b, 552, fn. 25) I will add also that since embracing *yóu* is associated with things like freedom, spontaneity, and ease, there may be connections between embracing *yóu* and other notions that figure prominently in many discussions of Zhuangist creativity worth exploring in detail, including *zìrán* 自然 (translatable as, e.g., “self-so”, “spontaneous”, and “natural”) and *wúwéi* 無為 (translatable as, e.g., “no-trying”, “no-doing”, and “non-action”). Although I will not endeavor to explore such potential connections in detail here, principally due to space constraints, I will also briefly return to the notion of *wúwéi* when discussing obstacles to creativity in section 3.2.

It is important to emphasize at this juncture that although spontaneity in European-influenced traditions is commonly understood as being associated with things like *subjectivity*, *willfulness*, *caprice*, and *emotional excess*, as a variety of commentators have explained, the opposite can be said of the sort of spontaneity engendered by embracing *yóu*. Indeed, there is a sense in which this sort of spontaneity can be thought of as representing the highest degree of things like *objectivity*, *sensitivity*, *stability*, and *equanimity*. For, while exemplifying it, one is thought to act in accordance with something larger than oneself (e.g., the will of Heaven or the order represented by [the] Way). (Cf. Bruya, 2010; Slingerland, 2003) Spontaneity in this sense, then, involves more open receptivity and supple responsiveness than self-expression that attempts to project aspects of oneself onto the world.<sup>16</sup>

## 2.2 Creativity and *Yóu*, part 2

We can now pose the question: how precisely might creativity in general centrally involve spontaneity engendered by embracing *yóu*, on this construal of what embracing *yóu* involves? We can begin to answer this question by first considering how aesthetic creativity in particular might centrally involve spontaneity engendered by embracing *yóu*. As several commentators have argued—and as the above discussion suggests—in the case of the *Zhuāngzǐ* the ideal of aesthetic experience is depicted as a creative activity of spontaneous integrating—or, perhaps better, combining or balancing—that goes beyond the ordinary so as to integrate the agent with the extraordinary, thereby resulting in a certain kind of transformation that includes self-transformation. As Sarah Mattice puts the point, transformation and self-transformation, as the text tends to portray them, are not matters of simple passivity. *Dào* and processes of transformation are not just manifested in us. Rather, we as human beings are in a special position of not only having freedom to engage in riding, flowing, or going along with processes of transformation in a non-impositional manner, but embracing them in addition, and in so doing finding ourselves to be active, creative agents of transformation. (Cf. Mattice, 2017, 259; Niu & Sternberg, 2006, 31–32) This freedom, to use a way of putting a

<sup>16</sup> Thank you to Ian James Kidd for suggesting this way of putting the point.



similar point from Fraser, is again non-contingent, “in that even in the limiting case, when the constraints on us are nearly total—while being tortured on the rack, say—we can still be engaged in intelligent navigation, alert to alternative possibilities, though the only course actually open to us may be to identify with the inevitable and [thereby] ‘ride along’ with it.” (Fraser, 2014a, 2014b, 553).

Crucially, creativity here is not conceived as centrally involving novelty or originality, but rather spontaneity (in the sense discussed in section 2.1). It is active not in that it involves agents in exerting or imposing their will upon the world but rather in working or cooperating with what we might call “the will of the world”, of which they are a part. It is hence conceived as involving recognition of the interdependence and impermanence of all the myriad things, and willingness to be sensitive, receptive, and responsive to that interdependence and impermanence. (Cf. Mattice, 2017; Niu & Sternberg, 2006).

The story of “Wheelwright Flatty” 輪扁 (Ziporyn, 2020) well-exemplifies this overall perspective on creativity, and can be found in the thirteenth chapter of the *Zhuāngzǐ*, the *Tiāndào* 天道, translatable as, “Heaven’s Way” or “The Way of Heaven”:

Duke Huan was reading up in his pavilion, while Wheelwright Flatty was hewing a wheel below. Putting down his hammer and chisel, he ascended and asked Duke Huan, “Sir, may I ask what sort of words you are perusing?”

The duke said, “The words of the sages.”

“Are those sages still alive?”

“They are dead,” said the duke.

“Then what you are perusing is no more than the dregs and dust of the ancients.”

Duke Huan said, “Does a wheelwright dare pass judgment on what his ruler reads? If you can explain yourself, well and good. If not, you shall die.”

Wheelwright Flatty said, “I am looking at it from the point of view of my own profession. In hewing a wheel, if I spin slowly and make the hub too loose, it attaches easily to the crossbar but not firmly. If I spin quickly and make it too tight, I have to struggle to attach it, and it still never really gets all the way in. I have to make it not too loose and not too tight, my hand feeling it and my mind constantly responsive to it. I cannot explain this with my mouth, and yet there is a certain knack to the procedure. I cannot even get my own son to grasp it, so even he has no way to learn it from me. Thus I am already seventy years old and still here busily hewing wheels as an old man. The ancients died, and that which they could not transmit died along with them. So I say that what you, my lord, are perusing is just the dregs and dust of the ancients, nothing more. (Ziporyn, 2020, 116)

As Mattice explains, one thought conveyed by this story is that, although he is a “lowly” artisan, the wheelwright has something important to teach the duke. He has been making wheels for many years, and he has in that time developed an ability to act in a manner that cannot be captured through an algorithmic set of instructions. He must respond to precise particularities in the wood, in his tools, and in his body to create what he wants to create, which he does not accomplish by imposing a plan. This is why he cannot teach his craft to his son, and his son cannot learn it from him. Creativity is a living vitality that one has to engage in personally. The ancients or sages’ advice for living well is just dregs if it is taken as instructions that one can simply read and then execute. Living well involves much more than this: namely, spontaneous integrating—or, combining or balancing—of contrasting aspects such as the hard and the soft, the learned and the spontaneous, and even the unproductive and the productive. (Cf. Mattice, 2017, 259–260) In other words, living well involves, in the sense under discussion, creativity: specifically, the kind of creativity engendered by embracing *yóu*. The wheelwright does not purport to be adhering to any predetermined course. Rather, he constantly attends and responds to specifics of his circumstances, “feeling things out”, we might say, as he proceeds. Further, it should once again be stressed that this kind of creativity is not taken to centrally involve novelty or originality as such. The wheelwright is presented as a creative agent not because of anything having to do with his or his projects’ novelty or originality, but because of his ability to create wheels in a sensitive, responsive and—crucially—integrated manner: one not learned or executed by rote, but rather via engaging in sustained, spontaneous activity.<sup>17</sup>

### 3 Creativity, spontaneity, and scientific inquiry

#### 3.1 Originality and spontaneity as constitutive aims of creativity

I will now illustrate how the perspective on creativity presented in sections 2.1–2.2 might apply not just to artistic, aesthetic, and even moral creativity (as living well in general is taken to involve the kind of creativity engendered by embracing *yóu*), but to scientific and epistemic creativity more broadly as well.

To do this, I will first address the question of what might be said about how agent-creativity can be assessed, given different ways of thinking about creativity.<sup>18</sup> One possibility involves approaching this task teleologically, such that whether an agent is creative depends on whether certain constitutive aims are satisfied. Two potential constitutive aims can be explicated as follows: i) as an aim to create something that is novel or original in some substantive way (an aim that is more commonly considered

<sup>17</sup> Note that the wheelwright is not doing anything novel or original (in any way) unless it is held, say, that novelty or originality can be had “on the cheap”, such that all actions are, or everything we do is, considered to be in some sense “novel” or “original” because we have not done *exactly* those things ever before—something that contemporary commentators on creativity do not typically appear to want to commit themselves to. For this reason, however, some add an additional constraint: surprise. (Cf. Gaut, 2010, 1039) Here too, however, surprise appears to be absent.

<sup>18</sup> Many commentators distinguish between creative agents, products, and processes. The focus of this paper is creative agents; however, as will be returned to in section 3.3, on a Zhuangist approach, creative agents can perhaps be better seen as aspects or products of creative processes.

in ancient to current European philosophy), and; ii) as an aim to create something in a spontaneous manner (an aim that is more commonly considered in classical Chinese philosophy). Another way of putting this point is to say that on the first approach, creativity is taken to constitutively aim at novelty or originality, while on the second approach, creativity is taken to constitutively aim at spontaneity. These two aims might be thought to be in tension with each other, to the extent that it is thought that creating something that is novel or original can often be made more difficult if one is also at the same time aiming at creating something that is spontaneously integrated with the situation at hand. However, they are not mutually exclusive in principle, nor need they conflict in practice. What is more, the first aim might even be folded into the second, to the extent that creative and novel or original creations can be seen as spontaneous integrations of otherwise disparate things.<sup>19</sup> Note that I suggest approaching this task teleologically in part because one might think that something needn't actually succeed in being, say, novel or original in order to be creative. Compare, for example: an action perhaps needn't actually yield self-understanding (cf. Velleman, 2009) or even agential activity (cf. Katsafanas, 2018) in order to be an action, even if action constitutively aims at self-understanding or agential activity. We might note that if, say, the suggestion that action constitutively aims at agential activity were specifically adopted, then *creative* action could be said to aim at: a) novel or original agential activity, or b) spontaneous agential activity. If such were not granted, however, instead of talking about constitutive aims one might instead substitute some other way of talking about constitutive features.

Broadening our perspective on creativity so as to include something along the lines of both i) and ii) above might allow us to explain why some instances of agent-creativity are exceptionally so, or extraordinary, in part because they manage to satisfy both a constitutive aim of novelty or originality as well as a constitutive aim of spontaneity. We can find such an instance presented near the end of the aforementioned first chapter of the *Zhuāngzǐ*, the *Xiāoyáoyóu*:

Huizi said to Zhuangzi, “The King of Wei gave me the seed of a great gourd. I planted it, and when it matured it weighed over a hundred pounds. I filled it with liquid, but it was not firm enough to lift. I cut it in half to make a dipper, but it was too wide to scoop into anything. It was big and all, but because it was so useless I finally just smashed it to pieces.”

Zhuangzi said, “You are certainly stupid when it comes to using big things. There was once a man of Song who was skilled at making a balm to keep his hands from chapping. For generations his family had used it to make a living washing silk through the winter. A customer heard about it and asked to buy the recipe for a hundred pieces of gold. The family got together and consulted, saying, ‘We’ve been washing silk for generations and have never earned more than a few pieces of gold; now in one morning we can sell the technique for a hundred. Let’s do it.’

<sup>19</sup> Thank you to an anonymous referee for encouraging me to emphasize this.

The customer took the balm and presented it to the king of Wu. When Yue started a war with him, the king made the man a general who led his soldiers through a winter water battle with the men of Yue, and beat them big. The man was then enfeoffed as a feudal lord. The power to keep hands from chapping was one and the same, but one man used it to get an enfeoffment and another couldn't even use it to avoid washing silk all winter. The difference is all in how the thing is used. You, on the other hand, had a gourd of over a hundred pounds. How it is that you never thought of making it into an enormous vessel for yourself and floating through the lakes and rivers in it? Instead, you worried that it was too wide to scoop into anything, which I guess means the mind of our greatly esteemed master here is still all clogged up, occupied with its bushes and branches!" (Ziporyn, 2020, 7–8)

I submit that here Zhuāngzǐ presents as extraordinarily creative not only because he could think of an original use for the gourd when Huìzǐ could not, but also because Huìzǐ is trying to impose a plan on the gourd in the situation at hand. Rather than working with the fact that the gourd is too large to use in the ways with which he is most accustomed—as a water container or as a dipper—Huìzǐ instead struggles to use it in such familiar ways, and in the process is unable to create anything whatsoever of use, original or not. Zhuāngzǐ, however, is able to see that an unusual use of the gourd would be more appropriate. Crucially, even though Zhuāngzǐ's suggestion is not conventional—and hence may present as novel or original—it is nonetheless also better spontaneously integrated with the situation, and to some extent creative in virtue of that alone. Moreover, Zhuāngzǐ's creativity is engendered by embracing *yóu*, whereas Huìzǐ's lack of creativity is due to the fact that he is not himself similarly positioned to ride along with change. Zhuāngzǐ is willing and able to work with particularities of the situation in a non-impositional, cooperative manner. Huìzǐ is not.

Two other aspects of this story are also worth mentioning. First, Huìzǐ is here used to illustrate what are all-too-human tendencies to become entrapped within what many commentators describe as “artificial” tangles of things like distinctions, plans, goals, and purposes, which in turn tend to encourage a sort of myopia: an inability to perceive or imagine alternative possibilities. Second, this story alludes to acute dangers of what are often mutually amplifying tendencies to appetitive and egoistic vices, such as desires for prosperity or, correlatively, prestige (or at least esteem) and pride. And while such tendencies may be seen as often feeding our creative dispositions if creativity is conceived as centrally involving novelty or originality, it is less easy—if it is possible at all—to see them in this light if spontaneity engendered by embracing *yóu* is conceived as central instead.<sup>20</sup>

### 3.2 No-striving: Improvisation and play

What else might happen if our set of constitutive aims regarding creativity were expanded, so as to include something along the lines of ii) in addition to i) described in 3.1, such that agents could be considered to be creative even if their actions did not exemplify or aim at novelty or originality, provided that they exemplified or aimed at

<sup>20</sup> Thank you to an anonymous referee for suggesting that these aspects of this story be discussed.

(the relevant sort of) spontaneity instead? The first very general possibility that I will discuss is that such might allow what is frequently an obstacle to creativity to be more easily removed: namely, that of striving for novelty or originality, or even creativity itself.

To see why, consider a recent proposal regarding creativity, due to Adrian Currie and Marta Halina. According to Currie and Halina, two abstract notions that they term *exploration* and *employment* may provide a common currency for understanding and comparing creativity in its many forms. Exploration, in short, concerns information-gathering, such as in a deliberate search for novelty, as human inventors do; the more abstract canvassing of a search space that artificial intelligences, or AI, are known for; or, even historical processes that explore possibility spaces such as natural selection. Employment, by contrast, concerns the application of information to creative endeavors, where this too might take many forms. The examples that Currie and Halina provide concern a crow using a piece of bent wire to access food and a jazz pianist improvising an accompaniment. (Currie & Halina, 2019, 2) We might, however, add the previously discussed examples from the *Zhuāngzǐ*: fashioning wheels from wood, or boats from gourds. Further, considering improvisation as it relates to the *Zhuāngzǐ* might allow us to understand the text as suggesting an improvisational attitude toward or perspective on life in general, as well as all of the particular possible pursuits within, including those connected with scientific inquiry. What is more, adopting such an improvisational attitude or perspective might enable agents to engage in and switch between exploration and employment more spontaneously via embracing *yóu*—or in other words, more creatively—than they might have otherwise (say, if they were instead trying to impose a plan). These possibilities will be revisited shortly.

Before they are: how can the notions of exploration and employment be used to explain why striving for novelty or originality can be an obstacle to creativity (whether it is taken to centrally involve novelty or originality or not), and how can expanding our ideas regarding the constitutive aims or features of creativity help to remove this obstacle? In summary: the more constrained one's information-gathering procedures are, the less information one is apt to gather, and striving for novelty or originality imposes a significant constraint (that is, a significant constraint regarding the type of information one is apt to gather, specifically information that is deemed sufficiently likely to yield a novel or original result). This, however, will have consequences having to do with how novel or original one can be, along with how well one can work with situations, as many possibilities will be left unexplored. Although they do not explicitly consider the possibility that striving for novelty or originality can be an obstacle to creativity, an example that Currie and Halina discuss at length can nonetheless be used to illustrate.

In a groundbreaking game against Lee Sedol (the world-leading Go player) in 2016, AlphaGo (an AI system programmed to play Go) made a move that was described as unthinkable for a human professional to play. As Currie and Halina explain, this move, “move 37”, was highly unanticipated; AlphaGo itself calculated that the probability of a human professional making it was one in 10,000. As was soon recognized, move 37 was not a mistake, as some initially had surmised that it was. Instead, it turned out to be critical to AlphaGo winning the game. As Currie and Halina put the point, hundreds of years of traditional human wisdom concerning Go was misguided, as it was stuck on *local maxima*: ways of playing that might have been the most effective ways to play

within a certain space of options, but not the most effective ways of playing overall, or *global maxima*.<sup>21</sup> (Currie & Halina, 2019, 11).

Thus, although AlphaGo was initially trained on human play, it had moved beyond it. Playing millions of games against itself, AlphaGo explored areas of Go-playing space that had been left unexplored by humans, even after thousands of years. As Currie and Halina continue, according to software engineer Lucas Baker and professional Go player Fan Hui, “AlphaGo’s strategy embodies a spirit of flexibility and open-mindedness: a lack of preconceptions that allows it to find the most effective line of play.” (A spirit that is exemplified by Zhuangist philosophy in particular and plausibly Daoist philosophy more generally.) Even more intriguingly, while AlphaGo was trained using human expert play and self-play, a central motivation behind the creation of subsequent programs like AlphaGo Zero and AlphaZero was the development of systems that could play complex games without relying on human expert knowledge. “Zero” in these names refers to what Currie and Halina characterize as “*tabula rasa*” learning, which involves starting with nothing besides rules of games. Go and chess professionals play well because they have learned through study and play: they focus their search of the game tree on parts that they think will lead to positive outcomes. Without any such knowledge, AlphaGo Zero and AlphaZero begin by playing at random. Some of those randomly chosen options, however, are bound to eventually lead to a win, which a Monte Carlo Tree Search (MCTS) can then use to guide its searches of the possibility tree. Using this method in self-play, these programs not only achieve superhuman performance in chess, Go, and other games, but have defeated previous programs, such as AlphaGo, 100–0. Moreover, these programs independently discover well-established play sequences used by human professionals, often discarding these strategies as their play improves. Hence, exploration of these gaming spaces is vastly improved by allowing exploration unconstrained by human ideas about how best to play, prompting commentators such as chess Grandmaster Garry Kasparov to remark: “Programs usually reflect priorities and prejudices of programmers, but because AlphaZero programs itself, I would say that its style reflects the truth.” (Currie & Halina, 2019, 13) In other words, such programs are arguably in some ways a paradigm of embracing *yóu*. They are incapable of imposing their will, as they do not have one: they only reflect, respond, and adapt.

These sorts of considerations consequently suggest another human priority or prejudice that may in fact tend to impede creativity: namely, that which prioritizes or is prejudiced in favor of novelty or originality. As suggested in the summary provided above, prioritizing novelty or originality is, after all, liable to result in agents exploring some possibilities and not others; viz., those that are deemed sufficiently likely to yield

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<sup>21</sup> As players explore the problem space, a danger arises of mistaking a local maximum for a global maximum and ceasing exploration too early. At base, then, problem-solving can be conceived of as trade-offs between exploring the problem space, aiming to maximize the information gained (at the cost of trying out bad solutions) and employing information to play efficiently, aiming to optimize good outcomes (at the cost of potentially landing on a local maximum). Often when it comes to AI, getting the right mix between exploration and employment is based on getting the right system of rewards. If the rewards for workable solutions are too high, the agent is more likely to fixate on a local maximum rather than searching out better solutions in the space. (Currie & Halina, 2019, 9) My suggestion is thus that when it comes to human endeavors, often the rewards for novel or original solutions (as opposed to those that are spontaneously integrated) are too high, thereby preventing people from searching out better solutions in the space—and hence, ironically, from discovering a variety of novel or original solutions.

a novel or original result. This is in turn liable to result in much space being left unexplored by humans, possibly even after thousands of years of activity. De-emphasizing novelty or originality might thus ironically result in greater creativity even if creativity *were* taken to centrally involve novelty or originality. Striving for novelty or originality might be counterproductive as regards achieving novelty or originality because, if one focuses on the task of achieving something novel or original, only a range of possibilities that are deemed sufficiently likely to yield something novel or original will be explored, thereby possibly leaving out a lot that could have contributed to the achievement of something novel or original. But, if we are willing to take seriously the possibility that we might expand our conception of creativity to include spontaneity as central, such that something could be considered to be creative even if it did not exemplify or aim at novelty or originality, a way to de-emphasize novelty or originality in a manner that might boost creativity (whatever it is taken to involve) is revealed. We need only expand the set of values that we might take creativity to involve to include spontaneity engendered by embracing *yóu*, which—as I hope to have made a good case for in the above discussion—we have independent reason to take seriously the possibility of.

That said, this suggestion nevertheless raises the possibility of a more general problem: namely, that striving for creativity—whatever one takes it to involve—will invariably threaten to be to some extent counterproductive, simply in virtue of constraining what is aimed at. If this is so, whatever one’s preferred way of thinking about creativity, striving for creativity itself may tend to impede creativity. The very project of striving for creativity hence involves a tension. On the one hand, as Currie and Halina note, creative intelligence is something that we value (or ought to value) and as such understanding it, and under what conditions we can develop it, is important for realizing that value. (Cf. Currie & Halina, 2019, 5) On the other hand, by fixing values of any kind, we threaten to impede creativity by constraining the space that can be explored, at least in some way and to some degree. Indeed, it is even commonly remarked that something along these lines is one of the most impactful and abiding central messages of the *Zhuāngzǐ* considered as a whole. (Cf. Graham, 2001).

Instructively, this tension is similar to a problem that has been characterized as “the paradox of *wúwéi*”, and that is comparable to other interesting problems in the history of philosophy. These include what have been characterized as “the paradox of liberation” (which arises in connection with discussions of how to achieve *nirvana* in Buddhist philosophy) and “the paradox of virtue” (which arises in connection with discussions of how to achieve virtue in classical Greek, Confucian, and Daoist philosophy). This tension is rooted in the fact that *wúwéi*—explicated in section 2.1 as “no-trying”, “no-doing”, and “non-action”—is presented as a state that needs to be achieved: we are thought not to be presently practicing *wúwéi*, and therefore to do so we must endeavor to transition from our current, dissatisfactory state of “trying” into an alternative, ideal state of “no trying”. A problem thus arises: is it possible to try to not try (and thereby succeed in not trying), and if so, how? Or, might this tension be resolved in some other way? Similarly, with respect to creativity: is it possible to try to not try *to be creative* (and thereby succeed in being creative), and if so, how? Or, might this tension too be resolved in some other way? (Cf. Chung, 2020).

A number of contemporary responses to the paradox of *wúwéi* abound, and hence, insofar as there is a similar problem that can be termed a “paradox of creativity”, we

can expect many similar responses to be potentially viable. One very general way of responding to the challenges posed involves appealing to embracing *yóu*; to the improvisation analogy mentioned briefly earlier in this section. Above, it was suggested that we might understand the *Zhuāngzǐ* as suggesting an improvisational attitude toward or perspective on life in general, as well as all of the possible pursuits within, including those connected with scientific inquiry. Further, adopting such an improvisational attitude or perspective might enable agents to engage in and switch between exploration and employment in more spontaneously integrated fashions—or in other words, more creatively—than they might have otherwise (say, if they were instead trying to impose plans). Additionally, to elaborate in a manner relevant to the discussion underway, since this attitude or perspective is improvisational, it can be expected to pertain to all manner of possible endeavors, and is not rule-governed as much as it is drive-directed, where a relevant principal drive—at least when scientific inquiry is under consideration—is that of curiosity. Therefore, even if *trying to be creative* (that is, approaching creativity in an *achievement* or *goal-oriented* fashion) can stifle creativity on account of its imposing too many restrictions (thereby leaving many possible opportunities to explore or employ unexplored or unemployed), perhaps *trying out (different possible ways of) being creative* (that is, approaching creativity in an *improvisation* or *play-oriented* fashion) might be far less stifling, and indeed might even be liberating in a manner that promises to engender creativity by removing an obstacle to exploring unexplored places and trying untried possibilities, much in the Zhuangist spirit of programs like AlphaGo. Moreover, it should be emphasized that while this promises to be applicable to creativity in general, it is particularly applicable to creativity in scientific inquiry. For, while many scientists may be improvisation-oriented at times, scientific inquiry is all too often achievement-oriented, and incentivized to be as such—something that we cannot and should not seek to do away with altogether, but whose disadvantages we should seek to mitigate at least as much as we should seek to exploit its advantages.

One such disadvantage that might stand in need of mitigation concerns what some characterize as a *replication* or *reproducibility crisis*: according to a survey by *Nature* of 1576 researchers, more than 70% of researchers have tried and failed to reproduce other scientists' experiments, and more than half have failed to reproduce their own experiments. Further, while data on how much of the scientific literature is reproducible is rare, what have been characterized as some of the “best-known” analyses, from psychology and cancer biology, found rates of around 40% and 10%, respectively. As Monya Baker reports in, “Is There a Reproducibility Crisis?” the challenge is *not* to completely eliminate problems with reproducibility in published work, as being at the cutting edge of science means that sometimes results will not be robust. Rather, the challenge is to discover new things without generating too many false leads. (Baker, 2016, 452).

However, sorting discoveries from false leads can be a discomfiting process for a variety of reasons. For example, although the vast majority of researchers in *Nature's* survey had failed to reproduce an experiment, less than 20% of respondents said that they had even been contacted by another researcher unable to reproduce their work—results said to be “strikingly similar” to another online survey of nearly 900 members of the American Society for Cell Biology. As to why this is, Baker speculates that it may in part be connected with such conversations being difficult. As she puts the point, “If



experimenters reach out to the original researchers for help, they risk appearing incompetent or accusatory, or revealing too much about their own projects.” (Baker, 2016, 452).

It is difficult to resist the thought that “appearing incompetent or accusatory” or “revealing too much about their own projects” are more likely to be of concern in environments that overemphasize achievement in general, and perhaps especially achievements like novelty, originality, prosperity, prestige, and pride—all of which the *Zhuāngzǐ* expresses skepticism toward. Indeed, *Nature’s* survey respondents themselves ventured similar suggestions regarding factors that they surmise have led to problems in reproducibility. More than 60% said that pressure to publish, as well as selective reporting, always or often contributed. Further, such factors are additionally thought to be exacerbated by “common forces” such as competition for grants and positions and a growing burden of bureaucracy that takes away from time spent doing and designing research—forces that compilers of the *Zhuāngzǐ* would have been especially apt to notice and remark upon, too. (Baker, 2016, 454) It is not difficult to see how a conception of creativity that centrally involves spontaneity engendered by embracing *yóu* rather than novelty or originality might be employed to help to address such problems. If we seek to balance innovation with conservation, then given that—as Currie and Halina claim—we value (or ought to value) creativity, we would do well to understand as creative certain kinds of reproductions in addition to certain kinds of inventions or discoveries if possible. And it is indeed possible, particularly if—I submit—we accept the Zhuangist conception of creativity outlined here.

In this connection, it might also be suggested that other sorts of drives besides curiosity be better emphasized as they pertain to scientific inquiry as well, such that we might better encourage “*yóu-ing*” through scientific inquiry without, in Fraser’s terms, any “fixed destination” that we strive to arrive at. Scientific inquiry, after all, involves more than just finding out about the world; it involves reflecting, responding to, and adapting to, it too. Far too often, however, scientists are prevented from doing so effectively by a wide variety of additional factors, some of which compilers of the *Zhuāngzǐ* also, as above, would have been especially apt to notice and remark upon. Indeed, one might suspect that compilers of the *Zhuāngzǐ* would have been in many ways highly skeptical of, if not hostile to, many aspects of the modern sciences, just as they were of many of the prevailing practices, values, and mores of their time. Reasons for this include, just for starters: first, epistemological concerns about scientific ambitions to objectively describe the fundamental nature of the world (as a variety of commentators across the history of philosophy have argued—perhaps most famously in the twentieth century Paul Feyerabend (Feyerabend, 1999)—it is not clear that this is possible), and; second, concerns about ways that theoretical and practical ambitions tend to be corrupting, by, say, reifying conventional distinctions and (intentionally or unintentionally) setting up aspects of the world for certain kinds of exploitation and abuse (a worry that, e.g., various contemporary feminist critiques of scientific objectivity have also explored (cf. Crasnow, 2020), and that also is related to a number of concerns connected with the so-called “reproducibility crisis” canvassed above). In light of such concerns, one might hypothesize that compilers of the *Zhuāngzǐ* would have regarded much of the modern sciences as paradigmatic manifestations of the worst excesses of our tendencies to conceptually impose upon and materially contend with the world, and that the specifically “Promethean” sorts of creativity that have

contingently come to be seen as integral to the modern sciences would have struck them as highly dubious; nothing to encourage.<sup>22</sup>

Might these kinds of worries be addressed, specifically drawing from the Zhuangist conception of creativity under discussion? At first, the prospects might seem dim: AlphaGo is a computer, and human scientists individually lack the computational resources to ascend to the rarified realms of exploratory space that AlphaGo did after playing millions of games with itself—to say nothing of how the results of all that exploration might be employed. How might less computationally sophisticated subjects like us put into place similar practices in a concrete fashion? Are there specific practices that we might engage in prior to or while conducting scientific inquiry? Alternatively, perhaps that is already too output-focused; if so, are there instead background skills, sensitivities, or aesthetic-perceptual capacities that we might cultivate in order to be disposed to enact a more spontaneous approach?<sup>23</sup>

Although a comprehensive discussion of these important questions is not possible in a paper of this length, I will venture two preliminary suggestions. The first suggestion once again draws on Fraser's account of embracing *yóu*. According to Fraser, the crux of the practical process by which one can embrace *yóu* lies in attaining a blank, clear, or open psychological state, typically denoted in the text by *xū* 虛, translatable as, "empty", "blank", or "insubstantial". As Fraser characterizes it, this state is portrayed as a state in which one "fasts," or empties out, one's mind. Once this is done, one is committed to no predetermined course, has no thought of ambition or gain, clings to no predetermined boundaries or distinctions, and in effect "forgets" (*wàng*忘) oneself. The *xū* state is thought to yield an unbiased—or at least, less-biased—receptivity to the world, such that one is continually ready to respond and adapt to it reflectively, "like a mirror": in a manner that cooperates with the way things are rather than imposes an envisioned ideal. As Fraser explains, in several more fantastic-seeming sections of the text, the resulting actions are supposedly of preternatural efficacy, and no doubt parts of the *Zhuāngzǐ* exaggerate the potency of such a state and the extent to which the actions it might yield would be guided directly by the world rather than by one's, say, plans and preconceptions. Nonetheless, Fraser surmises that something approximating such mirror-like action is commonplace in sports, crafts, arts, and—it seems to me—potentially throughout all of human activity, including scientific inquiry. (Fraser, 2014a, 558).

Regarding sports, a famous example might concern Chuck Knoblauch, a major-league baseball player who in 2000 began to have difficulty making basic plays, even after having played at that professional level for many years. In a *New York Times* article about Knoblauch's struggles, a telling detail is recounted. It concerns Knoblauch's informing a reporter that Roger Clemens had given him a miniature stone football with a saying from Vince Lombardi inscribed across it: "The harder you work, the harder it is to surrender." Yet, a certain kind of surrendering might be just what is needed in such a predicament. In some circumstances, after all, we might think that: "thinking is stinking". "I can't think and hit at the same time," Yogi Berra, another major-league baseball player, is often quoted as saying.<sup>24</sup> And while conducting

<sup>22</sup> Thank you to an anonymous referee for registering these concerns and encouraging me to address them.

<sup>23</sup> Thank you to an anonymous referee for both posing these questions and pressing me to respond to them.

<sup>24</sup> I would like to thank Paul Roth for suggesting this example. See also, e.g., <https://archive.nytimes.com/www.nytimes.com/library/sports/baseball/061700bba-yanks-mind.html>

scientific inquiry is of course in many ways much different from playing major-league baseball, here too we might observe that in some ways, “thinking is stinking”. Recall, for example, what some respondents in *Nature’s* survey said about the “reproducibility crisis”. To use terms familiar in scholarship on the *Zhuāngzǐ*, many researchers reported that thinking about considerations connected with praise and blame has gotten in the way of ensuring reproducibility, something that is arguably as fundamental to scientific inquiry as throwing is to baseball. In science, too, the above aphorism credited to Vince Lombardi applies.

But how might one effect such a state of Zhuangist emptiness? As Fraser explains, one way to do this is to regularly engage in autotelic activities in which we lose track of rules, distractions, concerns, and even our own identity while effecting integration between our actions and our environment. For instance, we might learn and exercise all manner of skills—including, it should be emphasized, those connected with scientific inquiry—all of which offer ready, concrete opportunities to “forget” and be “empty” of things like self, ambition, loss, and gain, and engender spontaneous, mirror-like responses to practical challenges. We might ponder the rhetoric of the *Zhuāngzǐ* itself, such as the many aporetic arguments or the stories depicting diverse, uncommon perspectives, along with similar philosophical or literary works, so as to mitigate the impact of, for example, particular plans and preconceptions. We might try meditative or mindfulness exercises in order to “fast” away thoughts of, say, prosperity and prestige. (Fraser, 2014b, 19) And—I submit—we might encourage more play. While this idea is often discussed in connection with science education for children, it might be fruitfully extended to the professional scientific community as well. After all, another idea conveyed by the story of the wheelwright discussed above is that no master, however great, can transmit their skills to disciples unless those disciples happen to have a particular aptitude; an aptitude that involves a specifically *creative* aptitude (in the sense under discussion) for whatever it is that they are trying to learn. (Cf. Nylan, 2017, 425) Engaging in play might help to develop his aptitude: a variety of empirical studies suggest that play engenders creativity not just in children, but in adults, too. (See, e.g., Wingate, 2011.) In becoming more playful, scientists might hope to approximate something resembling the way Charles Darwin is described by his son Francis, which paints a picture of a persona that could have been easily incorporated into the *Zhuāngzǐ*. For, that persona is notably similar to portrayals of characters featured in famous “skill stories” there, such as that of “Cook Dīng”: “His love of each particular experiment and his eager zeal not to lose the fruit of it came out markedly in these crossing experiments—in the elaborate care he took not to make any confusion in putting capsules into wrong trays [...]. I can recall his appearance as he counted seeds under the simple microscope with an alertness not usually characterizing such mechanical work as counting. I think he personified each seed as a small demon trying to elude him by getting into the wrong heap or jumping away altogether, and this gave to the work the excitement of a game.” (Browne, 2003, 414–415).

The second, related, suggestion is that scientists might consider for themselves suggestions that Nomy Arpaly, Zachary Barnett, and Eric Schwitzgebel have proposed concerning how to understand various philosophical orientations: *truth*, *dare*, and *wonder*. On Schwitzgebel’s construal, while exemplifying “Truth”, philosophers aim to present, well, the philosophical truth. They would prefer to be boring and right than interesting and wrong. While exemplifying “Dare”, philosophers, by contrast, aim to be

bold and unusual. They prefer to explore the boundaries of what can be defended, and are happy for the sake of argument to champion positions if doing so would be meritorious in some other way besides being true—such as being elegant, novel, fun, contrarian, or intriguing—regardless of the truth of those positions. Notably, both of these types appear oriented toward achievements or goals, though their achievements or goals of course differ.

As Schwitzgebel points out, interactions between such philosophers create a familiar dynamic. While in “Dare” mode, philosophers venture bold theses, cleverly. If their cases are sufficiently clever, audiences are tempted to think: *could* that really be true? Then, philosophers in “Truth” mode step in, in search of problems with their arguments. Likewise, I will add, other philosophers in “Truth” mode venture modest theses, capably. If their cases are sufficiently capable, audiences are tempted to think: *must* that really be true? Then, philosophers in “Dare” mode step in, in search of problems with their arguments. This dynamic is central to the flourishing of contemporary academic philosophy, and it is reasonable to think that it both engenders creativity within it and, *ceteris paribus*, fosters its development. We might miss unexpectedly meritorious positions if not for the work that philosophers in “Dare” mode do to draw our attention to them. However, without philosophers in “Truth” mode to balance, we might find ourselves too enamored with non-truth-oriented possibilities and behaviors. (Cf. Schwitzgebel, 2017, 241).

There is, however, a third type of orientation to consider: namely, “Wonder”. Philosophers in this mode appear, by contrast, to neither be achievement nor goal-oriented, but rather improvisation or play-oriented instead. As Schwitzgebel puts the point, while in “Wonder” mode philosophers upend what is commonly taken to be known and call into question what was previously taken for granted. Like philosophers in “Truth” mode, philosophers in “Wonder” mode do not ignore norms having to do with features such as sincerity, accuracy, or truth. However, like philosophers in “Dare” mode, philosophers in “Wonder” mode are not averse to the strange or the seemingly-wrong, but are rather willing to explore and defend even the most apparently outlandish of positions to the extent that they suspect such positions might be right. To use Currie and Halina’s terminology, philosophers in “Wonder” mode would prefer to explore rather than to employ. To that extent they are, perhaps, a bit more like AlphaGo than they are like Lee Sedol. And these philosophers, too, are vital to the flourishing of philosophy, and also engender creativity within it and foster its development. They can, like philosophers in “Dare” mode, reveal and draw attention to unexpectedly meritorious positions. But, like philosophers in “Truth” mode, they are inquisitive, modest, and even playful and improvisational, more than they are audacious. (Cf. Schwitzgebel, 2017, 241).

This model can, I surmise, be applied to scientists as well, with similar results. Not only can it help us to better understand scientists’ various orientations, it can also allow us to understand them as similarly complementary—and hence, lacking the computational sophistication of programs like AlphaGo, effect a division of labor as regards exploration and employment, and even “*yóu-ing*” itself. One person cannot explore and employ as effectively as AlphaGo can. But, a community—which might include AI machines—might well be able to, thereby producing a highly creative system, a possibility that will be returned to in section 3.3. Moreover, as Schwitzgebel notes, it is important to emphasize that probably no philosopher (or as I will suggest, *mutatis mutandis*, scientist) is pure

“Truth”, “Dare”, or “Wonder”, nor are these distinctions proposed to be exclusive or exhaustive. Various orientations might blur together, as might motivations. There might be ways of sincerely pursuing truth by adopting a daring or wondering orientation and vice versa, and it might be possible to exemplify all three of these modes at once.<sup>25</sup> As Schwitzgebel cleverly writes, “Insert further nuance, qualification, and multifacetedness as required for Truth.” (Schwitzgebel, 2017, 241) Prominent contemporary examples of “Truth”, “Dare”, and “Wonder” scientists may be said to include, respectively, scientists like Marie Curie, Chien-Shiung Wu, and Stephen Hawking, but even if so this is not to suggest that, say, if Marie Curie is a “Truth” scientist, then she cannot also be a “Wonder” scientist; or, if Chien-Shiung Wu is a “Dare” scientist, then she cannot also be a “Truth” scientist; or, if Stephen Hawking is a “Wonder” scientist, then he cannot also be a “Dare” scientist. It is rather to suggest that there is a complex interplay between these modes and orientations; a complex interplay that can engender greater scientific flourishing, creativity, and development, just as it can engender greater philosophical flourishing, creativity, and development. And it is also to suggest that we would do well to promote, for example, improvisation and play at least as much as achievement and goals when it comes to scientific inquiry, especially if we are interested in understanding and promoting creativity in its broadest sense, as centrally involving—as suggested above—spontaneity via embracing *yóu* alongside (and perhaps even at times in place of) novelty or originality.

### 3.3 Cooperation, collaboration, and extended cognition

The second very general possibility (though also related to the first very general possibility discussed at greater length above in section 3.2) that I will only very briefly discuss here is that expanding our way of thinking about what creativity centrally involves might allow us to better understand creative agents as being more intimately connected with, and as processes within and products of, their environments—and thus to understand their environments as integral to and necessary for their functioning and flourishing. (Rather than, say, as lone geniuses whose exceptional, and under some descriptions or conceptions, even “Godlike” ability to generate something novel or original from supposedly commonly and widely available materials marks them as standing apart from rather than as being integrated with other people and other aspects of the world.)<sup>26</sup> This in turn promises to help us not only to examine and critique the idea of a creative genius, but also to better understand how to engender creativity given the explore/employ model proposed by Currie and Halina. For, environments not only constrain *what* can be explored, but also *how* and *how much* what can be explored *is* explored, as they provide not just a range of possibilities for exploration but a range of possible values that might govern that exploration (to say nothing of employment).

<sup>25</sup> Thank you to an anonymous referee for this suggestion.

<sup>26</sup> As Currie and Halina note, Patricia Fara explores how modern Western notions of “creative genius” emerged in light of the myths built around Isaac Newton. The notion of creativity, originally associated with divinity (as discussed in the introduction to this paper), according to Fara was attached to literary inspiration before becoming secularized and associated with rational scientific discovery, most paradigmatically associated with Newton. (Currie & Halina, 2019, 42) For more on this, see Fara (2002). It is interesting to note as well that, like the notion that creativity centrally involves novelty or originality, the positive notion of a lone, exceptional, Godlike “creative genius” is also not universally shared; in one study, Korean students were reported to be more likely to characterize such a figure negatively as a loner rather than a leader. (Niu & Sternberg, 2002)

Wheelwright Flatty, Zhuāngzǐ, AlphaGo, and the scientific community considered as a whole, for example, are able to exercise their ordinary and extraordinary creativity because, rather than in spite of, the fact that they are intimately connected with, and processes within and products of, their environments; whereas, say, Huizǐ is prevented from doing so because he lacks such an intimate connection. He cannot see that the gourd could be used for floating in nearby rivers or lakes, a possibility afforded by his environment, because he is focusing too much on familiar-to-him ways of using it to the exclusion of other possibilities. His achievement or goal-orientation renders him incapable of seeing them; improvisation or play would have served him better. Huizǐ's tale, however, is in some ways a tale of hope, as his lack of intimate connection with his environment can be remedied by promoting behaviors (including behaviors concerning thought as well as feeling and action) that engender the embracing of *yóu* and, along with it, creativity—at least in the sense under discussion. Further, as with the first very general possibility explored in section 3.2, this possibility is also relevant to scientific inquiry more specifically. The more improvisational, and even playful, we are—without aiming at achieving novel or original results or indeed any other specific types of results at all—the better we can explore, employ, understand, and communicate about our environments, and hence the better we can spontaneously integrate with them. Marie Curie, Chien-Shiung Wu, and Stephen Hawking, for example, were able to exercise their ordinary and extraordinary creativity because, rather than in spite of, the fact that they were intimately connected with, and products of, their environments; because they were highly curious individuals who were able to engage in spontaneously integrated, creative endeavors that also happened to yield novel or original results.<sup>27</sup> Understanding creative agents as being more intimately connected with, and as processes within and products of, their environments also promises to engender greater inclusivity, cooperation, and collaboration insofar as it encourages creative agents to think of themselves as interdependent with other researchers, rather than as independent from them, and to think that these interdependent relationships are well worth nurturing in addition. This in turn promises to engender more creative systems: spontaneously integrated systems that can explore and employ more effectively, also as suggested in section 3.2 above.

This proposal also fits particularly well with investigations concerning *situated cognition*, which stress the importance of interactions between brain, body, and various environmental features in executing cognitive tasks, and is related to approaches such as embodied cognition and distributed cognition. (Toon, 2015, 3863–3864) As Adam Toon explains, situated cognition suggests that much of our cognitive activity resembles—to discuss a famous example—long multiplication (as initially explored in Rumelhart et al., 1986, 44–48; in Toon, 2015, 3864), in the following sense. Most of us cannot multiply two three-digit numbers in our heads; however, this task becomes much easier if we are given a pen and paper. And, of course, this is but one example: external devices play a pervasive role when it comes to our cognitive activity. Impressed by this, a number of authors have endorsed the *hypothesis of extended cognition* (HEC), according to which external devices such as notebooks, laptops, and phones can, and often do, become part of our cognitive processes. On this hypothesis, a pen and paper that one uses in long multiplication is part

<sup>27</sup> For more on Chien-Shiung Wu in this connection, see, e.g., <https://blogs.scientificamerican.com/guest-blog/channeling-ada-lovelace-chien-shiung-wu-courageous-hero-of-physics/>

of the mechanism that realizes cognition, just like the neurons in one's brain. Connected with this are the notion of what Robert A. Wilson and Andy Clark term *transient extended cognitive systems* (TECS)—soft-assembled wholes that mesh problem-solving contributions of the human brain and central nervous system with those of the (rest of the) body and various elements of the local cognitive scaffolding—and the *extended mind thesis*, which holds that one's mind extends beyond the brain and body and into the world. According to Clark and David Chalmers, a notebook can play a similar functional role as one's biological memory, and hence, a notebook can be part of the material basis that realizes one's, say, standing beliefs. If our standing beliefs count as part of our minds, it seems that one's mind can therefore extend in this way, so as to include not just biological features of human beings, but features of their surrounding environments, too. Indeed, this might apply to other cognitive states as well, including—as Toon argues—understanding: particularly, scientists' understanding. (Toon, 2015, 3864–3865).

While I cannot reiterate the specifics of Toon's argument for this claim here, it is important to note that—as Toon points out—an extended view of understanding would have important methodological implications for the way that we conduct empirical studies investigating the psychology of understanding. For, it suggests the need to study scientists' understanding against its normal background of tools and representational devices in the laboratory, rather than in artificial experimental scenarios. It would therefore also have important methodological implications for the way that we conduct empirical studies investigating the psychology of creativity too—to the extent that, as Berys Gaut argues, creativity relies on understanding (to support this, Gaut discusses in particular Charles Goodyear's supposedly accidental discovery of vulcanization). (Gaut, 2010, 1040) Creativity also involves a variety of other cognitive states, such as belief, which may be treated in such an “externalist” fashion, and itself relies on a variety of tools and representational devices, just as belief and understanding do. It may thus be amenable to an extended explication on these sorts of grounds also. Finally, *pace* Gaut, were creativity seen as fundamentally a feature of environments, and only derivatively as a feature of agents within them—just as, inspired by the remarks from the *Qiwulun* quoted in section 2.1 above, a Zhuangist account might have it—we would have an even more intriguing possibility for those with externalist curiosities to consider.

These comments are admittedly much more suggestive than they are anything close to conclusive. It is my hope, however, that they will suffice to show that there is much of interest to be explored, with the above reflections in this subsection comprising just a few enticing starting points.

#### 4 Concluding remarks: Getting creative about creativity

I will now conclude by very briefly remarking on how exploring various cultural perspectives on creativity promises to help us to better understand and promote creativity, by encouraging us to become more creative about creativity itself. My principal suggestion is that getting more creative about creativity (say, by consulting divergent perspectives, such as the Zhuangist view outlined in section 2) might help us to become more creative in general by expanding our sense of what is possible when it comes to creativity in particular, and in so doing help us to see much that we could be missing, doing profitably otherwise, working toward, or simply just trying out, improvising, or

playing with. What is more (as discussed in section 3) it can help us to better promote both extraordinary and ordinary creativity in a way that allows us to avoid a “paradox of creativity”, among other challenges, by encouraging improvisation or play (engendered by embracing *yóu*, and correspondingly, *xū* and *wàng*) in addition to achievement or goal-oriented approaches and to understand creative agents as being more intimately connected with, and as processes within and products of, their environments. We have, then, at least one additional reason to take seriously and carefully think through divergent perspectives on creativity, including (and perhaps especially) those borrowed from sources that are culturally distant to us: they can help us to become more creative ourselves, whatever our concept of creativity might involve, or evolve so as to involve. For, building on this, the foregoing should suffice to cast doubt on the supposition that the nature of creativity can be determined via standard forms of so-called “conceptual analysis”—a supposition that, notably, compilers of the *Zhuāngzǐ* would also have been highly sympathetic toward. This is particularly significant in light of the fact that conceptual analysis as a means of understanding creativity has been cast into doubt on independent grounds. As Currie and Halina argue, there are at least two problems with much of the extant philosophical literature that relies on this methodology. First, it is methodologically suspect, as it is not obvious that we should think creativity has a stable nature that can be isolated and identified via conceptual analysis, especially since notions of creativity have particular histories and are sensitive to cultural contexts. This, of course, does not mean that the tools of conceptual analysis are not useful or important for understanding creativity, but rather that the success of an analysis of what creativity involves does not turn on its meeting supposedly intuitive judgments about or constraints regarding what is or is not creative. Second, many approaches are parochial. Little work in analytic philosophy of creativity engages, for example, work on creativity from other cultures or traditions or scientific considerations of creativity. (Currie & Halina, 2019, 8) This paper aims to address both of these important problems, by shedding the assumption that creativity has (something like) a stable nature in favor of a more dynamic approach, and by engaging work regarding creativity from non-European, non-contemporary, cultures and traditions.

As a result, this paper also makes way for additional work on what some have described as *cross-cultural conceptual explication* or *engineering* regarding creativity.<sup>28</sup> As Edouard Machery (2017) describes it, conceptual explication or engineering concerns the modification of an existing concept. He further distinguishes Carnapian from Gramscian explication, claiming that while the former is concerned with remedying epistemic flaws in our concepts (such as obscurity or imprecision), the latter is concerned with remedying non-epistemic flaws (e.g., perhaps some concepts are intrinsically morally wrong or may be morally wrong because of the thoughts and actions they lead to). Either way, notes Machery, there is reason to think that such concepts should be identified and modified: this is the job of the conceptual engineer. Machery’s preferred type of conceptual engineering differs from many kinds currently discussed in that it is psychological and avoids reference to the meaning or semantic content of our concepts.<sup>29</sup> This, in my view, makes it particularly amenable for a Zhuangist treatment; however, whatever one’s preferred type of conceptual explication or engineering, I propose that the above Zhuangist

<sup>28</sup> For recent discussions of cross-cultural conceptual engineering, see, e.g., Vaidya (2020).

<sup>29</sup> For other recent discussions of conceptual engineering, see, e.g., Cappelen (2018), Jackman (2020), and Chalmers (forthcoming).



account of creativity has something to offer those who are interested in explicating or engineering the concept of creativity. For, it not only interfaces well with many current debates across a variety of subfields within philosophy, but many current debates in other academic disciplines as well. Thus, if such a Zhuangist conception of creativity were suitably engineered to fit a variety of purposes, it could facilitate better understanding, communication, cooperation, and collaboration across an array of different discussions. Such a conception of creativity might also help us to remedy both epistemic and non-epistemic flaws in our prevailing extant concept of creativity, as it is, as suggested above, overly narrow—a feature that has epistemic, moral, and aesthetic drawbacks due to its lack of inclusivity. Many of us might not yet think about creativity along the Zhuangist lines proposed above. If the arguments of this paper are along promising lines, however, we have reason to consider changing that.

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