

Turn to Butterfly Dream: Zhuangzi's thought experiments and animal consciousness

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ABSTRACT: Based on Quinean logico-linguistic interpretations of Laozi's *Dao De Jing* we identify, analyze and interpret Zhuangzi's *Butterfly Dream* as a thought experiment. Identified by thought experiment mood of dream we analyze it as enthymeme (incomplete argument) that can be completed by hidden analogy revealing main presupposition of animal consciousness. We show similar analyses of Zhuangzi's *Happiness of Fish*. Zhuangzi's thought experiment exemplifies Daoist principle of *wuhua* (物化), possibly related to interdependency of opposites, like subject vs. object, consciousness vs. sub-/unconsciousness, waking vs. dreaming/sleeping. *Happiness of Fish* and *Butterfly Dream* are global cross-cultural thought experiments—both western and eastern interpretations coincide in their analyses. Having the ability of dreaming and feeling emotions, such as happiness and pain, is nowadays considered as evidence of (animal) consciousness in the western world. As *Zhuangzi* text may show classical Daoism may embrace animal welfare, practice vegetarianism and tend to learn emotions from animals.

KEY-WORDS: semantics, thought experiment, enthymeme, dream, emotions, analogy, (animal) consciousness, animal rights, cosmocentrism, *wuhua* (物化), Laozi (老子), Zhuangzi (庄子)

RESUMO: Com base nas interpretações lógico-linguísticas quineanas do *Dao De Jing* de Laozi, identificamos, analisamos e interpretamos o *Sonho da Borboleta* de Zhuangzi como um experimento de pensamento. Identificado pelo modo de experimento de pensamento do *sonho*, analisamo-lo como um entimema (argumento incompleto) que pode ser completado por uma analogia oculta, revelando a principal pressuposição da consciência animal. Demonstramos análises semelhantes da *Felicidade dos Peixes* de Zhuangzi. O experimento de pensamento de Zhuangzi exemplifica o princípio Daoista de *wuhua* (物化), possivelmente relacionado à interdependência de opostos, como sujeito vs. objeto, consciência vs. subconsciente/inconsciente, vigília vs. sono/sono. A *Felicidade dos Peixes* e o *Sonho da Borboleta* são experimentos de pensamento globais interculturais — as interpretações ocidentais e orientais coincidem em suas análises. Ter a capacidade de sonhar e sentir emoções, como felicidade e dor, é hoje considerado como evidência de consciência (animal) no mundo ocidental. Como o texto de Zhuangzi pode mostrar, o Daoísmo clássico pode abraçar o bem-estar animal, praticar o vegetarianismo e tender a aprender emoções dos animais.

PALAVRAS-CHAVE: semântica, experimento de pensamento, entimema, sonho, emoções, analogia, consciência (animal), direitos dos animais, cosmocentrismo, *wuhua* (物化), Laozi (老子), Zhuangzi (庄子).

According to the Zhuangzi, one may learn carefree wandering from birds... One may learn joy from fish... embodied in spontaneity and playfulness.

(Louis Komjathy, 2021)

1. Identifications

Zhuangzi's *Butterfly Dream* text can be identified as a thought experiment since its analyses may share at least some five relevant and significant features with many more thought experiments (see e.g., notes 3, 4, 6).

1.1. Thought Experiment Indicator, Thought Experiment Mood

Although we cannot make sure any thought experiment indicator from the Chinese text as obviously as 'Consider ...', 'Imagine ...', 'Suppose ...' etc. in English language thought experiment texts, there is an apparent thought experiment mood of dreaming.

The word 'dream' (mèng 梦) occurs thrice, twice as a noun, once

as a verb.¹

Possibly there is no thought experiment indicator 'Dream ...' because it seems a third-person report of Zhuangzi's Butterfly Dream instead of a first-person narrator addressing the audience immediately as in a dialogue (e.g. like the many thought experiments in Wittgenstein's *Philosophical Investigations*).²

1.2. *Mental Phenomenon*

From thought experiment mood of dreaming we can easily confirm that Butterfly Dream satisfies the most prominent thought experiment characteristic of mental phenomenon that exists in the mind only, like an experiment that is executed in the mind only, for dreams are activities that—par excellence—exist only in the mind.

However, after Sigmund Freud we could question if it is a conscious phenomenon for many may consider dreams part of sub- or unconsciousness. Although Zhuangzi's dream may have occurred during sleep (as the text says that Zhuangzi wakes up etc.), the story also makes clear that Zhuangzi can vividly remember the dream and perhaps the basic thought experiment ambiguity appears exactly on remembering the dream.

We can conclude there are two competing kinds of consciousness

¹ Thanks to Prof. Li Weixue, Institute of Advanced Humanities (IAH), Chongqing University. See Section 2.2 for original Chinese text and English translation. Butterfly dream is mèng dié, 梦蝶, in Pinyin and Chinese signs. Thought experiment mood of dreaming appears in many more thought experiments, e.g., Albert Einstein's daydreaming of Chasing a Beam of Light, René Descartes's Cogito (one of the sub-thought experiments compares waking to dreaming states of mind), and, most famously, Martin Luther King Jr.'s 1963 I Have a Dream speech, in which the thought experiment indicator 'I have a dream ...' occurs some ten times. We argue that the main argument form of the speech is a valid and sound ancient syllogism, called BARArA; the dynamics of Dr. King's dream are directed towards political realization of humanistic values as racial freedom and equality. See e.g., King M.L. Jr. 1963, and Hertogh 2022a.

² See (e.g.) Wittgenstein 1953, *passim*.

here, waking and dreaming (as mediated by conscious memory of the dream). This ambiguity is considered crucial to Zhuangzi's thought experiment, and it is in this sense that it is a precursor of many western thought experiments like Hilary Putnam's Brain-in-a-Vat, Robert Kirk's, and David Chalmers's Zombies and Albert Einstein's Chasing a Beam of Light.³

1.3. *Incomplete Argument, Enthymeme*

On logical definition thought experiments are incomplete arguments or enthymemes. The feature of incompleteness explains why thought experiments often are not identified as arguments but as narratives, stories etc. However, we will show in Part 2, Analyses, that there are some hidden premises working on the thought experiment and explicitation of these presuppositions can complete the thought experiment argument onto a logical and plausible argument.

³ Brain-in-a-Vat is attributed to Hilary Putnam and retakes a passage in Wittgenstein's Philosophical Investigations, possibly §158, in which Wittgenstein questions how sure or 'how probable' we could be that there are 'connexions' between our cognitive activities as reading and the brain, e.g., a 'reading connexion'. It has appeared in many forms, e.g., imagining a brain is removed from its body, stored in a vat, and, next, reconnected to a computer. See e.g., Hilary Putnam 1982.

In Robert Kirk's 1974 *Zombie Replica* Dan changes from a man with consciousness into a so-called Zombie without consciousness by losing the feel of more and more of his senses. See Robert Kirk 1974. David Chalmers's 1996 *Zombie World* or *Anti-materialist Modal Argument (AMMA)* posits the possibility of a *Zombie World*, a world without consciousness, and thereby falsifies strong versions of materialism in contemporary philosophy of mind. See David Chalmers 1996. In *Chasing a Beam of Light* Albert Einstein imagines he is pursuing a beam of light with the speed of light. The thought experiment is physically impossible since it is not possible for human beings to fly that fast (our bodies would disintegrate), but the image of a flying human(oid) is common in objective imagination of many cultures. See e.g., Albert Einstein 1956, John Norton 2012. Another famous thought experiment by Einstein is called *Elevator*; it is introduced in a popular scientific cooperation with Leopold Infeld, *The Evolution of Physics – From Early Concept to Relativity and Quanta* (Einstein, Infeld 1938). The principle of relativity goes back to e.g., Galileo Galilei's *Ship*, which is explained in *Dialogo sopra i Due Massimi Sistemi del Mondo* (Galileo 1632/1967). We may analyze these thought experiments from ambiguity between two coordinate systems, frames of reference, viz. internal observer's (e.g., Einstein chasing, or traveling on, a beam of light, people inside the elevator) and external observer's (e.g. Einstein on the surface of the Earth, people outside the elevator) --please, see Section 2.3.2.

Most thought experiments can be analysed as enthymemes or incomplete arguments, e.g., René Descartes's Cogito, 'I think, therefore I am'⁴ — applying predicate logic :

Suppose

Tx : x Thinks
 Ex : x Exists
 a : I, René Descartes
 $p \rightarrow q$: if p, then q (like material implication)

$(Tx \rightarrow Ex)$

Ta

 Ea

On logical analysis the implicit major to 'I think, therefore I am' ($Ta \rightarrow Ea$) becomes explicit.

Whatever has the property of thinking, exists ($Tx \rightarrow Ex$)
 (cf. Hertogh 2016: e.g., 12, 14)

Instead of an incomplete (or unfinished or elliptical) argument we prefer Aristotle's technical term of enthymeme. Etymologically enthymeme (ἐνθύμημα) signifies according to Webster's 11th 'to keep in mind' ('from Latin *enthymema*, from Greek *enthymēma*, from *enthymeisthai* to keep in mind, from en- + *thymos* mind, soul').

⁴ René Descartes's 1637 Cogito is short for Cogito ergo sum, which means 'I think, therefore I am.' It first appeared in French as 'je pense, donc je suis'. It is also called Doubt thought experiment as it is about someone, René Descartes, performing a radical doubt experiment until the only thing he can't doubt anymore is his very doubting, or thinking (cogitare, penser). Remarkably, Descartes also doubts the truth of the contents of his thoughts and demonstrations of mathematics, saying, he can't be sure they have more truth than the illusions of his dreams (see Descartes 1637, English translation e.g., John Veitch 1901). Please, see Hertogh 2016 and Hertogh 2015a for thought experiment analyses.

In Hertogh 2018 we have demonstrated strong similarity between Cogito and Vipassanā Meditation, since core arguments of both show logical deep structure of modus ponens (instantiation)--

modus ponens is usually symbolized: $P \rightarrow Q$, P, therefore Q.

Cogito: $Tx \rightarrow Ex$, Ta, therefore Ea (see above Section 1.3 and Hertogh 2016)

Vipassanā Meditation: $-Sx \rightarrow Mx$, -Sa, therefore Ma, where S stands for looking for Sense sensation, M for looking for Mindfulness, and a for Siddhartha Gautama (see Hertogh 2018).

Enthymemes as discussed in Aristotle's *Rhetorics* are rhetorical syllogisms, inductive arguments about probabilities, while categorical syllogisms as discussed in *Prior Analytics* are deductive arguments about truth. Both enthymemes and categorical syllogisms are apprehended by the same faculty

Hence the man who makes a good guess at truth is likely to make a good guess at probabilities.⁵ (*Rhet.* 1355a17–18)

In strict sense 'enthymeme' refers to Aristotle's rhetorical syllogisms, in broad sense it refers to incomplete arguments and syllogisms. It shares many of the ambiguities associated with thought experiments as it has many senses relating to different types of argument form thought experiments can take on.

The term 'enthymeme' indicates, first, that thought experiments go back to the beginnings of science in ancient days and, second, that it may be about probabilistic arguments, though often formalization by deduction seems intuitively obvious. Third, as regarding particularly this contribution on Zhuangzi's Butterfly Dream, it has the advantage of possibly comparing two ancient traditions, the Chinese (e.g., Laozi, Zhuangzi) and the western tradition (e.g., from Aristotle to W.V.O. Quine).

1.4. *Imaginary Thought Experiment Premise*

Related to previous features thought experiments are defined by an imaginary thought experiment premise or Supposal Thought Experiment, that quite often functions as a thought experiment minor if the argument can be analysed as a syllogism.

We represent this feature of thought experiments symbolically by use of brackets in the Thought Experiment Matrix analysis—by

⁵ It is about *Rhetoric*, Book I, Part 1, English translation by William Rhys Roberts, in, e.g., Aristotle, 2014, edited by Jonathan Barnes. Probabilities is translation of *éndoxa* (ἐνδοξά), derived from *dóxa* (δόξα), opinion etc.

bracketing the thought experiment we indicate it is not a valid and sound logical argument yet. (Please, see [1] and [2] below.) By logical reconstruction the imaginary thought experiment premise can be reconciled to w_0 , the actual, real world of mesolevel of Planet Earth, that is the Galilean-Newtonian living world of human beings apart from microcosm of quantum physics (i.e., atoms, molecules etc.) and macrocosm of cosmology (i.e., planets, stars etc.). After logical reconstruction the thought experiment has changed into a valid and sound argument and the brackets can be omitted. (Please, see [3] below.)

1.5. Strong Paradigmatic Thought Experiment

The fifth feature is revealed by rhetorical analyses of a thought experiment as it may be concluded from historical reception of a particular thought experiment. In the case of Zhuangzi's Butterfly Dream it is obvious that it is a strong and paradigmatic thought experiment from its global cross-cultural philosophical impact on the many waking/dreaming thought experiments after Zhuangzi.

It answers the question how western philosophy may have been intrigued by Zhuangzi's thought experiment, e.g., encyclopedias like Wikipedia mention Zhuangzi's Butterfly Dream as precursor of western thought experiments like Hilary Putnam's Wittgensteinian Brain-in-a-Vat. It is a paradigmatic thought experiment because it features a new theme in philosophy (ambiguity of waking/dreaming) that has proven to be very persistent in more than just the Chinese tradition of

philosophy.⁶

Next to – and apart from – its historical impact Zhuangzi's Butterfly Dream generates new senses beyond the particularity of its individual situation.⁷ We will show it in the deep analyses as generalization from Zhuangzi's individual dream to human dreaming ability.⁸

2. Analyses

Now we have identified Zhuangzi's Butterfly Dream as a thought experiment, we can analyze it as a thought experiment with the help of (higher order) predicate logic. The logical analyses are not indispensable to our understanding of Zhuangzi, but rather some help to demonstrate the main presupposition of animal consciousness and the main Daoist principle of wuhua (物化).

The logical analyses are introduced by rhetorical analyses wherein we propose a logico-linguistic approach to Dao De Jing – and hence Daoist successor Zhuangzi – as after W.V.O. Quine's metaphilosophical gradualism (Section 2.1), that justifies surface

⁶ Regarding the analogy between human and animal consciousness Zhuangzi's Butterfly Dream can be considered a precursor of Thomas Nagel's What Is It Like to Be a Bat (Nagel 1974). In his classic paper Nagel compares human subjectivity and consciousness to more kinds of consciousness as bats'. Next to the waking/dreaming theme Zhuangzi's Butterfly Dream may also be related to personal identity thought experiments like John Locke's Prince Cobbler. Locke's 1689 thought experiment is about a prince who changes into a cobbler. A prince's mind or consciousness moves into the body of a cobbler. See Locke 1689/1975, Book II, Ch. 27, Sect. 'On Identity and Diversity'. Lastly, Butterfly Dream could be related to the ancient Vedic Māyā Illusion (Sanskrit māyā, from mā not, and yā this, meaning e.g. illusion, in e.g. Rg Veda 5:85, English translation in e.g. Robert Bellah 2011: 510-511) and Plato's Allegory of the Cave (in Republic 514a–520a, see e.g. Plato 1997 English translation).

⁷ Thanks to John Norton 1991 who has pointed out this generalizing effect of thought experiments like Albert Einstein's, an 'inductive step' in the operation of thought experiments

Thought experiments are arguments which:

- (i) posit hypothetical or counterfactual states of affairs, and
- (ii) invoke particulars irrelevant to the generality of the conclusion.

(Norton 1991: 129)

⁸ That is, e.g., from Ha to Hx—please, see 2.3.1, e.g. [1], [3], C₁ → C₂.

analyses, wherein we discuss a couple of English translations (Section 2.2), and deep analyses, application of (predicate) logic to Butterfly Dream (Section 2.3).

2.1. Rhetorical Analyses (Dao De Jing)

In the history of philosophy Zhuangzi's Butterfly Dream is famous as a paradox, conundrum, example, and major exemplification of Zhuangzi's wuhua (物化), transformation of things.

It was the author Zhuangzi himself⁹ who instigated this traditional interpretation by adding to the exposition of the Butterfly Dream text this explanatory observation in the last line:

This is what is called the Transformation of Things.
(Ci zhi wei wuhua. 此之谓物化。)¹⁰.

Zhuangzi is considered a philosopher from the Chinese Daoist school and for this reason his 'Transformation of Things', 'wuhua' ('物化'), can be explained as a reference to a Daoist principle as initiated by

⁹ It is disputed if the historical person Zhuangzi has indeed conceived the Butterfly Dream text himself. Nowadays, the Butterfly Dream is a passage of the book that bears the same name as the historical philosopher, Zhuangzi (ca. 369–286 BCE, The Hundred Schools of Thought Period). The historical person is sometimes designated by Zhuangzhou, the book by Qiwulun. See also note 17 on e.g., authorship of Inner and Outer Chapters.

¹⁰ See e.g., Zhuangzi/Sun Tonghai 2007. Zhihua Yao says of the concept of 'wuhua' *'Alienation' is my interpretation of the term wuhua 物化, or literally 'things changing'. This is a crucial and complicated concept in Zhuangzi's thought, and many scholars understand it from a general view of the oneness of Dao and interpret it as 'transformation of things' or 'ontological transformation'. They focus on 'things' or 'ontology' because they take the butterfly as a symbol of external things. If we understand 'wu' ('thing') in a singular form as the object of the verb 'hua' ('to transform'), which is legitimate in classical Chinese grammar, then we get 'to transform (into) a thing'. Transforming into a thing or objectifying is what I mean by 'alienation'. The butterfly dream vividly depicts how Zhuang Zhou and the butterfly, being two separate selves, make each other an object, an 'it', or a thing.* (Yao 2013: 520)

Background to different interpretations could be difference in literal translation of 'wu' 'hua' ('things' 'changing')—between, on the one hand, e.g., 'to transform (into) a thing' (singular) or 'objectifying', 'alienation' (e.g. Yao 2013), 'materialization' (e.g. Google Translate – retrieved September 20, 2024) and, on the other hand, e.g., 'transformation of things' (plural) like in our view related to interdependency of opposites (cf. Coutinho 2002).

Laozi in Dao De Jing, principle of interdependency of opposites, as visualized in the internationally renowned circular yin-yang design.¹¹

Attended to the historical link between Zhuangzi and Laozi we have consulted the Dao De Jing, particularly the first chapter of Book I which explains the paradoxical tautological contradiction as in translation of D. C. Lau:

The way (that can be spoken of)
Is not the (constant) way¹².
(*Dao De Jing* I, 1–2, trans. DC Lau)
as mysteries
These two are the same.
....
Being the same they are called mysteries.
(*Ibid.*, 9, 11)

Our logical analysis unfolds the paradox of tautological contradiction in an analytical mode as according to western analytical methodology that approaches a problem by considering different possible specifications, exemplifications, examples of a given phenomenon or principle.

This analytical approach is itself not contradicted by the original Dao De Jing, to the contrary! Dao De Jing even seems to hint at such a methodology that, furthermore, considers linguistic analyses as it

¹¹ We attended Zhuangzi's references to Laozi in secondary literature and conversation with Prof. Fan Hongjuan, School of International Education and Culture (SIE), Chongqing University. Yin and yang are mentioned in Dao De Jing XLII (see Section 3.2). The circular yin-yang design taijitu (太極圖—diagram (圖 *tú*) of the supreme ultimate (太極 *tàijí*)) dates from later days for it was probably first introduced by Neo-Confucian philosopher Zhou Dunyi (周敦頤, 1017–1073 CE) of the Song Dynasty.

¹² The literature uses different romanizations, e.g., Wade-Giles, Tao Te Ching, we use Pinyin (without tone signs), e.g., Dao De Jing. It means, e.g., The (Classic) Book of the Way and Virtue.

Dao De Jing is cited by chapter numbers (Roman numerals) and line numbers (Arabic numerals). Unless otherwise noted, reference is to D.C. Lau's translation, Laozi/Lau 1963/2009. I, 1–2, in Chinese from Chinese Text Project (<http://ctext.org/dao-de-jing> retrieved September 20, 2024)

Dao ke dao, feichang dao.

道可道，非常道。

elaborates on its first couple of verses (I, 1–2) by alternating way (dao 道) by name (míng) in second couple of verses (I, 3–4):

The name (that can be named)
Is not the (constant) name.¹³

The counterpart of succeeding verses confirms this analytical, if not kind of linguistic philosophy:

But diverge in name as they issue forth.¹⁴ (*Ibid.*, 10)

2.1.1. Quine's Metaphilosophical Gradualism, Pluralism

Quite consistent with e.g., Dao De Jing I our logical analyses can be considered in line with W.V.O. Quine's metaphilosophical gradualism which holds that philosophy and science near each other and can use the same linguistic and analytical methodology.

¹³I, 3–4, in Chinese from Chinese Text Project (<http://ctext.org/dao-de-jing> retrieved September 20, 2024)

Míng kě míng, fēicháng míng.
名可名，非常名。

¹⁴Chinese text of Dao De Jing I from online Chinese Text Project <http://ctext.org/dao-de-jing> (retrieved September 20, 2024) reads

Dao ke dao, fēicháng dao. Míng kě míng, fēicháng míng. Wúmíng tiāndì zhī shǐ; yǒumíng wānwù zhī mǔ.
道可道，非常道。名可名，非常名。無名天地之始；有名萬物之母。

Guchang wuyu, yi guan qi miao; chang you yu, yi guan qi jiao. Ci liang zhe, tong chu er yiming, tong wei zhi xuan.

故常無欲，以觀其妙；常有欲，以觀其微。此兩者，同出而異名，同謂之玄。

Xuanzhiyouxuan, zhong miao zhi men.

玄之又玄，衆妙之門。

Chinese Text Project gives James Legge's English translation of Dao De Jing I.

Our logico-linguistic interpretation as after Quine's metaphilosophical gradualism is consistent with Legge's older translation that, however, looks a little metaphysical by capitalization of Originator (beginning), Mother and Mystery. A Quinean interpretation fits in quite well with D.C. Lau's 1963 translation, which according to Robert Finley shows 'devotion' to the Cambridge School of language analysis, e.g., Lau's empirical 'language is without "mythical significance"' (Finley 2003: 14).

The pluralism that goes with metaphilosophical gradualism as well as with Quine's ontological relativity¹⁵ can be found in Dao De Jing I, too, as in the equations between one(ness) and manifold (or myriad), between monism and pluralism.

Unspoken it is one but then it is also incomprehensible, spoken and named it can be comprehended but then it is plural in the sense that not one description can exclusively coincide with the unnamed way as there are then myriad creatures, diverged into a manifold of mysteries and secrets, secrets and manifestations.

Quine's pluralism as related to ontological relativity we find in Dao De Jing I:

The nameless was the beginning of heaven and earth;
The named was the mother of the myriad creatures.

....

These two are the same
But diverge in name as they issue forth.
Being the same they are called mysteries,
Mystery upon mystery—
The gateway of the manifold secrets.
(Ibid., 5–6, 8–9, 10–12)

Analogously we will propose one out of many possible predicate logical deep analyses of Zhuangzi's Butterfly Dream maintaining that modal logical analyses are possible at the same time.¹⁶

2.2. Butterfly Dream – Surface Analyses

¹⁵ See e.g., Willard V.O. Quine 1969, 1980.

¹⁶ Quine himself does not agree on modal logic since he, for instance, does not believe it makes sense to quantify over possible worlds. However, as hardly anyone nowadays still holds on to meaning skepticism (possibly as interpretation of Wittgenstein's Philosophical Investigations, e.g., the private language argument), also Quine's behaviorist resistance against modal logic – see e.g., Quine 1960 – seems to have lost most of its supporters.

This paper only shortly addresses Dao De Jing analyses and interpretations, which will be developed more fully in forthcoming paper on Dao De Jing (prov. title 'Predication and Opposition in Dao De Jing/Thought Experimental Analyses of (e.g.) 道可道非常道').

We, first, compare some English translations and see what is common to them as to base our logical analyses upon (Section 2.2.1), though in the end it may turn out we can't fully agree on either of the translations as from a logico-philosophical point of view (Section 2.3).

On advice of Prof. Fan Hongjuan (School of International Education and Culture SIE, Chongqing University), we quote the original Chinese source from the 2007 Chinese edition of Zhuangzi by Sun Tonghai:

Zhuangzi. Qi wu lun: Xi zhe zhuangzhoumeng wei hudie, xu xu ran hudie ye, zi yushizhi yu!

《庄子·齐物论》：昔者庄周梦为胡蝶，栩栩然胡蝶也，自喻适志与！

Buzhi zhou ye. Eran jue, ze qu qu ran zhou ye. Buzhi zhouzhimeng wei hudie yu?

不知周也。俄然觉，则蘧蘧然周也。不知周之梦为胡蝶与？

Hudie zhi meng wei zhou yu? Zhou yu hudie ze bi you fen yi. Ci zhi wei wuhua.

胡蝶之梦为周与？周与胡蝶则必有分矣。此之谓物化。

Prof. Fan's 2013 translation is based on the Chinese edition by Sun Tonghai:

It is mentioned in 'Zhuāngzi Qíwùlùn': Zhuangzhou once had a dream that he became a butterfly, free and happy and he didn't know he was Zhuangzhou. After some time, he woke up and found himself still that man lying on bed. He wondered was it that Zhungzhou had a dream of a butterfly or that a butterfly had a dream of Zhuangzhou. This is what is called the Transformation of Things.

(trans. Fan Hongjuan unpublished)

2.2.1. Butterfly Dream – Surface Analyses

When we compare diverse editions of Zhuangzi's Butterfly Dream, e.g., Prof. Fan's 2013 translation based on 2007 updated Chinese edition by Sun Tonghai, the classical 1891 translation by James Legge and 1968 translation by Burton Watson, we find that what is common to these translations is next disjunction (capitals added).

He wondered was it that Zhangzhou had a dream of a butterfly
OR that a butterfly had a dream of Zhuangzhou. (Fan
Hongjuan)

But he didn't know if he was Zhuangzi who had dreamt he
was a butterfly, OR a butterfly dreaming he was Zhuangzi.
(Burton Watson 1968: 49)

I did not know whether it had formerly been Zhou dreaming
that he was a butterfly, OR it was now a butterfly dreaming
that it was Zhou.¹⁷(James Legge 1891)

The disjunction may have contributed to ambiguity of Zhuangzi's Butterfly Dream, turning it into a mysterious story rather than a logical argument.

2.3. Butterfly Dream – Deep Analyses

¹⁷ See e.g. <http://ctext.org/zhuangzi/adjustment-of-controversies?searchu=butterfly&searchmode=showall#result> (retrieved September 20, 2024). Bilingual edition of Chinese Text Project shows Zhuangzi's Butterfly Dream thought experiment at the end (Section 14) of the second chapter, entitled The Adjustment of Controversies, of the Inner Chapters (i.e., the seven most authentic chapters, the remainder of 26 chapters are sometimes attributed to other authors responding to the Inner Chapters). Zhihua Yao translates Zhuangzi's Butterfly Dream in accordance with the original Chinese text, without any (sub)coordinating syntactical conjunctions, with which our interpretation finds no literalist conflict

*[But then he did] not know—
did Zhou dream and become the butterfly?
Did the butterfly dream and become Zhou?
(Yao 2013: 511–512)*

We quote the classical English translations in the body of the text to show how our logical interpretation improves on the standard philological one.

We will propose a (higher order) predicate logical deep analysis of Butterfly Dream (Section 2.3.1) as after Quine's (pluralistic) metaphilosophical gradualism (Section 2.1.1) which is compatible with thought experiment story analyses as proposed by Roy Sorensen's immigration of the supposition operator (Section 2.3.2).

2.3.1. Predicate Logical Analysis (Hidden Analogy)

Predicate logical analyses may reveal an imaginary thought experiment premise as regarding consciousness of butterflies

[1]

Suppose

- Hx : x is a Human
- Bx : x is a Butterfly
- xD (...) : x Dreams (that ...)
- a : Zhuangzi
- \wedge : ... and ... (conjunction)
- \neg : not ... (negation)
- $p = q$: $p \rightarrow q, q \rightarrow p$; if p, then q, if q, then p (biconditional)
- TE : thought experiment(s)

So

	Butterfly TE	$H_a \wedge aD(B_a) = B_a \wedge aD(H_a)$		\neg P ₁
	P _{w0}	$B_x \wedge \neg xD(H_x)$		P ₂
	P _{TE}	$B_x \wedge xD(H_x)$		P ₃
		TE argument	$H_a \wedge aD(B_a) = B_a \wedge aD(H_a)$	C ₁
			$H_x \wedge xD(B_x) = B_x \wedge xD(H_x)$	C ₂

The thought experiment has three premises (P₁, P₂, P₃) and two possible conclusions (C₁, C₂).

On an actual interpretation, that is a physicalist interpretation with reference to w₀--that is the real world, mesolevel of Planet Earth

(P₂)--the thought experiment seems to fail as an argument.

On a thought experiment interpretation that includes reference to objective imagination as represented by P₃ (i.e., the thought experiment premise) its failure is recovered from, and the argument is valid and possibly sound (C₁). On C₂, that is a thought experiment generalization from C₁, the argument cannot be proven to be valid and sound by only this thought experiment argument, since C₁ → C₂ involves an inductive generalization from hidden analogy.

Objective imagination can be defined as total of particularly mass-produced products that constitute traditional and popular imagery and conceptual schemes (webs of beliefs) of a culture.¹⁸

Dreaming or imagining one is a butterfly or any other (flying) animal or humanoid can be considered a global cross-cultural image; most cultures have images of this and related phenomena, and the

¹⁸ Objective imagination is quite different from Carl Gustav Jung's archetypes and collective unconsciousness (see e.g., Yao 2013: 520–526, for a Jungian interpretation). Objective imagination refers to images of mass production in the external world (as photographs, movies etc.), Jung's archetypes refer to presumed images in the internal world of human minds; the former's existence can be objectively proven, the latter's can only be metaphysically assumed and has triggered many criticisms as regarding both its ontological status and evidential examples.

The Jungian psychoanalytical theory is traditionally conceived as unnecessarily speculative as in comparison to Sigmund Freud's theory. Freud's work on dreams, *Die Traumdeutung*, is generally considered his most scientific book. It was first published in German in 1900, and the first English translation appeared in 1913, *The Interpretation of Dreams*. Freud's hypothesis on Ich – Es dichotomy (in fact, a trichotomy Ich – Es – Über-Ich), which we only mention briefly, is considered a metaphysical explanation of the basic difference between consciousness and sub-/unconsciousness.

Zhuangzi's Butterfly Dream may be considered an early historical hint at the impact of dreams on our conscious life and possible existence of the sub-/unconsciousness.

To Zhihua Yao's review of mythological and religious sources we would add the tradition (from Pharaonics and Plato on) of depiction of the human soul or spirit as a bird (e.g., ba, pigeon), and explanation of butterfly as 'transformable self', symbol from metaphorization of the biological feature of polymorphism or mimicry, biological transformation from larvae and caterpillars to butterflies.

The butterfly in Zhuangzi's dream, however, we foremost analyze and interpret non-metaphorically as related to the possibility of animal consciousness, which interpretation is supported by Zhuangzi's second most famous thought experiment Happiness of Fish.

From point of view of Chinese philosophy, Daoism, we stress impact of *wu hua*, principle of interdependency of opposites from Dao De Jing.

thought experiment is able to immediately catch the imagination.

Next, there is a hidden analogy between animal consciousness, in fact insects like butterfly's consciousness, and human consciousness, in fact, Zhuangzi's consciousness (two inductive generalizations), working on the thought experiment argument.

[2]

Additionally suppose e.g.

Ox : x is a(n) (biological) Organism (on Planet Earth)

Tx : x can Transport it/him/herself (on Planet Earth)

Ax : x is an Animal (vs. Plant etc. on Planet Earth)

Cx : x has/is Conscious(ness)

Dx : x (is able to) Dream(s)

So

Hx → Ox, Tx, Ax, Cx, Dx

Bx → Ox, Tx, Ax

----- (Butterfly Dream

TE)

Bx → Cx, Dx

This inductive analogy has two premises and one conclusion. The inference from premises to conclusion is constituted exactly by the Butterfly Dream thought experiment. The conclusion of the analogy can be inserted into the thought experiment argument [1] which results in a fully logical representation of the thought experiment.

[3]

Butterfly TE $Ha \wedge aD (Ba) = Ba \wedge aD (Ha)$ P₁

P_{w0} $Bx \wedge \neg xD (Hx)$ P₂

P_{analogy} $Bx \rightarrow Cx, Dx$ P₀

P_{TE} $Bx \wedge xD (Hx)$ P₃

TE argument $Ha \wedge aD (Ba) = Ba \wedge aD (Ha)$ C₁

$Hx \wedge xD (Bx) = Bx \wedge xD (Hx)$ C₂

The hidden analogy supports the imaginary thought experiment premise and renders the generalization of the argument by C₂ true, in any case, likely, probable, plausible etc. By insertion of an inductive argument as the hidden analogy (P₀) the argument cannot be

deductively true anymore, but it has become true by approximation, that is likely, probable, or plausible.

The hidden analogy is the presupposition of animal consciousness or, strictly speaking, the presupposition that insects like butterflies can dream, which ability is usually considered a feature of consciousness. Whereas [1] is only true in the world of objective imagination, [3] is not true but likely, probable and plausible in the real world, and according to us it is very likely, very plausible as on basis of more evidence of animal consciousness, e.g. evidence that animals, particularly mammals, can show pain behavior, that is, have the ability of feeling pain, which is nowadays considered a sufficient condition of consciousness.

As we will see in Section 3.1 a second famous thought experiment by Zhuangzi, Happiness of Fish, has a similar presupposition of animal consciousness, this time particularly the ability of species of fish to feel happiness as it may be derived from supposed happiness behavior as jumping up from the water.

2.3.2. Sorensen's Immigration of Supposition Operator (Concatenation)

Logically speaking, this type of thought experiment may be analyzed by immigration of the supposition operator as proposed in Roy Sorensen's 1992 Thought Experiments:

SBp \rightarrow BSp

SBp e.g., Suppose you Bring about p (external supposition)

BSp e.g., Bring it about that you Suppose p (internal supposition)¹⁹

(see Sorensen 1992: 202–203)

In analyses of famous thought experiments by Albert Einstein

¹⁹ This is not a quote, but a logical summary, please, see Roy Sorensen 1992 Ch. 8 Section V 'The Immigration of the Supposition Operator', 202–205.

there appear two frames of reference as according to the principle of relativity – originally conceived by Galileo Galilei as in his Ship thought experiment – internal and external observers in Elevator and Chasing a Beam of Light (see note 3). The ambiguity between the internal observers and the external observers of Einstein's thought experiments is comprehensible as speech act ambiguity between direct and indirect discourse. Zhuangzi's Butterfly Dream seems to particularly focus on dream's double intentionality of dreamer personage and dreamed personage, an ambiguity that is also at play in the imagination as Jean-Paul Sartre has shown in his 1940 study of the imagery (Sartre 1940/eg 1966) by (e.g.) contrasting the phenomenology of perception to the phenomenology of dreams.

Linguistically speaking, the syntactical ambiguity between indirect and direct speech is reconciled by the operation of the thought experiment.

Philosophically speaking, there is a possible conflict between pragmatics and semantics that is revealed in syntactical ambiguity. Like the different grammatical readings of the title of this paper (which can be demonstrated with help of Chomskian tree diagrams) e.g.

<TURN TO BUTTERFLY DREAM>
 <TURN TO BUTTERFLY> DREAM
 TURN TO BUTTERFLY <DREAM>
 TURN TO <BUTTERFLY DREAM>

don't result in semantic paradoxes as the possible readings don't contradict each other despite migration of the quotation marks; they only arouse a slight sense of mystery, in fact, ambiguity, and that is exactly where the thought experiment is about.

In many thought experiments as Einstein's Chasing a Beam of

Light and Ibn Sīnā's Floating Man²⁰ it is this conflict between first-person of imaginer, supposer, dreamer at the one hand and third person of imagined, supposed, dreamed personage (as contents of imagination, supposal, dream) at the other hand, that may cause *prima facie* inconceivability, implausibility, unlikeness of the thought experiment.

We have shown in analyses of Butterfly Dream that this ambiguity can be resolved by logical reconstruction of the thought experiment by revealing hidden premises, presuppositions, and principles – not just about explication, disambiguation of the pragmatic act of imagining, supposing, dreaming, but, particularly, if it is a strong thought experiment – by premises that relate to the objectivity and semantics of the conundrum.

Like in a mathematical proof, thought experiment's extension to the imagination can be understood as a supposal that, at first sight, may seem to derail into irrelevance by leaving the problem area under consideration (like e.g. the *Pythagorean Theorem* needs for its proof extension to three squares perpendicular to its sides), but, on reflection, we may come to understand the use of the imaginary supposal as a decisive intermediary of the proof or thought experiment.²¹

The sense of thought experiment supposals and our logical symbolism as used in predicate logical analyses can be understood in the same way by hindsight—cf. Wittgenstein's *Tractatus Logico-Philosophicus*, one but last statement, 6.54.

My propositions are elucidatory in this way: he who understands me finally recognizes them as senseless, when he has climbed out through them, on them, over them. (He must

²⁰ In *Flying or Floating Man*, which thought experiment Ibn Sīnā conceived when he was in prison, Ibn Sīnā imagines a humanoid flying or floating high in the air. The thought experiment has been translated and commented upon by Fazlur Rahman – see Rahman 1959 and 1963 (Sharif 1963 Vol. I Ch. 25). Please, see our thought experiment analyses in Hertogh 2015a, b.

²¹ In terms of David Chalmers's 2002 thought experiment theory it is about '*prima facie* conceivability', '*secunda facie* conceivability' and '*ideal* conceivability' (as after rational discussion).

so to speak throw away the ladder, after he has climbed up on it.)

He must surmount these propositions; then he sees the world rightly.

(Wittgenstein 1961: 90)

Classical translations interpret Butterfly Dream as disjunction (please, see Section 2.2.1). Perhaps Chinese linguists, philologists and philosophers can tell if Butterfly Dream may also allow for a concatenation interpretation, a dream within a dream

a human dreaming she/he is a butterfly dreaming he/she is a human

On this interpretation of immigration of the dream operator there is no conflict between pragmatics and semantics, there is no syntactical ambiguity; the main line of the thought experiment is grammatically correct and the thought experiment argument is valid in w_0 , in the real world, on a realist interpretation presupposing that animal consciousness is possible.

3. Interpretations

On interpretation we will, first, support our comprehension of Zhuangzi's Butterfly Dream by similar analyses of Zhuangzi's second most famous text, Happiness of Fish (Section 3.1) and, next, explain the principle of wuhua that is exemplified in Zhuangzi's Butterfly Dream as (e.g.) principle of interdependency of opposites (Section 3.2).

3.1. Happiness of Fish

Zhuangzi's Happiness of Fish (Yu zhi le 魚之樂) can be analyzed in the same way as Butterfly Dream, that is, by explication of the presupposition of animal consciousness.

Burton Watson's 1968 translation:

Zhuangzi and Huizi were strolling along the dam of the Hao Waterfall when Zhuangzi said, 'See how the minnows come out and dart around where they please! That's what fish really enjoy!'

Huizi answered, 'You're not a fish — how do you know what fish enjoy?'

Zhuangzi, 'You're not me, so how do you know I don't know what fish enjoy?'

Huizi, 'I'm not you, so I certainly don't know what you know. On the other hand, you're certainly not a fish, so that still proves you don't know what fish enjoy!'

Zhuangzi, 'Let's go back to your original question, please. You asked me how I know what fish enjoy — so you already knew I knew it when you asked the question. I know it by standing here beside the Hao.'²²

²² Happiness of Fish is from the 'Outer Chapters' of Zhuangzi, Section 'The Floods of Autumn' (Qiushui秋水). Chinese text from online Chinese Text Project <http://ctext.org/zhuangzi> (retrieved September 20, 2024) reads

Zhuangzi yu hui zi you yu hao liang zhi shang. Zhuang zi yue: 'Shu yu chuyou congrong, shi yu le ye.'

莊子與惠子遊於濠梁之上。莊子曰：「儻魚出遊從容，是魚樂也。」

Hui zi yue: 'Zi fei yu, an zhi yu zhi le?'

惠子曰：「子非魚，安知魚之樂？」

Zhuang zi yue: 'Zi fei wo, an zhi wo buzhi yu zhi le?'

莊子曰：「子非我，安知我不知魚之樂？」

Hui zi yue: 'Wo fei zi, gu buzhi zi yi; zi gu fei yu ye, zi zhi buzhi yu zhi le quan yi.'

惠子曰：「我非子，固不知子矣；子固非魚也，子之不知魚之樂全矣。」

Zhuang zi yue: 'Qing xun qi ben. Zi yue "ru an zhi yu le" yun zhe, ji yi zhi wu zhizhi er wen wo, wo zhizhi hao shang ye.'

莊子曰：「請循其本。子曰『汝安知魚樂』云者，既已知吾知之而問我，我知之濠上也。」

In Watson's translation it is about minnows, in Legge's about thryssas, both are kinds of small fish. Parenthetical phrase in last line of Legge's translation seems an explanatory clause added by Legge that is not in the original Chinese text. It seems to emphasize the analogy between humans and fish

.... You knew that I knew it, and yet you put your question to me – well, I know it (from our enjoying ourselves together) over the Hao.

Please, see Legge's translation to *Chinese Text Project*.

Predicate logical analysis may show analogy between animals and humans like hidden premise in Butterfly Dream:

[4]

Additionally suppose

Fx : x is a Fish
 Ox : x is an (biological) Organism (on Planet Earth)
 Tx : x can Transport it/him/herself (on Planet Earth)
 Ax : x is an Animal (vs. Plant etc. on Planet Earth)
 Cx : x has/is Conscious(ness)
 FEx : x has Feelings like happiness etc.

So

Hx → Ox, Tx, Ax, Cx, FEx
 Fx → Ox, Tx, Ax
 ----- (Happiness of Fish TE)
 Fx → Cx, FEx

Butterfly Dream discusses butterfly's – possibly species of insects' – ability to dream, Happiness of Fish discusses – species of – fish's ability to have feelings, e.g., feeling happiness. Both dreaming and feeling happiness are nowadays considered evidence of consciousness.

3.2. Wuhua (物化)

Wuhua, transformation of things, can be considered related to principle of interdependency of opposites in Dao De Jing as explained e.g., in the second chapter of the first book²³

²³ Chinese philosophers and linguists may concede wuhua is somehow related to interdependency of opposites, the latter being the origin of the former like Laozi precedes Zhuangzi. E.g., Steve Coutinho quotes about same passage from Dao De Jing, Bk I, Ch 2, under heading of 'Opposites and Transformation', explaining

One of the most familiar themes of the Laozi is the interdependence and mutual transformation of opposites, as exemplified in the notions of yin and yang (Coutinho 2002: 417)

This translation of wuhua is consistent with title of the chapter, in which Butterfly Dream appears as Section 14 (the last section), The Adjustment of Controversies, which also hints at possible (inter)mediation of opposites (like opposing views).

The whole world recognizes the beautiful as the beautiful, yet this is only the ugly, the whole world recognizes the good as the good, yet this is only the bad.

Thus, Something and Nothing produce each other;
The difficult and the easy complement each other;
The long and the short offset each other;
The high and the low incline towards each other;
Note and sound harmonize with each other;
Before and after follow each other.²⁴

(Dao De Jing II, 1–8, trans. DC Lau)

In the development of the myriad creatures from the way (dao 道), they become yin (陰) and yang (陽)

The way begets one; one begets two; two begets three; three begets the myriad creatures.

The myriad creatures carry on their backs the yin and embrace in their arms the yang and are the blending of the generative forces of the two.²⁵

(Dao De Jing XLII, 1–6, trans. DC Lau)

There are many more exemplifications of the principle of

²⁴ Chinese text of Dao De Jing II from online Chinese Text Project <http://ctext.org/dao-de-jing> (retrieved September 20, 2024) reads

Tian xia jie zhi mei zhi wei mei, si e yi.

天下皆知美之為美，斯惡已。

Jie zhi shan zhi wei shan, si bu shan yi.

皆知善之為善，斯不善已。

Gu you wu xiang sheng, nan yi xiang cheng, chang duan xiang xing, gao xia xiang qing,
yin sheng xiang he, qian hou xiang sui.

故有無相生，難易相成，長短相較，高下相傾，音聲相和，前後相隨。

²⁵ Chinese text of Dao De Jing XLII from online Chinese Text Project <http://ctext.org/dao-de-jing> (retrieved September 20, 2024) reads

Dao sheng yi, yi sheng er, er sheng san, san sheng wan wu.

道生一，一生二，二生三，三生萬物。

Wan wu fu yin er bao yang, chong qi yi wei he.

萬物負陰而抱陽，沖氣以為和。

interdependency of opposites in Laozi's *Dao De Jing* as between many more opposites, e.g., few/many, small/great (Ch. 34), thick/thin, highest/lowest virtue (Ch. 38), bright/dull, forward/backward, even/rough (Ch. 41) etc. The interdependency is phrased and explained in different ways, e.g., as 'subtle discernment' regarding shrink/stretch, weaken/strengthen, lay aside/set up, give/take in Ch. 36 ('This is called subtle discernment'), 'the blending of the generative forces' regarding yin/yang (see above quote from Ch. 42). It appears to us Zhuangzi has elaborated on one more pair of opposites in *Butterfly Dream*, waking versus dreaming, sleeping, and called on the relevant principle of interdependency, 'wuhua' or 'transformation of things'.

3.2.1. Interdependency of Opposites ft. Subject vs. Object

On philosophical interpretation of Zhuangzi's *Butterfly Dream* we may add the dichotomy of subject versus object as according to Prof. Weixue Li's (Institute of Advanced Humanities IAH, Chongqing University) suggestion that this basic philosophical distinction is mitigated in *Dao De Jing*.

Sigmund Freud's 1900 *Traumdeutung* (The Interpretation of Dreams) is often mentioned as one of the crucial criticisms of western subjectivism that contributed to the philosophical decentralization of the western subject after Galileo's and Copernicus's paradigm shift from geocentrism to heliocentrism in astronomy, and (e.g.) Charles Darwin's change from creationism to evolutionism in biology.

The subjectivism of the human mind – the I (Freud's Ego, das Ich) – becomes restricted by an apparent objective part of it – the sub- and unconsciousness (Freud's Id, das Es) – which we are familiar with in daily experience of waking and sleeping as mediated by dreaming

subject vs. object

consciousness vs. sub-/unconsciousness

waking vs. dreaming/sleeping

A dream mitigates both subject and object since in its substantial form it is part of the sub-consciousness that escapes from conscious, subjective control; we can't control our dreams like we can control our thoughts.

As pointed out by (e.g.) Freud and Sartre, the external world appears more subjective in dreams than in waking perception, e.g. quite often the laws of nature bend as subjected to the story line and – like movie transitions between subsequent scenes – are not fully explained, e.g., we find ourselves in a garden (without any exactly determined place or time), next, unexpectedly in a city (without any definite place and time) etc.²⁶

It is the intentional structure of dreams (a/o) that is involved in Zhuangzi's Butterfly Dream and nowadays we can understand a little bit more of it after psychological and phenomenological investigations into the dynamics of dreams.

3.3. Western Consciousness Theories Animal Legislation and Liberation

When the philosopher-scientist René Descartes coined the term 'beast machines' (Descartes 1637/e.g. 1901) he is understood to have been denying that nonhuman animals have souls, minds or, in contemporary language, consciousness (Heyes 2008: 259). Nowadays, there are societal tendencies that do concern about animal rights, consciousness, welfare, e.g., UN's recommendation for flexitarianism of one meatless meal a week, legislation with regard to

²⁶ Surrealist art is strongly affected by conscious-unconscious dichotomy and Freud is often quoted as primary influence. The dichotomy affects many modernisms in the arts as stream of consciousness in literature (e.g., James Joyce 1922), fantastic and sci-fi movies in film art, e.g., Christopher Nolan's 2010 sci-fi thriller Inception. (Thanks to the audience to May 15, 2013, Chongqing University presentation on Zhuangzi's Butterfly Dream, and Ms. Xiao Li.)

animal welfare and pets (e.g. Animal Welfare Act 2006 UK), that are based on the conviction that animals are 'sentient beings' and appropriate steps should be taken to 'prevent cruelty to animals and animal suffering'—see e.g. Universal Declaration on Animal Welfare (UDAW), promoted by, e.g., International Fund for Animal Welfare (IFAW), World Society for the Protection of Animals (WSPA), who launched UDAW in 2000, as supported by countries like Philippines (Manila conference in 2003) and Costa Rica (steering committee meeting in 2005).²⁷

In our thought experiment analyses of Thomas Nagel's Bat (Nagel 1974 'What Is It Like to Be a Bat') we have applied similar inductive analogy as in analyses of Zhuangzi's thought experiments (see [2]. [4]) e.g.

[5]

P₁ man is/has Organism, Mammal, Perception (vision), Feelings,
Consciousness

P₂ bat is/has Organism, Mammal, Perception (sonar), Feelings

C bat is/has probably Consciousness
(Hertogh 2015a: 232)

Next to growing respect for nonhuman animals including endangered species etc. there is in the wake of discussions about Turing machines (e.g. Turing 1950, Searle 1980) ongoing interest in consciousness of machines as in Artificial Intelligence, as well as recurrent interest in, e.g., dualism in the philosophy of mind.

²⁷ Please, see Declarations, Legislation Etc. at the end of text.

David Chalmers, who considers himself a naturalistic dualist,²⁸ is even considering panpsychism including consciousness of thermostats. 'What Is It Like to Be a Thermostat?' is introduced in chapter 8 of *The Conscious Mind*, 'Consciousness and Information: Some Speculations', e.g.

Whither panpsychism?

If there is experience associated with thermostats, there is probably experience everywhere: wherever there is a causal interaction, there is information, and wherever there is information, there is experience....
(Chalmers 1996: 297)

By panpsychism Chalmers doesn't mean 'varieties on which the relevant entities are required to think or reason, for example', but in quantum physical sense panexperientialism, 'the thesis that some fundamental physical entities [such as a quark or a photon] are conscious' (Chalmers 2015 - bracketed explanation added).

In an interview with Gadfly in 2021 Chalmers talks about, e.g., animal consciousness:

.... We don't know how widespread consciousness is. I have some small element of sympathy with panpsychism, the view that consciousness is everywhere. In which case, it may be that even very trivial computations, like bits flipping, may have

²⁸ Chalmers is one of the preeminent analytical philosophers of our days. Chalmers is, for instance, well-known for his *Zombie* thought experiments, which were first revived by Robert Kirk in the 70s. In Chalmers's *Anti-Materialist Modal Argument* Chalmers argues against materialism as an ontological consequence of (e.g.) logical possibility of *Zombies* (Chalmers 1996: 123)

1- In our world, there are conscious experiences.

2- There is a logically possible world physically identical to ours, in which the positive facts about consciousness in our world do not hold.

3- Therefore, facts about consciousness are further facts about our world, over and above the physical facts.

4- So, materialism is false.

Statement 2 refers to what Chalmers defines as a *Zombie World* (see Hertogh 2015a, 2023a)

some degree of consciousness. That said, I'm very far from confident this view is true.

On a much more mainstream view, there's going to be some degree of complex computation at which consciousness kicks in. I'm inclined to think that it's going to be a level far simpler than, say, the level of complexity of the human brain. There is good reason to think that many animals much simpler than humans have some degree of consciousness. I'd like to think that mice are conscious, flies are conscious, worms are conscious. But worms are pretty simple.

C. *Elegans* [*Caenorhabditis elegans*, a roundworm, ab. 1 mm in size] have 302 neurons, so if worms can be conscious, some kind of computation that connects 302 major elements with the right wiring could be conscious too. But that said, figuring out what that threshold is [is] at the core of developing a good theory of consciousness, which we don't have yet.

(Chalmers 2021 – bracketed remark added, Chalmers is answering to question What is the threshold that a set of computations must reach to be classified as 'consciousness?')

One of the most well-known philosophical advocates of animal rights, Peter Singer, says in the preface to the 40th anniversary of his academic bestseller *Animal Liberation: A New Ethics for our Treatment of Animals*, that some progress has been made since the first publication of the book in 1975, e.g. that 'there can be no doubt that attitudes about animals are completely different from what they were forty years ago', mentioning examples of, e.g., how the animal movement has challenged 'the huge agribusiness industry with remarkable success, forcing producers of meat and eggs across the entire EU—all twenty-eight member states--to give hens and pigs and veal calves more space and conditions better suited to their needs', '[s]imilar changes have now become law in California as well, following an overwhelming victory for animal advocates in a referendum in 2008'; e.g. the 'steadily rise' of number of vegetarians, vegans, flexitarians in EU, UK and USA; e.g. 'greater awareness of the huge contribution that the livestock industry

makes to greenhouse-gas emissions'; e.g. with regard to animal experiments, some moral progress of revisions and amendments to e.g. USA 'Animal Welfare Act, which ... regulates experiments by nongovernment institutions' (Singer 2015 : 7–11).

Criticizing collective habits, institutions and governments, societal practices (such as scientific experimentation on animals, animal research, and rearing animals, such as cattle and chickens, for food, factory farming, that involve billions of animals each year), taking the discussion from religious convictions to societal level of animal liberation movement, Singer compares speciesism to sexism and racism (deriving the term 'speciesism' from Richard Ryder e.g. 1970/2010):

It is on this basis that the case against racism and the case against sexism must both ultimately rest; and it is in accordance with this principle that the attitude that we may call 'speciesism', by analogy with racism, must also be condemned. Speciesism—the word is not an attractive one, but I can think of no better term—is a prejudice or attitude of bias in favor of the interests of members of one's own species and against those of members of other species. It should be obvious that the fundamental objections to racism and sexism made by Thomas Jefferson and Sojourner Truth apply equally to speciesism. If possessing a higher degree of intelligence does not entitle one human to use another for his or her own ends, how can it entitle humans to exploit nonhumans for the same purpose?

(Singer 2015: 35)

Singer remarks a couple of times that Far Eastern religions like Hinduism and Buddhism have taught that 'all life is sacred', contrasting to sanctity of only human life and 'the "revoltingly crude" attitudes to animals prevalent in Western philosophy and religion', whose cosmocentric view is opposed to western anthropocentric, speciesist

view (Singer 2015: 279, 305).²⁹

3.4. Cosmocentric View of Nature

The results of the logical analysis as in Sections 2.3 and 3.1 may be supported by some research into religious views of Daoism (e.g., Komjathy 2007, 2021, Lagerwey 1987, Meng Zai 2015), that may also point to animal consciousness, and, e.g., related vegetarianism.

Daoist scholar Louis Komjathy points at a quasi-ecological and conservationist perspective in Encyclopaedia Britannica, Saving Earth

The earliest Daoist textual engagement with animals appears in the Zhuangzi ... Within the contours of the Zhuangzi, we find diverse views of animals, but there is a recurring engagement with and reverence for their innate connection with the Dao (the Way). This includes a critique of the human tendency to distort that connection through domestication and instrumentalism. The classical and foundational Daoist worldview is thus more theocentric (Dao-centered) and cosmocentric and less anthropocentric. One also occasionally finds expressed a quasi-ecological and conservationist perspective. ...

It may not only entail diverse sorts of vegetarianism ('in early and early medieval Daoism: divine vegetarianism for deities, ritual vegetarianism (occasional vegetarianism) for priests and community

²⁹ Richard Ryder and Peter Singer are both associated with the 1970s Oxford Group, or Oxford Vegetarians, at University of Oxford UK. In 1970 Ryder coined the word 'speciesism' in a leaflet that quickly circulated in academic circles around the world. In 1972 Rosalind, Stanley Godlovitch and John Harris published *Animals, Men and Morals: An Inquiry into the Maltreatment of Non-humans*, which Singer considers a manifesto of animal liberation. In 1977 there was the first academic animal rights conference held at Trinity College, Cambridge UK, which produced a 'Declaration Against Speciesism', signed by some 150 people.

Singer went on to become (e.g.) Professor of Bioethics at Princeton University NJ in 1983, after founding the Center for Human Bioethics at Monash University VIC in 1980. Since 2020 Ryder has been President of the Royal Society for the Prevention of Cruelty to Animals (RSPCA). Established in 1824, it is the oldest and largest animal welfare organization in the world and it is one of the largest charities in the UK.

leaders, and complete vegetarianism for immortality seekers'), but also a desire to learn from animals

As one begins to renounce an instrumentalist and desire-based existential mode — as one begins to return to one's original condition of attunement with the Dao — one may then accept animals and other organic beings as one's teachers... According to the Zhuangzi, one may learn carefree wandering from birds [... cf. butterflies]. ... One may learn joy from fish ..., embodied in spontaneity and playfulness.

(Komjathy 2021—bracketed remark added)

Zhuangzi's thought experiments should not be misunderstood as merely observation; full comprehension of Zhuangzi's could include clearly moral overtones—this is how we can learn carefree wandering from butterflies and happiness, spontaneity, and playfulness from fish.

4. Conclusion

Support from research into both western and Daoist (animal) consciousness renders our logical thought experiment analyses of Butterfly Dream and Happiness of Fish as based upon assumed presupposition of animal consciousness, not only valid, but also sound, and furthermore coherent and consistent with context of Daoism as a whole —which amounts to one more reason why it is about strong TE — whose ecological worldview was ahead of its time with regard to, e.g., animal welfare, vegetarianism etc. (like more Eastern religions, such as Hinduism, Jainism, Buddhism)— possibly one more reason why it may

revive today.³⁰

At the same time, this contribution demonstrates how logical analyses may contribute to deeper comprehension of ancient Asian philosophical texts, and, consequently, advance interpretation and enhance quality (e.g., accuracy, completeness, and logic) of translation.³¹

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The thought experiment analysis of Zhuangzi's Butterfly Dream

³⁰ See e.g., Hertogh 2022b: 521n11, quoting from Lu 2012, Yang 2012--The rise of Daoism is confirmed in articles published in e.g. *The China Quarterly*, *Chinese Sociological Review*, *The New York Times*, indicating that religion including Daoism is on the rise in China e.g.

... China has been emerging as a religious powerhouse to be reckoned with ... (Lu 2012: 3).

... Since October 2006 the central government of the People's Republic of China has begun to view Daoism as an important asset that can be mobilized to produce political/ideological benefits and has put it into practice immediately after this rhetorical change [n. 7] ... (Yang 2012: 61).

n. 7- ... Later, in April 2007, the China Religious Culture Communication Association, that is, the nongovernmental organization format of the Bureau of Religious Affairs of the State Council, took the lead to organize the huge International Symposium on Dao De Jing (Tao Te Ching) in Xi'an and Hong Kong, which exemplifies how the Chinese government attempts to promote Daoism for 'boosting the soft power of Chinese culture'. (Yang 2012: 62).

³¹ Please, see e.g., Laura C. Collada Ali et al. 2018, e.g., referring to Brian Mossop 2014 twelve revision parameters *Accuracy, completeness, and logic are the main parameters to check...*

A translation has to be logical: it must make sense to the reader in its context. If it doesn't, maybe the source text is illogical, and the translator didn't check the meaning...

... content errors, in particular logical error in facts, will immediately be spotted ...
(Collada Ali et al. 2018: 23)

is a global cross-cultural application of TE theory as developed in provisional Ph.D. text 'Semantics of Thought Experiments' for Free University of Brussels (VUB Brussels BE/EU).

There have been delivered presentations on Zhuangzi thought experiments research, not only for Chongqing University in 2013, but also more recently for Singapore-Hong Kong-Macau Symposium on Chinese Philosophy in Macau (CN) in May 2021, for the 4th Annual Philosophy Graduate Society Colloquium in Kent (UK) in July 2021, for Asian Philosophical Texts Conference in Chiba (JP) in November 2021, and for More Than Human--Non-Western Philosophies and the Environment conference in Antwerp (BE/EU) in May 2024.

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