Trees, Chains and Wittgenstein's *Tractatus* – Reply to Luciano Bazzocchi

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A striking feature of Wittgenstein's *Tractatus* is its use of an intricate numbering system.[1] Even though Whitehead and Russell's *Principia Mathematica* (using decimals numbers to organise a text) and Tolstoy's *Gospel in Brief* (relying on cardinal, interconnected remarks as an organising principle) are likely to have inspired Wittgenstein to some extent, the numbering system of the *Tractatus* is unique and novel. Unlike *Principia Mathematica*, the *Tractatus* doesn't use numbers to organise definitions, theorems, corollaries and proofs (in a mathematical sense). Unlike the *Gospel in Brief*, the *Tractatus* doesn't rely on cardinal remarks only as chapter headings, but uses the numbering system all the way down. No other, and certainly no earlier, philosophical work has a structure similar to the *Tractatus*. It isn't surprising that such an innovative way of writing a philosophical text has given rise to different interpretations or so-called 'readings'. To understand the recent debate on these readings it is useful to distinguish three options:

1. **The nihilistic reading:** The numbering system is a distraction. It may have been an important organisational tool that helped Wittgenstein to arrange original material and material copied from notebooks and it may also have been important to Wittgenstein for aesthetic reasons, but philosophically it carries no weight.
2. **The sequential reading:** The *Tractatus* begins with cardinal remark 1 and ends with cardinal remark 7. All other remarks are put in between in a literal sense. Their respective numbers mark their "logical weight" and reveal connections between remarks, but apart from that the *Tractatus* is an uninterrupted sequential text.
3. **The tree reading:** The *Tractatus* is a text organised as a tree. On its first page there should be the seven cardinal remarks from which the remaining remarks expand in a tree-like fashion, i.e. 1 leads to 1.1 and 1.2 which lead to 1.11–1.13 and 1.21 respectively. When there are no further lower-level remarks, readers must return to the higher-level remarks from which they got there.

The nihilistic reading had some support among earlier scholars, but grew out of fashion afterwards. The sequential reading is the most widely held view (and explicitly defended in my 2016 paper) while the tree reading is a more recent development (defended not only by Bazzocchi, but also by Hacker 2015 and Kuusela 2015, while Stern 2016, 2019 and Pilch 2015: 92f. are at least sympathetic to it). In his "The tree-reading of the *Tractatus logico-philosophicus* and the recent debate on it" (2021a, this journal) Bazzocchi defends the tree reading against my criticism. In this reply I won't go through all the detailed critical points raised by Bazzocchi. Readers can judge for themselves which interpretation of particular *Tractarian* remarks they find more plausible. Merely repeating my interpretations against

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[1] In this paper I call the numbered items of the *Tractatus* "remarks". 'Bare' decimal numbers refer to the respective remark of the *Tractatus* (quotations are from the Ogden & Ramsey translation), *PT* followed by a decimal number refers to the respective remark in the *Prototractatus*. (See the *Bergen Nachlass Edition* (BNE) and the *Prototractatus Tools* (PTT), both available at www.wittgensteinsource.org.)

Bazzocchi's objections won't help to clarify the debate.[2] Instead I try to highlight where I think the disagreement comes from and will, therefore, focus on the broader picture.

1 Two preliminary points

Before I do that, two preliminary points are in order. *First*, in my 2016 paper I defend a particular version of the sequential reading, the sequential *chain* reading. Bazzocchi objects that my reading is "a phantom that no scholar actually follows" (2021: 327). In this paper I focus on my reading. If it turned out that no "notorious sequential reader" (2021: 330) agrees with my reading, that would surprise me, but wouldn't be an objection against it.

Second, Bazzocchi objects several times that in my paper I simply assume the sequential reading: I never quote from the *Tractatus* the way it should be quoted *according to him*. For example, quoting 6.002 and 6.1 in a single quotation is missing the very point of the tree reading. I might as well quote the last sentence from the preface and cardinal remark 1 in one single quotation and wonder what "the value of this work" has to do with the world and everything that is the case.[3] My reply is twofold: On the one hand, I do so merely for practical reasons. For reasons of space, I couldn't present all quotations *twice*, once in sequential order and again in a tree arrangement. The purpose of the quotations is only to remind readers of the remarks under discussion, not to present their full context. On the other

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[2] Because they might confuse readers, I'd like to clarify three points, however. *(1)* My reading of 4.02 isn't faithfully presented by Bazzocchi. I *don't* argue that "this" refers back to the historical evolution of hieroglyphic and alphabetic scripts (as discussed in 4.016). I argue that 4.01 and 4.016 are implicitly (4.01) or explicitly (4.016) about the "essence of the proposition (*das Wesen der Sprache)*". Fully expanded 4.02 is to be read as "what the essence of a proposition is we see from […]" or as "that the essence of a proposition – and this includes propositions of *all* stripes – is that they are pictures we see from […]". My interpretation might be mistaken, but it isn't absurd. *(2)* I'm still puzzled by Bazzocchi's insistence that the figure in 5.6331 (as drawn by Wittgenstein himself, not the version(s) printed in most editions of the *Tractatus*) depicts the eye as being *outside* the visual field. I don't know how to *argue* against this (mis)perception, but can at least *report* what I see: Wittgenstein's drawings consist of a line (pear-shaped) and a filled or unfilled circle that marks the *point* where when drawing the line one returns (or would return) to the starting point. Wittgenstein argues – if my perception is correct – that the shape of the visual field doesn't reveal that it's seen by an eye because there's no designated point in the visual field. If my perception is mistaken, it isn't an idiosyncratic mistake either. Graßhoff & Lampert 2004: 103 and Klagge 2021: 223–225 are looking at the same diagrams as Bazzocchi and disagree with his description, as well. *(3)* Bazzocchi argues that my interpretation of 6.002 and 6.01 must be wrong because the two changes between the *Prototractatus* and the *Tractatus* – adding 6.002 and a "therefore" to 6.01 – didn't happen concurrently: Wittgenstein added "therefore" before he added 6.002. This is a vexed issue because 6.01 is on a page of the August/September 1918 typescript (p. 42 of TS204 and TS202) that was typed *twice*. While in TS202 the older version of p. 42 was replaced by the newer version, TS204 contains both versions. *Only the second version* contains "therefore" in 6.01 and 6.002 (together with 6.001 and 6.021) as handwritten additions. The same problem befalls Bazzocchi's claim about the parallelism of the last sentences of 6 and 6.01, as well (2021: 334n.34): The two "this is the […]" sentences were not added concurrently either. The two sentences are missing in *PT*, the last sentence of 6 is already in the older version of p. 42 and the last sentence of 6.01 is only added to its second version. If we decide to go down the rabbit hole, we can't stop short of its bottom. All of this is, however, a peripheral discussion. Contrary to Bazzocchi's conjecture, my "idea" (2021: 335) is not that since the changes occurred at the same time, "therefore" in 6.1 must refer to 6.002. It is the content of 6.002, not its history, that motivates my interpretation. It literally states that once we have done something (namely what we have done in 6, "if we are given"), we can also do something else (namely what we will do in 6.1, "thereby we are also given"). If 6.002 is an explanation of or comment on anything, it is an explanation of or comment on the "therefore" in 6.01. It is a comment on 6 only in the very vague sense in which anything can be called "a comment" on some given statement as long as there is some thematic overlap. I mentioned the textual history only because it shows that Wittgenstein – at least sometimes – gradually improved the interconnections between propositions, i.e. he did something the tree reading claims to be none of his business.

[3] The example is my own, I'm trying to understand Bazzocchi's worry here.

hand, there is a deeper issue here: Both Bazzocchi and I can defend our respective readings 'from within' – quoting the *Tractatus* the way we think it should be quoted and interpreting this text – and 'from without' – quoting the *Tractatus* the way other readers think it should be quoted and argue against the resulting interpretation. In my 2016 paper I argue mostly 'from within': I quote from the sequential text and explain why I think that the sequential reading offers plausible interpretations of these quotations. But I didn't do so because I stubbornly "refuse" (2021: 338) to read and quote the *Tractatus* according to the tree reading[4], but because I wanted to engage with tree readers' objections against the sequential reading. The best way to counter these objections is to show 'from within' that the sequential reading can offer consistent and plausible interpretations.

2 Trees and chains

The sequential chain reading takes the chain structure of the cardinal remarks as a model for the *Tractatus* as a whole.[5] The cardinal remarks 1–6 are linked to each other like a chain. They all contain two major topics one of which is picked up from their predecessor: 1 is about "world" and "what is the case", 2 is about "what is the case" and "fact", 3 is about "fact" and "thought" and so on. The cardinal remarks, then, are not about mutually distinct topics, but pick up a topic from their predecessor and introduce a new topic for their successor. This observation generalises as some examples might illustrate:

1. 2.1 isn't just a comment on 2, but prepares 3 by introducing the picture theory.[6] 2.2 explains pictures as sharing a logical form with what they are pictures of. The notion of logical form isn't explained in comments on 2.2, but is introduced and explained *before* 2.2, i.e. in 2.18/2.19. These remarks are as much preparations of 2.2 as they are comments on 2.1.
2. 3.5 (on propositional *signs* and thought) isn't just the final comment on 3, but also the final step to take before we get to 4 (on propositions and thoughts).
3. The first cardinal remark to mention elementary propositions is 5, but the decimal remarks 4.3 and 4.4 already explain elementary propositions and centesimal remark 4.21 introduces them. All of this occurs before 5, not in comments on 5.
4. 5.101b contains Wittgenstein's definition of truth-grounds, but isn't a comment on 5.1. It explains how to get from 5.1 (on truth-*functions*) to 5.11 (on logical entailment explained in terms of truth-*grounds*). 5.11 depends on 5.101 because Wittgenstein uses a *technical* term of a truth-ground in 5.11 that is incomprehensible without the definition in 5.101b.

Tractarian remarks, therefore, have a bi-directional character: They pick up something from their predecessor and introduce something to be picked up by their successor. Surprisingly often they do so quite literally, in other cases readers need to look out for the connection.

According to the tree reading, however, the bi-directional character is at most a coincidence (examples above) or downright misleading (e.g. 6.54 and 7). The *Tractatus* consists of a core and a multitude of separate, self-contained series of comments. The many

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[4] In fact, I have worked with Bazzocchi's edition of the *Tractatus* (Wittgenstein 2021) extensively when teaching the *Tractatus*.

[5] On the importance of chains (*Verkettung*) for Wittgenstein, cf. 2.03 and 4.22 and Pilch 2019: 141–144.

[6] Bazzocchi's objection to this example is that 2.1 and 2.2 where written when Wittgenstein hadn't adopted the numbering system yet (2021a: 320n.9). 2.18/2.19 are not affected by this objection.

remarks of the *Tractatus* are comments on (comments on, …) the seven cardinal remarks. They are not, however, comments individually, but together with their same-level siblings. Thus, the numbering system encodes a tree structure: The trunk (or root) of the *Tractatus* consists of the seven cardinal remarks from which the remaining remarks expand in a branching fashion, i.e. 1 leads to a branch with 1.1–1.2 which lead to even more branches containing 1.11–1.13 and 1.21 respectively. The outermost parts of the tree, the leaves, are reached when there are no further lower-level remarks left.

Both the tree and the sequential chain reading agree that without the numbering system the *Tractatus* would be incomprehensible and that Wittgenstein aimed at writing a philosophical book that is *(i)* concise (i.e. brief and clear), *(ii)* surveyable (i.e. its structure is easily grasped), *(iii)* unified (i.e. is organically complete) and *(iv)* definitive (i.e. contains nothing that is hypothetical or tentative). They disagree about how the *Tractatus* is meant to achieve this goal. According to the sequential chain reading, Wittgenstein created a unified philosophical work by writing a continuous, uninterrupted, seamless text without any breaks or jumps – there are, for example, no page breaks before cardinal remark or blank lines between different-level remarks. This indicates that they don't mark the end or beginning of separate sections or chapters. The text consists of concise remarks whose interconnections are made surveyable by the numbering system that reveals intricate bi-directional connections between them. The text is complete, definitive and final as is stated by its concluding remark, i.e. cardinal remark 7. According to the tree reading, the unity of the *Tractatus* derives from the cardinal remarks as a main page on which a multitude of separate pages can be reached. These pages are concise, exhaustive comments and fill in all the details needed. The text is surveyable because the decimal remarks are all connected to just seven cardinal remarks. The debate, then, isn't about whether the *Tractatus* is, for example, a unified work or whether the *Tractatus* would be incomprehensible without the numbering system. It is about *what kind of* unity Wittgenstein had in mind or *what kind of* surveyability the numbering system conveys.

For our purposes, then, it is necessary to spell out the commitments of the tree reading in more detail. The tree reading can be summarised in six theses:

1. **The tree thesis:** The *Tractatus* can be represented by a mathematical or logical tree, i.e. a graph consisting of nodes (representing a remark) and edges (representing the "comment on" or "follow-up comment on" relation).[7] When presenting the Tractatus as such an object all the information contained in the numbering system is preserved. (2021b: ix)
2. **The pages as basic reading unit thesis:** The basic reading units of the *Tractatus* are not single remarks, but logical pages consisting of a sequence of siblings. *n.1*, *n.2*, . . . are not separate, independent comments on *n*. Instead, they form a sequence of remarks that is only jointly a comment on *n*. (2021b: x, xvi)
3. **The no privileged order thesis:** The reading unit commenting on, say, 3.2 is neither placed *before* nor *after* the reading units commenting, for example, on 3.3 or on 2.1 or on 5.1. When reading the *Tractatus*, the order in which the lower-level reading units

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[7] I use "follow-up comment" here instead of "same level" (Hacker) or "sibling of" (Stern) to stress that all but the cardinal propositions are supposed to be comments and because it simplifies recursive definitions: The last decimal digit of a comment is 1, of a follow-up on a comment 2, of a follow-up on a follow-up on a comment 3 and so on.

are read is up to the reader and determined by which remark she wants to explore next. (2021b: x, xiii, xvi, xviii)

4. **The equipollence thesis:** When there are several reading units commenting on a remark (as is the case with zero-remarks), these units are equipollent, independent comments that are either "foregrounded" (non-zero) or in the "background" (zero). (2021b: xiv)

5. **The no conclusion thesis:** The *Tractatus* doesn't have an end in the sense of a concluding remark. In particular, 7 isn't the last or concluding remark; it's part of the reading unit with which the text *begins*. There are, however, many (111, to be more precise) reading units from which readers can only go backwards. (2021b: xx)

6. **The open-ended reading thesis:** Since the *Tractatus* doesn't have an end, there's no sense in which a reader can be said to have finished reading the text. Readers stop or quit reading eventually, but they don't finish or complete reading it. They will read some remarks several times when going for- and backwards between remarks, but they won't necessarily read every remark (unless they use external aids such as ticking off remarks they have already read).

Let's have a closer look at these theses. The tree thesis may seem to be the core claim of the tree reading, but this is misleading. Understood as a mathematical claim, it is probably false and insofar it is correct, it is compatible with the sequential reading. A mathematical or logical tree is a graph in which any two randomly chosen nodes (= remarks) are connected by exactly one path, i.e. no remarks are isolated and there is no ambiguity in how any two remarks are connected. The mathematical claim, then, is that all the information contained in the numbering of remarks can be represented in a tree and no information gets lost when doing so. To see if this is true, we need rules for how to turn the *Tractatus* (i.e. a list of numbered remarks) into a mathematical tree (an object consisting of nodes and edges) for the "all information" part *and* rules for how to reconstruct the *Tractatus* from the mathematical tree for the "no loss" part. The problem is that either information gets lost (zero-numbers can't be reconstructed based on the tree) or the graph isn't a tree (after introducing a third relation, such as the fore-/background relation, there are pairs of remarks connected by more than one path) or other devices than nodes and edges are used (little zeros in the header of the page in Bazzocchi's edition, cf. Wittgenstein 2021, or different shades of colours in Stern's map, cf. Stern 2016).[8] I don't think, however, that the substance of the tree reading even depends on the claim that the *Tractatus* is a tree in the mathematical sense. The core of the tree reading consists in the other theses, which are interesting enough already. This shouldn't come as a surprise: For there's just *one* kind of text which obviously has a tree structure, namely sequential texts. The first sentence is the root, the second its only child, the third its only grandchild, and so on.[9] It must be the other theses, then, that distinguish the tree and the sequential approach.

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[8] Bazzocchi's "bracket argument" (2021a: 325f.) suffers from a similar problem: Brackets indicate either scope or importance. There are no „tacit conventions about parentheses" for structures such as "The weather is fine. (The sun is shining.) (The wind is breezing.)" or even "The weather is fine. ((The sun is shining.)) (The wind is breezing.)".

[9] Moreover, if the *Tractatus* were a tree, (most) academic monographs would be trees as well: The title is its root, the chapter-headings the first-level children, the section-headings its second-level children, sentences are comments or follow-ups on the headings, footnotes are children of the sentence on which they are a footnote; if there are sentences after a chapter-heading and before the first section-heading, these are zero-remarks.

If they were true, the *Tractatus* would be an even more fascinating work of philosophy. Alas, the tree reading shares the fate of many bold views: Its substantial theses are either false, implausible or overgeneralisations. From the perspective of the sequential reading, the *pages as basic reading unit thesis* has some truth in it. According to the sequential reading, reading a sequence like 4.1, 4.2, …, 4.5 without the remarks in between is a way of getting an overview over the contents of a particular part of the *Tractatus*.[10] Yet what the sequential reading takes to be merely an aid for grasping the content of the *Tractatus*, the tree reading takes to disclose its real structure, hidden by the misleading sequential printing. The theses that follow are increasingly more radical. In line with the *no privileged order thesis*,

> "there is no reason to choose to systematically follow up on the first proposition of the page, rather than, for example, choosing another one that appears more interesting to the reader." (2021b: xviii)

But this is an empty promise. Finding in the tree what is interesting to oneself is a trial-and-error method, not a systematic search for elucidations. Readers can't, for example, click on "elementary proposition" in 5, as they can in a conventional hypertext. They will read comments 5.01–5.02 or 5.1–5.6 in arbitrary order only to realise that no explanation of elementary propositions is forthcoming in the comments on 5 and that they have to backtrack from 5 to 4 to eventually find what they were searching for (in 4.21). The *equipollence thesis* plainly misunderstands the role of zero-remarks: 5.01–5.02 and 5.1–5.6, for example, aren't just different sets of comments on 5. The zero-sequence introduces the notion of a truth-argument (5.01) and defends it against Russell (5.02). This notion is needed as a prerequisite for understanding truth-functions (5.1ff). In fact, zero-remarks are always closer to their parent-remark than the non-zero-remarks are. They have less logical weight only in the sense that they are bridges to a decimal, not to a cardinal remark. The *no conclusion thesis* has two parts. The first part, that 7 isn't the conclusion of the *Tractatus*, is emphasised by tree readers because it (allegedly) offers a new interpretation of 7 and 6.54. Its second part is, however, as important as its first: If the *Tractatus* has no conclusion, it leads into abundantly many cul-de-sacs. Calling these 111 end-points "moments of reflection" (2021b: xiv) or places at which "the line of thought is exhausted" (2021b: xviii) explains neither how a philosophical work with such end-points can be a unified whole nor why the text was printed without any typographic aids (page breaks, blank lines, larger and smaller font size) to indicate these end-points.[11] The *open-ended reading thesis* is a consequence of the other theses. The sequential reading enables readers to finish reading the *Tractatus* by reading all remarks. The tree reading, however, is silent on how readers can accomplish reading the whole *Tractatus* or why they should even try reading the whole book.[12] Again, this hardly squares with Wittgenstein's aims.

3 The textual history of the *Tractatus*

In addition to replying to my arguments, Bazzocchi raises two new objections. On the one hand, he dislikes that my 2016 paper is mostly silent on the textual history of the *Tractatus*

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[10] To illustrate, understanding the *Critique of pure reason*, for example, is easier if one doesn't read it cover to cover, but begins reading it by getting an overview of its architectonic. Yet, this doesn't mean that the *Critique* is a non-sequential text.

[11] I don't have a primordial fear of "loose ends" or remarks "hanging in the air" as Bazzocchi suggests (2021: 329 n.23, 330). I just think that reading the *Tractatus* as having them misunderstands Wittgenstein's aims.

[12] Readers might use external aids to ensure a complete reading. They might, for example, tick off all remarks on which they have already read all comments. But that's offering a solution to a problem that wouldn't even exist without the tree reading.

(cf. 2016: 99). On the other hand, he offers (new) counterexamples to the sequential chain reading.

So, am I blind to the textual history of the *Tractatus* as Bazzocchi objects (2021a: 323f.)? In my 2016 paper I relied on several assumptions: *First,* I assume that the tree reading is primarily a philosophical interpretation of the *Tractatus*'s structure, not primarily a philological thesis about its textual history. At the very least, I assumed that if the tree reading is convincing, it should be convincing even if no pre-*Tractatus* manuscripts had survived. *Second,* I assume that we don't know enough details about what the "loose sheets of paper" contained and with what goals and tools Wittgenstein rearranged and reordered the *PT* during the so-called *Korrektur* (MS104, p. 103ff.) to base a philosophical interpretation on our limited knowledge of the textual history. *Third,* it's common philosophical practice to treat the text published by its author not as the last incarnation of a series of equally interesting texts, but as its authoritative version. For example, if an earlier version contradicts the published version, we ascribe the published view to the author. Earlier versions can help if the published text is ambiguous or open to interpretation, but they can't override the meaning of the published text. Unlike *PT* the published *Tractatus* is a continuous, sequential text uninterrupted by page breaks or even blank lines. To the best of our knowledge Wittgenstein *wanted* the *Tractatus* to be printed in this way. Philological insights into the composition of *PT* must explain and can't override this basic fact.

4 Bazzocchi's new counterexamples to the sequential reading

Bazzocchi mentions several new puzzle cases for the sequential reading. *First,* he quotes two groups of remarks from *PT* (2021a: 322f.)*.* This is the first:

> *PT* 4.023   A proposition *shows* how things stand *if* it is true.
>   […]
> *PT* 4.02322   […] One can *draw inferences* from a false proposition.
> *PT* 4.024   And it *says that* they do so stand.

In *PT* 4.024 "it" and "they" refer to "proposition" and "things" from *PT* 4.023, but not to anything in *PT* 4.02322 as the sequential reading suggests. This doesn't refute the sequential reading, however. For this is a case in which Wittgenstein rearranged remarks in the *Tractatus*. In the final text *PT* 4.024 became part of 4.022 and *PT* 4.02322 became part of 4.0221, i.e. in the final text *PT* 4.024 doesn't succeed, but precedes *PT* 4.02322. Of course, we can only speculate why Wittgenstein combined and rearranged these remarks the way he did. His reason *might have been* that he recognised that when read sequentially "it" and "they" in *PT* 4.024 are misleading and *for that very reason* rearranged these remarks. Since we can't know what his reasons were, the case neither supports the tree reading nor the sequential reading. Something similar is true of Bazzocchi's second *PT* example, the "for example" in *PT* 4.431 (= 4.442). Again, whatever problem there might have been for a sequential reading of *PT*, it no longer exists in the final text due to Wittgenstein's rearrangement of the material involved.

Second, Bazzocchi also mentions puzzle cases from the *Tractatus*, i.e. remarks that are sequential neighbours, but are allegedly unrelated (2021a: 333n.30):

1. **3.3442 and 3.4:** There is a clear connection here which interpreters shouldn't overlook. 3.4 states that "the proposition determines a place in logical space". Beginning with 3.34 Wittgenstein is concerned with essential and contingent properties of propositions. Similarly, the determination of a place in logical space

isn't something arbitrary or contingent (but "guaranteed", 3.4). And that is exactly what 3.3442 is about: A propositional sign "is not arbitrarily resolved in the analysis".

2. **4.4661 and 4.5:** As I already argued (2016: 109), "now it appears to be possible to give the most general form of proposition" in 4.5 should be read along the lines of "finally, after all this trouble, we can join the dots and give the most general form of proposition". 4.4661 is, of course, one of the many dots.

3. **5.641 and 6:** I don't have an answer to the question why the 5.6s ("*The limits of my language* mean the limits of my world.") have been placed between the 5.5s and 6 – but neither can Bazzocchi answer the question why 5.6 is the last entry on the 5.1–5.5 page. Since the tree and the sequential reading are companions in guilt, this is an objection against both and shouldn't be used as an objection against only one of them.

To sum up, I don't think that continuing the game of presenting and rebutting (alleged) counterexamples will ever end with a golden goal for either team. Which reading is more convincing depends on the overall picture – how the "fluency", "coherence", "completeness" and "harmony" (2021a: 321) of the *Tractatus* as a whole is explained –, not on the interpretation of this or that particular remark. I still find the explanation given by the sequential chain reading more convincing, but I am also still curious to learn more about the interpretation(s) the tree reading leads to. What I reject are pronouncements 'from above' like 'this remark *must* be a comment on that remark and to even consider a different interpretation misunderstands Wittgenstein's instructions'.

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