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Tractarian Form
as the Precursor to Forms of Life

Abstract

Interpreters are divided on the question of whether the phrase 'form of life' is used univocally in Wittgenstein's later writings. Some univocal interpreters suggest that, for Wittgenstein, 'form of life' captures a uniquely biological notion: the biologically human form of life. Others suggest that it captures a cultural notion: the notion of differently enculturated forms of human life. Non-univocal interpreters, in contrast, argue that Wittgenstein does not use 'form of life' univocally, but that he uses it sometimes to highlight a cluster of biological notions and sometimes a cluster of cultural ones.

The debate between univocal and non-univocal readers has generated a raft of intricate, illuminating literature on both sides. If it remains to an extent open, it is partly as a result of the fact that the textual evidence available on this matter, in Wittgenstein's later published and unpublished writings, is so limited. In this paper, I argue that considering Wittgenstein's earlier treatment of 'form' can help to shed light on his later treatment of 'form of life'. More specifically I argue that revisiting the *Tractatus*' treatment of 'form' gives us – perhaps surprisingly – reasons to support a *non-univocal* later reading of 'forms of life'.

Introduction

Interpreters are divided on the question of whether the phrase 'form of life' is used univocally in Wittgenstein's later writings. For

the sake of clarity, I will, in what follows, use the expressions 'univocal interpreters' and 'non-univocal interpreters' to distinguish the two positions. Some univocal interpreters suggest that, for Wittgenstein, 'form of life' captures a uniquely biological notion: the biologically human form of life (as opposed to the forms of life of biologically non-human animals) (e.g. Garver 1994). Others suggest that it captures a cultural notion: the notion of differently enculturated forms of human life (e.g. Baker & Hacker 2009). The former emphasise the idea of a universally human life over that of a plurality of human lives and the biological over the cultural; the latter reverse these emphases.[1] According to both, however, the expression 'form of life' is used univocally to pick one or other of these notions: the biological or the cultural.

Non-univocal interpreters, in contrast, argue that Wittgenstein does not use 'form of life' univocally, but that he uses it sometimes to highlight a cluster of biological notions and sometimes a cluster of cultural ones (see e.g. Moyal-Sharrock "Wittgenstein of Forms of Life, Patterns of Life and Forms of Being" in this issue of NWR, Vol. 4 Special Issue 2015. What is more: the decision not to use this expression univocally is not mere stylistic accident or terminological sloppiness on Wittgenstein's part, but rather the expression of a central underlying commitment: the commitment to resisting sharp theoretical divides between the biological and the cultural, to the extent of even positing an internal relation (rather than a division) between the two (Majetschak 2010: 75-77).

This debate has generated a raft of intricate, illuminating literature on both sides. If it remains to an extent open, it is partly because the textual evidence available in Wittgenstein's later published and unpublished writings (including the *Philosophical Investigations* and *On Certainty*) is so limited. In this paper, I propose to show that considering Wittgenstein's earlier treatment of 'form' can help to shed light on his later treatment of 'form of life'. More specifically I shall argue that revisiting the *Tractatus'*

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[1] I am borrowing this distinction between the unitary notion of a human form of life and the idea of a multiplicity of forms of human life from Danièle Moyal-Sharrock (2003: 125–148), who in turn draws it from Gertrude Conway (1989).

treatment of 'form' gives us reasons to support – perhaps surprisingly – a *non-univocal* reading of 'forms of life'.

The idea that revisiting the *Tractatus* can shed light on this material is echoed by Wittgenstein in the *Philosophical Investigations*, when he writes:

> Here the term 'language-game' is meant to bring into prominence the fact that the speaking of language is part of an activity, or of a form of life. Review the multiplicity of language-games in the following examples and in others:
>
>> Giving order, and obeying them–
>> Describing the appearance of an object, or giving its measurements –
>> […]
>> Asking, thanking, cursing, greeting, praying.
>
> – It is interesting to compare the multiplicity of the tools in language and of the ways they are used, the multiplicity of kinds of word and sentence, with what logicians have said about the structure of language. (Including the author of the *Tractatus Logico-Philosophicus*.) (PI 23 [my italics in the first instance])

This explicit reference to the *Tractatus* in *PI* 23 is often read as suggesting a straightforward disanalogy between Wittgenstein's earlier and later approaches to language: in the *Tractatus*, Wittgenstein is blind to the 'multiplicity of kinds of word and sentence'; in the *Philosophical Investigations*, by contrast, he embraces this multiplicity.[2] In my view, this is mistaken. What is more, a careful examination of the *Tractatus'* discussion of form reveals that Wittgenstein is already, at that early stage, working non-univocally, with *multiple and internally related*, understandings of form: the term 'form' is sometimes used to capture the universal aspects of representation (as in 'logical form') and sometimes to capture a multiplicity of representational systems (as the representational form of pictures and the forms of scientific systems). In this respect, the early Wittgenstein is not blind to linguistic multiplicity

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[2] For an emphasis on this idea of discontinuity see, for instance, Ian Proops (2001: 384). Danièle Moyal-Sharrock emphasises the continuities between Wittgenstein's early notion of form and his later notion of form of life, albeit in ways that differ from mine (2004: 31–40).

in the *Tractatus*, although his logician's emphasis on *truth-functional representation* does render salient for him types of linguistic activity that lose their centrality in his later philosophy. By bringing the *Tractatus*' treatment of form into sharper focus, we become able to draw a more accurate comparison between his earlier and later approaches to language – precisely the comparison that *PI* 23 invites us to draw.

The *Tractatus*' discussion of form emerges in the midst of two separate but interconnected discussions: a discussion of pictures and a discussion of scientific representational systems. I will examine each of these briefly in turn in sections 1, 2 and 3. In section 4, I will then be in a position to turn to the question of how Wittgenstein's early treatment of form helps to shed light on his later treatment of forms of life.

1. The Tractatus on the Forms of Pictures[3]

Before turning to Wittgenstein's early discussion of form, I need to say a few words about his notion of a picture. The Tractarian notion of a picture aims to capture the use we make of signs to assert possible states (i.e. possibilities that may obtain or fail to obtain and which determinately do one or the other – *TLP* 2.11). Pictures come in a variety of media according to the *Tractatus*: propositional pictures are expressed by signs (i.e. words) in the medium of language; mental pictures (i.e. thoughts) are expressed in the medium of psychical signs; in turn, iconic pictures come in a variety of media and include not only figurative paintings and drawings, but also figurative statues, models made up of any number of materials, etc.[4]

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[3] I will be using the Ogden translation of the *Tractatus* (abbreviated to '*TLP*'), unless otherwise specified.

[4] That Wittgenstein regards propositions and thoughts to be pictures *in different media* – i.e. respectively, in the media of words and of psychical signs – emerges in his correspondence (*NB*: 131 – Letter to Russell, Cassino, 19.8.19.). Thought, in the *Tractatus*, includes all pictures in the medium of psychical signs (all mental pictures), including experiences and beliefs (cf. Hacker,1986: ch. 3). That models and representational drawings are also regarded as pictures emerges in discussion of the model used in the law-court in Paris in *NB* 24.9.14. It is also amply demonstrated by Susan Sterrett (2006: ch. 8).

For Wittgenstein, pictures (in all media) are ultimately analysable into simple names that designate simple meanings (or objects) (*TLP* 2.12, *TLP* 2.13*, TLP* 2.131). Different pictures of the same possible state will thus coincide at the ultimate level of analysis and will do so even if they are pictures in altogether different media: "One could therefore say the real name is that which all symbols, which signify an object, have in common" (*TLP* 3.3411).

Since different pictures (in different media) of the same possible state are ultimately analysable into the same logical arrangements of the same real names, real names are the ultimate constituents of all pictures (including thoughts and iconic pictures) – not just of propositions. I will use the expression 'elementary picture' to capture the idea of what comes into view when one carries out the complete analyses of pictures in different media representing the same possible state: namely, that all of their analyses ultimately converge on the same determinate arrangements of the same 'real names'.[5]

One important difference between elementary and non-elementary pictures lies, for Wittgenstein, in their degree of ambiguity. Non-elementary pictures, including non-elementary propositions, manifest a degree of ambiguity that is lacking at the fully analysed level. Indeed, we use everyday, non-elementary expressions without a clear grasp of their 'logic', of their complete logical structure – and thus without grasping the meanings of the names that emerge at the ultimate level of their analyses:

> Everyday language is a part of the human organism and is no less complicated than it. […]
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> Language disguises […] thought; so that from the external form of the clothes one cannot infer the form of the thought they clothe, because the external form of the clothes is constructed with quite another object than to let the form of the body be recognized. […]

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[5] I will use the expressions 'elementary proposition' and 'elementary picture' interchangeably in what follows.

> The tacit conventions on which the understanding of everyday language depends are enormously complicated. (*TLP* 4.002 [Pears & McGuiness translation for the last sentence])

Whilst this feature of everyday language does not prevent it from fulfilling its varied purposes, it does introduce a level of ambiguity that would be absent if we could use language in its fully analysed form (*TLP* 3.323, *TLP* 3.324). The 'tacit conventions' (*TLP* 4.002) of everyday language are not geared towards logical precision and clarity: they are geared towards more practical goals, including (though not reduced to) those of facilitating our survival, by enabling us to communicate in an efficient and speedy manner crucial information about the state of reality. Logical precision and clarity require a process of analysis that is too time consuming for these everyday, practical purposes.

One distinctive, though often overlooked aspect of Wittgenstein's early view is that obtaining possible states, propositions, thoughts and iconic pictures are all *facts* (*TLP* 2, *TLP* 2.141, *TLP* 3, *TLP* 3.14, *TLP* 5.542, *TLP* 5.5421). A fact, in this context, is an obtaining logically structured arrangement of elements: a fact is part of *logical space*, that is, of the space in which truth-functionality arises (*TLP* 1.13).[6] Using the term 'fact' to cover both obtaining possible states and pictures (including thoughts and propositions) is not a mere terminological quirk on Wittgenstein's part. It is part of a deep-level commitment to resisting traditional philosophical moves to divide reality (i.e. 'the totality of facts' – *TLP* 1.1) *a priori* with a view to drawing metaphysical conclusions from such divisions. For instance, Wittgenstein suggests in the *Tractatus* that solipsism – understood as a restrictive metaphysical view – begins by positing precisely such an *a priori* division of the contents of reality; and that this attempt is doomed to failure and inevitably subverts itself (Tejedor, 2015: ch. 2 & 3).

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[6] A picture (be it a proposition, a thought or an iconic picture) is a fact in that it is a determinate logical arrangement of elements that mirrors the arrangement of elements in a possible state and thereby depicts or represents it; it is for this reason that a picture possesses a truth-functional structure. Logical complexity – that is, being a logically structured determinate arrangement of elements – is central both to the notion of possible state and to that of a fact.

Wittgenstein indicates that all facts (be they representing facts, such as propositions, thoughts and iconic pictures, or represented facts, such as obtaining possible states) are contingent. Propositions, thoughts and generally pictures are contingent in that they:

(i) are either determinately true or determinately false [bivalence]

(ii) are *both* capable of being true and capable of being false [bipolarity]

(iii) purport to be informative about the reality [informativeness]

(iv) ultimately decompose into elementary propositions that are logically independent from each other [logical independence] and that are made up exclusively of simple names [simplicity]

In turn, possible states are contingent in that they:

(i*) either determinately obtain or determinately fail to obtain

(ii*) are both capable of obtaining and capable of failing to obtain

(ii*) ultimately decompose into states of affairs that are logically independent from each other and that are exclusively made up of simple objects.[7]

Furthermore, Wittgenstein distinguishes, in the *Tractatus*, between senseful propositions and senseless propositions such as tautologies and contradictions. Senseless propositions result from applying logical operations to (logically dependent) senseful

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[7] Elementary propositions differ from non-elementary ones in that the former are logically independent from each other, whereas the latter need not be (*TLP* 4.211, *TLP* 6.3751 and *TLP* 5.124 — 5.1241): elementary propositions are logically independent from one another in that the truth-value of one such propositions does not necessarily entail the truth-value of another. Similarly, states of affairs differ from logically more complex possible situations in that the former are logically independent from each other, whereas the latter need not be (*TLP* 2.061 and *TLP* 6.3751). I use the expression 'possible state' (or, at times, 'state') to capture both the notion of a state of affairs and that of a more complex possible situation.

propositions. Since elementary propositions are logically independent from each other, senseless propositions only arise at a higher level of complexity, when a sufficient number of logical operations have been applied to elementary propositions for internal relations of logical dependence to emerge. Senseless, uninformative propositions are a corollary of senseful language – they are 'part of the symbolism' (*TLP* 4.4611) – insofar as they result from applying logical operations to senseful propositions. They do not convey or indeed purport to convey information about reality, however: they do not depict possible states of the world, they say nothing (and purport to say nothing) about the state of reality (*TLP* 4.46; *TLP* 4.461)

Whilst tautologies convey no information about reality, it could be thought that they are nevertheless informative in a different respect: perhaps they convey or communicate information, not about reality, but about *logic* itself. In Wittgenstein's view, this betrays a misconception. His reasons for this are complex and have been examined in detail elsewhere (Sullivan 2000: 182-191, McGinn 2006: ch.10, Proops 2000: ch. 1, Morris 2008: ch. 5). I will consider them here very briefly and only insofar as doing so proves relevant to shedding light on his Tractarian understanding of form and, thereby, his later conception of form of life.

For Wittgenstein, traditional theories of logic (notably those developed by Frege and Russell) make the mistake of presenting logic as a body of doctrine consisting of contentful propositions akin to those of the natural sciences (McGinn 2006: ch. 9 & 10, Proops 2000: ch. 1). These theories present the propositions of logic as differing from those of the natural sciences only in their degree of generality. They thus present logic as the most general of sciences: a science dealing with the most general features of reality. For Wittgenstein, this has had a devastating effect on the traditional understanding of logical entailment, logical variables and formal concepts (McGinn 2006: ch. 3). For, in his view, the propositions of logic are not akin to senseful propositions. The traditional approach to logic attributes to the propositions of logic a foundational role and a content that they do not possess (*TLP* 6.1,

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TLP 6.11, *TLP* 6.111, *TLP* 5.132).[8] The laws or principles of logic, such as the laws of inference (in particular, *modus ponens* – cf. *TLP* 6.1264) are senseless tautologies, according to Wittgenstein. They are 'superfluous' (*TLP* 5.132) in that they do not play the role of justifying, sanctioning, determining, guaranteeing or rendering possible inferences between propositions (McGinn 2006: 216, Dilman 1973: 101-102). For nothing outside the propositions need play this role: any inferences between propositions are justified quite simply by virtue of the internal relations that hold between these – the internal relations immanent (as it were) in the propositions themselves (cf. McGinn 2006: 215). Although the laws or principles of logic are superfluous in that they do not play the role of justifying or determining inferences, it is important to note that they are not altogether purposeless, for Wittgenstein. On the contrary, he admits that there are, 'in real life' (cf. *PTLP* 6.1221 & *TLP* 6.211) situations in which these principles are used with a purpose.[9] For Wittgenstein, logical laws or principles, whilst superfluous with respect to the justification of inferences, can, 'in real life' be purposefully used to remind us of certain pertinent *instructions* in the use of signs: instructions that are already part of the system of representation we are operating in (hence the idea of this being a *reminder*), but, which, as a matter of psychological fact, we may happen to forget or misregard on occasion. Asking how we 'actually'– i.e. 'in real life' – use propositions such as '3 x 4 = 12' or *modus ponens* for (*PTLP* 6.1221, *TLP* 6.211) enables us to see clearly that we merely use them as reminders – reminders made purposeful by certain facts about our psychology, rather than required by logic for justification (cf. Dilman 1973: ch. 11).

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[8] In the German original, the first sentence of this entry reads: "Theorien, die einen Satz der Logik gehaltvoll erscheinen lassen, sind immer falsch."

[9] This emerges most clearly in the following entries from the *Prototractatus:* "Indeed in real life a logical proposition is never what we want. Rather, we make use of logical propositions *only* in inferences from propositions that do not belong to logic to others that likewise do not belong to logic" (*PTLP* 6.122); "In philosophy the question, 'What do we actually use this word or this proposition for?' repeatedly leads to valuable insights" (*PTLP* 6.1221). In the *Tractatus*, these remarks re-emerge, but are couched in terms of mathematical, rather than logical, propositions (*TLP* 6.211). On this, see also (Dilman 1973: ch. 10 & 11). Relatedly, see Juliet Floyd's discussion of Wittgenstein's later approach to mathematics (2009, 2012).

For related reasons, Wittgenstein suggests that the traditional approach to logic misrepresents the role and status of variables (McGinn 2006: 230). The traditional approach to logic defended by Frege and Russell presents variables as generalised, representing elements of senseful propositions. This approach is wholly distorting, however, and inevitably leads to philosophical pseudo-problems and dead ends.[10] Variables should not be treated as if they are special (i.e. maximally general) representing parts of propositions. They should instead be understood as *instructions* for the combination of signs, instructions in the imperative (rather than indicative) mood along the lines of: *use* in this way.[11] In the case of the proposition, the variable in question is the general propositional form (*TLP* 4.53). This variable – the general propositional form – is akin to the instruction: use signs in such a way as to express *such and such is the case* (*TLP* 4.5). This notion of an *instruction* is central to Wittgenstein's early understanding of form. I will return to it shortly.

The *Tractatus*' discussion of form is predicated on a distinction Wittgenstein draws between the 'essential' and the 'accidental' features of pictures (cf. *TLP* 3.34). The essential features of a picture are those features that are essential to representation, without which the picture would not be able to represent at all: they are, in other words, those features universally possessed by all pictures. In turn, the accidental features of pictures are features without which representation is still possible, features that arise from the accidental way in which the signs in question have been generated or produced. This contrast between the accidental and the essential aspects of pictures is crucial to the distinction between, on the one hand, the notion of representational form and,

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[10] Consider, for example, Russell's discussion of variables as part of his Theory of Types. Russell's portrayal of variables as general expressions standing for any term leads him to a series of paradoxes that ultimately force him to impose restrictions over the range of variables. In Wittgenstein's view, Russell's difficulties become entrenched because Russell starts off with a mistaken understanding of the role of variables in general propositions.

[11] McGinn puts this point by saying that 'a variable is a rule for constructing the class of propositions that are its values' (2006: 230). For reasons I discuss in (2015: ch. 5), I prefer to use the term 'instruction' here and to reserve the term 'rule' ['Regel'] for a different purpose, following Wittgenstein's own use.

on the other, the notions of logical structure, pictorial form and logical form.

Representational form encapsulates the conventions that render representation in a particular medium possible: the criteria for correct representation in that *particular pictorial medium* (or pictorial system) (*TLP* 2.173).[12] For instance, it belongs to the medium of models that representations in this medium involve three-dimensionality. If I am to represent anything in the medium of models, I must use three-dimensional shapes – this, after all, is what *counts* as representing *via* models. A piece of clay that has been extended and thinned out to become a two-dimensional sheet cannot be used as a *model*. Similarly, if I am to represent anything in the medium of painting, I must use more than one shade of colour: a monochrome sheet cannot be used to represent in the medium of *paintings*.[13] That models involve three-dimensional shapes and that representational paintings involve combinations of more than one shade of colour is part of the criteria for depiction that characterize, respectively, the media of models and paintings: it is part of their representational forms. Furthermore, just as it belongs to the medium of models that they must involve three-dimensionality, it belongs to the medium of, say, the English language that verbs should conjugate in specific manners. That is, the linguistic conventions of natural languages constitute their representational forms.[14]

It is important to emphasise that the representational form of a picture is not, for Wittgenstein, something that is shared by the picture and the depicted possible state. For instance, a three-dimensional model can be used to represent a two-dimensional

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[12] Although their positions are, of course, very different, a similar understanding of this notion of representational form as encapsulating the criteria or conventions of a particular medium or system of representation can be found in Hacker (1986: 59), Kenny (1973: 57) and McGinn (2006: 92).

[13] We can, however, use it to represent in another medium, for instance by treating the sheet as a word in the medium of language.

[14] It is likely that Wittgenstein would have had a similar approach to the representational form of thoughts. Here, it suffices to note that there is evidence to suggest that *non-elementary* thinking is performed in specific natural languages, in his view (Tejedor 2015: ch. 3).

possible state; a painting can be used to represent an invisible, colourless melody, etc. The notion of representational form is not associated with what is shared by the picture and the possible state it depicts; it is associated with the criteria or conventions belonging to a particular medium or pictorial system: with the *principles* that govern that medium.[15]

In contrast, the notions of structure, pictorial form and logical form are closely associated with what is *essential* to representation – that is, what is universally part of representation, without which something would simply not *count* as a representation or a picture. Let us consider each of these briefly in turn.

For Wittgenstein, it is essential to a picture that it should have a structure. The structure of a picture is its determinate arrangement of logical elements. This notion of a logical element is key since, for him, understanding a picture involves understanding the logical elements of the picture (cf. *TLP* 4.024). [16] In the case of propositions, these logical elements are expressed by elements of the propositional sign; in the case of thoughts, by elements of the psychical sign; in iconic pictures, by elements of the iconic sign. It is important to emphasise here that the structure of a picture is its *truth-functional* structure: Wittgenstein indicates this repeatedly, in different sections of the *Tractatus* (*TLP* 4.1211, 5.13, 5.2ff).[17] The whole structure of a picture is therefore something that would only come fully into view if we had the particular, complete logical

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[15] In the *Tractatus*, the representational form of a picture encapsulates its accidental aspects – those aspects that are not essential to representation, but that result from the (optional) medium or pictorial system in question. Insofar as elementary pictures possess no accidental features, they therefore possess no representational form for Wittgenstein (cf. *TLP* 3.341, *TLP* 3.3411).

[16] Wittgenstein admits that we do not have a grasp of what takes place at the ultimate level of analysis, since no *complete* analysis of any picture has ever been carried out (*TLP* 5.55). Nevertheless, since logical structure is truth-functional, understanding a picture must involve having enough of a grasp of the initial stages of analysis to grasp – at the very least – what the logical elements of the picture are and what they signify. Cf. Wittgenstein's discussion of 'Ambulo' (*TLP* 4.032).

[17] Elementary propositions are truth-functions of themselves, therein lies their truth-functional structure.

analysis into which the picture in question decomposes (*TLP* 2.034, 2.15).[18]

In turn, Wittgenstein indicates that the pictorial form of a picture is 'the possibility of [its] structure' (*TLP* 2.15). Pictorial form is what is shared by a picture and the possible state it depicts which enables the picture to represent the state *in the particular way it does* (*TLP* 2.15, *TLP* 2.151, *TLP* 2.17).[19] The notion of pictorial form, unlike that of representational form, is therefore primarily associated with that which is *shared* by a picture and a possible state. Imagine that we are using a three-dimensional multi-tonal coloured shape first to represent a three-dimensional monochrome possible situation and then to represent a two-dimensional multi-tonal coloured shape. In the first instance, we would be dealing with a picture whose pictorial form consists, in part, of its three-dimensionality, but not its multi-tonality of colour (since the latter is not shared by the depicted possible state); in the second instance, the reverse would be the case. In both cases, these aspects of pictorial form amount to a matter of resemblance – more specifically, resemblance with respect to a sense-perceivable quality.

Consider, in contrast, how Wittgenstein introduces the notion of logical form.

> What every picture, of whatever form, must have in common with reality in order to be able to represent it *at all* —rightly or falsely— is the logical form, that is, the form of reality. (*TLP* 2.18) [My italics]

For Wittgenstein, the notions of logical and pictorial form are both related to what is *shared* by a picture and its depicted possible state, which enables the former to represent the latter. Logical form is what enables the picture to depict the possible state *at all* (cf. Hacker 1986: 59, and Kenny, 1973: 57). Logical form for Wittgenstein consists in logical analysability: it manifests itself in that pictures and the possible states they depict have logical

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[18] In parallel, Wittgenstein suggests that the structure of a possible state consists in the particular logical combination of the states of affairs into which the possible state decomposes.

[19] Hacker and Kenny give a similar initial account of pictorial form, although our positions ultimately diverge – (Hacker 1986: 59 and Kenny 1973: 57).

analyses that mirror each other. Logical form is therefore what renders any pictorial structure – in any medium – possible: all pictures possess it, if they are to count as pictures at all.

Wittgenstein indicates that logical form is an aspect of pictorial form. He also indicates that, in the case of some pictures (notably propositions and thoughts), pictorial form is exhausted by this very aspect: unlike in the case of iconic pictures, the pictorial form of thoughts and propositions is exhausted by their logical form (*TLP* 2.181, *TLP* 3, *TLP* 4.03). All pictures are logical pictures in the broad sense that all possess logical form. However, propositions and thoughts (unlike iconic pictures) are also logical pictures in a narrower respect: their pictorial form is exhausted by their logical form.

2. Ineffability and the Forms of the Natural Sciences

Having examined Wittgenstein's treatment of the forms of pictures, it is important to consider a related puzzle, which has tended to go unnoticed in the literature. This puzzle concerns the *Tractatus*' view that form is ineffable. Wittgenstein draws a clear association between the notion of form and that of ineffability. Form cannot be said – and this applies to logical, pictorial *and* representational forms: "Propositions cannot represent logical form: it is mirrored in them" (*TLP* 4.121); "A picture cannot, however, depict its pictorial form: it displays it" (*TLP* 2.172); "A picture cannot, however, place itself outside its representational form" (*TLP* 2.174).

This is puzzling. For, whilst it may – perhaps – be possible to account for the ineffability of logical and pictorial forms by appealing to an understanding of what is *essential* to pictures generally or to the internal relation between pictures and depicted states, these options are not available in the case of representational form. Indeed, as we have just seen, representational form relates to the *accidental*, conventional aspects of pictures: representational form encapsulates the conventions that render representation possible *in a particular medium*, the criteria for correct representation in that particular representational system – for instance, the grammatical conventions in the English language. In what respect

are the conventional principles that govern English grammar *ineffable* though? And what is the status of the propositions that express these conventions (these conventional principles)? Are they senseful? Senseless? Nonsensical? Exploring these questions yields some interesting conclusions that help to shed light on Wittgenstein's early understanding of form and, thereby, on his later notion of form of life. In order to show this, we need to consider how the *Tractatus*' treatment of the forms of pictures relates to the treatment of form that emerges in his discussion of the natural sciences, in *TLP* 6.3–6.3751.

In *TLP* 6.3–6.3751, Wittgenstein suggests that the forms of the natural sciences are both *a priori* (TLP 6.33) and optional (TLP 6.341). They are *a priori* in that they provide *instructions* – in the shape of principles (which I call instruction-propositions) – for generating senseful representations (or pictures) within particular scientific systems. Insofar as these instructions are constitutive of the representational systems in question, the instructions – the principles – are *prior to* any senseful pictures (linguistic, mental or iconic) generated within those systems:[20] they are, in this particular respect, *a priori*. In turn, the systems are optional in that we can opt to move from one system to another – for instance, in Physics, we can move from a system that allows for causal action at a distance to a system that does not allow for it. Let us consider these ideas in a little more detail.

Wittgenstein suggests that the principles of the natural sciences – i.e. the instruction-propositions – are *a priori*. He writes:

> All propositions, such as the law of induction, the law of continuity in nature, the law of least expenditure in nature, etc. etc., all these are a priori [insights – 'Einsichten' in the original] of possible forms of the propositions of science (*TLP* 6.34)

In the previous entry, Wittgenstein is careful to note that the *a priori* insights in question are not *a priori* beliefs, but a type of *a priori knowledge*:

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[20] They are 'constitutive' of these systems in the deflationary sense that they contribute to stipulating which system is at work.

> We do not *believe* a priori in a law of conservation, but we *know* a priori the possibility of a logical form. (*TLP* 6.33)

In my view, the understanding of knowledge at work in this remark is that of ability-knowledge or know-how.[21] According to the *Tractatus*, this type of knowing is not propositional – it does not consist in entertaining particular beliefs or mental representations (e.g. beliefs that are justified and true). Instead, it involves the ability to *use signs in particular ways for specific purposes*. *Knowing* the principles of a given natural science system therefore involves *being able (knowing how)* to construct senseful propositions according to a unified set of instructions – according to a 'single plan' (*TLP* 6.343). What the unified set of instructions – the single plan – is, in any given system, is not something that can be represented by means of senseful propositions. Rather it is shown in the use we make of signs to express senseful propositions within that system. Our knowledge of these principles – and, therefore, our knowledge of the *form* in question – is *prior to experience* in that it is a type of constitutive know-how: it is the know-how that enables us to construct senseful representations (propositions, iconic pictures, but also mental representations, including beliefs and experiences) according to the instructions pertaining to a particular system; it is, as noted above, *prior to* any senseful thoughts (including experiences) and propositions generated within that system – it is *a priori*.

Whilst Wittgenstein suggests that the form and associated set of principles of a given system are *a priori*, he also notes they are optional ('beliebig' in the original) (cf. *TLP* 6.341) – in that there are 'different systems of describing the world'. He writes: "This form is [optional] […] To the different networks correspond different systems of describing the world" (TLP 6.341).

For Wittgenstein, these different forms – with their different associated sets of principles or instruction-propositions – are optional in that we can opt for one or other of them (and their

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[21] I defend this further in Tejedor 2015: Introduction, ch.1 & Conclusion.

associated principles) (*TLP* 6.341). [22] These forms are not, therefore, essential – or universal – requirements of language or representation. The implication here is that it is possible to construct a description of the world without adopting any of these forms – that is, without adopting any one in particular of these sets of principles from the natural sciences: we can, for instance, construct a description of the world with a system in Physics that does not allow for action at a distance.

Part of the idea here is that the forms of the natural sciences are optional in that they consist of features that are *accidental* – not essential or universal – to representation: scientific forms are akin to *conventional* representational forms, not to *universal* logical form. A senseful proposition generated according to the principles of a system in the natural sciences will thus display a variety of forms: insofar as it is senseful, it will display essential logical form; insofar as it depicts reality according to a particular system from within the natural sciences, it will display the accidental form associated with that system; and insofar as it is (say) an English language proposition, it will display a particular, accidental representational form (i.e. that associated with the conventions of the English language).

For Wittgenstein, the notion of form is intimately connected with those of activity and use, since form – e.g. the form of a proposition, of a thought, of an iconic picture, etc. – is shown in the *activity of using* of signs. Consider the logical form of a picture – that is, a picture's analysability into elementary pictures. Wittgenstein suggests that, when we use signs to express a senseful picture (be it a senseful proposition, a thought or an iconic picture), this use of signs *shows* the logical form of the picture. The use of signs shows that we are expressing a picture with a determinate sense and therefore a picture ultimately analysable into logically independent elementary pictures consisting of simple names. Wittgenstein indicates that logical form is an essential feature of senseful pictures *qua* pictures. Indeed, if our use of signs did not

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[22] McGuinness writes that Wittgenstein's 'view is a variant of the conventionalism not uncommon in his day' (2002: 127).

express a determinate sense and thereby showed logical form, it would not count as expressing a picture at all: it would not count as representational, according to the *Tractatus*.

Whilst logical form is, in this respect, an essential feature of senseful pictures, representational form – say, that a proposition is expressed in English rather than Spanish – is not. Like logical form, however, the representational form of a picture is shown in our use of signs. However, the representational form of a picture is not essential to it *qua* picture. The representational form of pictures – be they propositions, thoughts or iconic pictures – is, as we have just seen, associated with their accidental features. These accidental features emerge as a result of the 'tacit conventions' that are '*a part of the human organism*' (*TLP* [Pears& McGuinness] 4.002 – *my italics*). The fact that certain psychological, biological, etc. traits happen to be distributed amongst human beings in the ways that they are and that human beings tend to act in particular ways, together with other facts about our physical environment, constitute what Wittgenstein calls the 'human organism'. The conventions that make up the accidental features of pictures are therefore also part of this organism – of this complex interweaving of facts about human nature and facts about our physical environment. One of the respects in which these conventions are accidental is therefore that they can change over time, as the facts about human beings and the facts about our physical environment themselves change.

For Wittgenstein, those aspects of the use of signs that show logical form circumscribe what counts – essentially or universally – as senseful representation (in language, thought, or iconic depicting). In contrast, those that show representational form circumscribe what counts as expressing sense in a particular representational medium. Consider, for instance, the sentence 'Cat the this dog ate'. This sentence fails to show the representational form of the English language – i.e. it does not express something that *counts* as an English-language proposition – in that it does not abide by the conventions of English. The notion of representational form aims to capture those conventional principles that govern the construction of senseful pictures within the medium in question; insofar as these principles convey *instructions*

for the construction of pictures within particular media, they are constitutive of those media, and therefore *a priori* like scientific forms. At the same time, representational forms are, like scientific forms, optional: we can opt to depict a particular state of affairs in one pictorial medium or another, in one natural language or another.

It is clear, therefore, that there are important parallels between the notion of optional form in the natural sciences and that of representational form. Interestingly enough, Wittgenstein suggests that scientific forms are ineffable in spite of being optional – just as representational forms are:

> If there were a law of causality, it might be put in the following way: There are laws of nature.
>
> But of course that cannot be said: it makes itself manifest. (*TLP* 6.36)

Why, however, should scientific and representational forms be regarded as *ineffable*? And how does their ineffability relate to the ineffability of (essential, not optional) logical form?

A form, as we have just seen, is a unified set of instructions for the generation of senseful pictures. The instructions in question can be essential to representation (i.e. pertinent to the generation of all pictures) – as in logical form – or they can be optional – as in representational and scientific forms. Now, arrangements of signs (be they physical, as in linguistic and iconic signs, or psychical as in mental signs) can be used to express instructions. For Wittgenstein, whether an arrangement of signs expresses an instruction or a senseful picture is not determined by the material of which it made – in particular, whether the signs are made of physical or of psychical *stuff*. Instead, it is determined by the role the signs play: by how they are *used*. Use exhausts the distinction between instructions and senseful pictures. Sentences can be used to express form, but, when they do, they are expressing *instructions*. The role of expressing instructions is different from the role of expressing pictures (i.e. of representing possible states). The two roles have to be distinct and mutually exclusive, insofar as all there is to the distinction between pictures and instructions is precisely such a difference in roles: the same *sign* can be used to express a picture or

to express an instruction, and the difference lies precisely – and exclusively – in this use: in the role that the sign is being made to play. Hence, if an arrangement of signs is used to express a picture, it is not used to express an instruction – and, *vice-versa*. It is in this respect, I suggest, that form (i.e. a unified system of instructions) cannot be *depicted* or sensefully represented.

Form can be expressed insofar as sentences can be used to convey *instructions*. Expressing logical instructions (i.e. instructions relating to logical form) can serve the psychological purpose of providing reminders, as we saw above. Expressing natural science principles or natural language conventions can serve the purpose of stipulating which of the various optional systems we are adopting. In both cases, however, the purposeful use of a sentence to express an instruction is different from the purposeful use of a sentence to depict a possible state. If a sentence is used to express an instruction, it is not simultaneously used to depict or *say*. It is in this deflated respect that all forms, including (optional) representational and scientific forms, are ineffable (i.e. cannot be *said*) for Wittgenstein.

3. Representational systems conditioned – but not justified – by reality

According to the *Tractatus*, a scientific law of nature is not a possible state represented by a senseful proposition and capable, when obtaining, of *justifying or grounding* scientific language. Nor are laws of nature necessary and, *for this reason*, capable of justifying such language. For the purpose of a law is simply not to *justify*: as we saw earlier, not even the tautological laws of logic play such a role, since it is to misconceive the notion of a logical law to assume, as Frege and Russell do, that they serve to justify or ground the logical practices of deductive inference (*TLP* 5.132).

Instead, for Wittgenstein, the notion of law – or principle – associated with the natural sciences is that of an *instruction for the construction of senseful propositions within a particular, unified natural science system*. Consider, for instance, the notion of a *causal* law of nature. According to the *Tractatus*, a causal law is a set of instructions for the use of causal signs, one that enables us to generate senseful

propositions of the form stipulated by the causal system in question. For the early Wittgenstein, it is part of the remit of physics to come up with the instructions or causal principles that best serve the instrumental purposes of the natural sciences and, more generally, of human beings. Causal laws are instructions that circumscribe what counts as a senseful proposition of the causal form (i.e. of the form '*p* causes *q*') within the optional system in question. In so doing, causal laws rule out certain uses of signs as irrelevant or purposeless within the system in question. For instance, a system that allows for action at a distance will allow for senseful propositions involving the notion of a causally efficacious magnet; in contrast, a causal system that does not allow for action at a distance will not treat such propositions as senseful. One question we may ask at this stage is: what, according to Wittgenstein, is involved in opting to move from one system to another?

I suggest that the process of moving from one scientific system to another involves a type of relative (i.e. instrumental, means-ends) evaluative judgement that would be describable in language and thinkable, according to Wittgenstein. In "A Lecture on Ethics", Wittgenstein repeatedly aligns this form of instrumental evaluative judgement with the scientific approach to the world. He writes, for instance, that the 'scientific book' (LOE: 6) would be such as to:[23]

> contain all relative judgments of value and all true scientific propositions and in fact all true propositions that can be made. (LOE, p. 6)

Although Wittgenstein does not discuss this idea explicitly in the *Tractatus*, it is likely that he regards shifts from one optional scientific system to another as involving precisely such 'relative judgements of value' (McGuinness 2002: 129 – 130). This type of judgment includes (though need not be restricted to) judgements as to which scientific representational system is best suited, instrumentally, to securing our survival. Shifts from one scientific

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[23] This notion of the 'scientific book' echoes the *Tractatus*' notion of the book entitled *The World as I Found It* (TLP 5.631).

system to another will involve instrumental evaluative judgements that are informed by reality: by the facts.

As we saw at the start of this paper, the notion of fact covers, in the *Tractatus*, both obtaining possible states (including physical states) and pictures (including propositions and thoughts). Wittgenstein's decision to use the word 'fact' to cover both obtaining possible states (e.g. depicted physical facts) and pictures (including linguistic and mental ones) is not a terminological quirk, but part of his commitment to resist the *a priori* division of reality into metaphysically significant categories (e.g. the physical and the mental; or the physical and the inherently representational). Instead, for Wittgenstein, all facts are placed on the same level. This suggests that, in his view, shifts from one scientific representational system to another will be informed by the facts of our physical environment together with those facts pertaining to our human biology and psychology (human bodies and human thought). The relative evaluative judgements involved in moving from one system to another are made against the background of these facts, where neither *type* of fact is privileged over the other. I suggest that, for the early Wittgenstein, these facts – the facts that make up the 'human organism' (*TLP* 4.002), the physical facts of our environment and human biology together with mental facts of human psychology – do not ground, justify or determine our options, but constitute the background against which we make those instrumental evaluative judgements that lead us to opting for one representational system over another. These judgments are made by natural scientists in the case of scientific forms and systems; in the case of non-scientific representational systems (i.e. in the case of the representational form of pictures generally – e.g. the conventions of English grammar), they are culturally generated. In both cases, however, the nature of the judgment is the same: we opt for one representational system over another as a result of an instrumental, evaluative judgment made against a background of facts – the facts of the 'human organism' (*TLP* 4.002).

4. From Tractarian forms to forms of life

In summary, according to the *Tractatus*, as we have just seen, the notion of form is associated with the possibility of generating senseful pictures. Logical form involves logical analysability – an analysability shared and co-mirrored by pictures and the possible states they depict. Logical form is essential or universal to all representation – to all picturing. Representational and scientific forms, in contrast, are not universal or essential to representation, but optional. They involve the conventions of particular representational media or scientific systems – conventions that make it possible to produce senseful pictures within those media or scientific systems. We opt into these conventional media and scientific systems following evaluative judgements that we make against the background of certain facts: facts pertaining to the human organism, that is, facts about our physical environment and about our human biology and psychology. These optional forms are internally related to logical form, in that they generate senseful, logical pictures (ones that are analysable into elementary arrangements of real names). In this respect, these optional forms are themselves logical forms – in the plural (*TLP* 2.182; *TLP* 6.33).

All of these forms – the universal logical form in the singular and the optional logical forms in the plural – can be expressed by means of instruction-propositions: they can be expressed by using signs to instruct – or give *orders* (cf. *PI* 23) – relevant to the production of senseful propositions. In the case of universal logical form, the instruction-propositions in question act as reminders of a know-how we already possess, insofar as we already have mastery of senseful, logical language: they serve the purpose of reminding us of this know-how, when we end up deviating from it (in particular, when we are tempted by nonsensical metaphysical pseudo-language). In the case of the optional logical forms, in turn, the instruction-propositions serve to *stipulate* which of the various optional systems is at work. In both cases, form is ineffable in that the role played by signs to express instructions is different from the role played by signs to express senseful propositions or pictures – i.e. to *say*. Since the difference between instructing and depicting is *exhausted* by the use of signs – since this difference lies, exclusively,

in a different use of signs (and not, e.g. in the kind of *stuff* that the signs are made of, physical or mental) – it is not possible to use a sign to instruct and depict *simultaneously*: when a sign is used to instruct it is, for that very reason, not being used to depict – and vice-versa. Since form is expressed by instruction-propositions, it cannot therefore be expressed by depicting, senseful propositions: form (whether universal or optional) is ineffable. In my view, the ineffability of form reduces to this difference in roles: there is nothing more substantive to it than this. My understanding of ineffability in the *Tractatus* is, in this respect, deflationary.

The differences and similarities between the *Tractatus'* approach to form and the later conception of form(s) of life should, by now, be starting to emerge. First of all, it would be misleading to suggest that Wittgenstein moves from a Tractarian view that is blind to linguistic multiplicity to a later view that allows for such multiplicity. The *Tractatus'* approach to representation allows for far more multiplicity than is commonly acknowledged, not only insofar as it allows for different optional depicting media and scientific systems, but insofar as it also allows for propositions that express *instructions* (akin to *orders*) – propositions that are not senseful, senseless *or* nonsensical. The central difference between Wittgenstein's earlier and later approaches does not lie, therefore, in its tolerance of multiplicity.[24] Instead, it lies in the fact that, in moving from his earlier to his later philosophy, Wittgenstein loses a key piece in his Tractarian arsenal – the notion of logical analysability, of analysability into logically independent, elementary arrangements of simple units: logical form.

With the dissolution of universal logical form, Wittgenstein is left with two notions already present, though comparatively less saliently, in the *Tractatus*: the idea of a multiplicity of optional representational media and scientific systems (the optional forms); and the idea of the 'human organism', that is of those facts relating to human biology, psychology and the human physical

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[24] For a more detailed discussion, see (Tejedor 2015: chaps. 4 & 5). I cannot think of any of the 'games' listed under *PI* 23 that cannot be accounted for from within the *Tractarian* view, except perhaps, depending on how one understands it, the very last one: that of *praying*.

environment that condition our moving between optional systems. The Tractarian notion of optional (representational and scientific) forms evolve into the idea of a multiplicity of forms of human life (in the plural); the notion of optional representational systems into the idea of a multiplicity of language-games. In turn, the Tractarian notion of a human organism evolves into the idea of a single, unified form of human life – a collection of facts that condition human activity universally.[25] In connection to the latter, we see emerge in the *Investigations*, like in the *Tractatus*, the idea that language is *a part of the human organism:*

> Everyday language is a part of the human organism ['ein Teil des menschlichen Organismus'] and is no less complicated than it. (*TLP* 4.002)

> the term 'language-*game*' is meant to bring into prominence the fact that the speaking of language is part of an activity, or of a form of life. (*PI* 23)

In the *Tractatus*, we find that logical form and the optional (representational and scientific) forms are internally related to each other, since all pictures (no matter what their optional forms) are, at the same time, logical pictures. Logical form does not *justify* or *determine* the shape of optional pictorial and scientific systems (the optional principles that govern them – their optional forms); it is, however, constitutive of them (in an immanent, non-foundational sense) since all of these optional systems, insofar as they are representational at all, are also logical systems: they are systems of facts in logical space.

In his post-*Tractatus* periods, with the demise of logical form, the idea of facts being in logical space gives way to a notion that is already present in the *Tractatus*, but which only gains full prominence in his later writings: the notion of the human organism, the facts most directly relevant to human life. These include the facts about our physical environment, about our human biology and about our human psychology. These facts, put

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[25] On the distinction between the human form of life and the forms of human life, see Danièle Moyal-Sharrock "Wittgenstein on Forms of Life, Patterns of Life, and Forms of Being" in this issue of NWR: 22–25; 31–33.

together, do not determine or justify the cultures and linguistic systems that emerge from them – just as logical form did not determine or justify representational and scientific forms in the *Tractatus*. But our different human cultures and linguistic systems do nevertheless emerge from complex evaluative judgments made against the background of (and informed by) these facts. In this way, we find that our differently enculturated human forms of life are internally related to the facts of the human organism – that is, to the universally human form of life. These considerations point, I suggest, to a non-univocal understanding of Wittgenstein's use of 'form of life' in his later writings.

References

Baker. G.P. and Hacker, P.M.S. 2009. *Wittgenstein: Rules, Grammar and Necessity. Volume II of An Analytical Commentary on the Philosophical Investigations. Essays and Exegesis of §185-242*. 2nd extensively revised edition by P.M.S Hacker. Oxford: Wiley Blackwell.

Conway, G. D., 1989. *Wittgenstein on Foundations*. NJ: Humanities Press.

Dilman, İ. 1973. *Induction and Deduction: A Study in Wittgenstein*. Oxford: Basil Blackwell.

Floyd, J. 2012. "Das Überraschende: Wittgenstein on the Surprising in Mathematics," in *Wittgenstein and the Philosophy of Mind*, ed. Jonathan Ellis and Daniel Guevara, pp. 225–258.

Garver, N., 1994. *This Complicated Form of Life: Essays on Wittgenstein*. Chicago: Open Court.

Hacker, Peter. M. S., 1986. *Insight and Illusion*, Revised Edition. Oxford: Oxford University Press.

Kenny, A. 1973. *Wittgenstein*. Oxford: Blackwell.

Majetschak, S., 2010. "Forms and Patterns of Life: A Reassessment of a So-Called Basic Concept in the Late Philosophy of Wittgenstein". In Marques, A. & Venturinha, N., eds. 2010: *Wittgenstein on Form(s) of Life and the Nature of Experience*. Bern: Lang, pp. 75-96.

McGinn, M., 2006. *Elucidating the Tractatus: Wittgenstein's Early Philosophy of Logic and Language*. Oxford: Oxford University Press.

McGuinness, B. F. 2002. *Approaches to Wittgenstein: Collected Papers*. London and New York: Routledge.

Morris, M. 2008. *Routledge Philosophy Guidebook to Wittgenstein and the Tractatus*. London & New York: Routledge.

Moyal-Sharrock, D., 2003. "Logic in Action: Wittgenstein's Logical Pragmatism and the Impotence of Scepticism", *Philosophical Investigations* 26:2, pp. 125-48.

Moyal-Sharrock, D., 2004. *Understanding Wittgenstein's* On Certainty. London: Palgrave Macmillan.

Moyal-Sharrock, D., 2015. "Wittgenstein on Forms of Life, Patterns of Life, and Forms of Being". *Nordic Wittgenstein Review* 4 Special Issue 2015, *Wittgenstein and Forms of Life*, pp. 21-42.

Proops, I., 2000. *Logic and Language in Wittgenstein's* Tractatus. New York: Garland Publishing.

Proops, I., 2001. "The New Wittgenstein: A Critique," *European Journal of Philosophy* 9, pp. 375-404.

Sterrett, S. 2006. *Wittgenstein Flies a Kite: A Story of Models of Wings and Models of the World.* New York: PI Press.

Sullivan, P. M., 2000. "The Totality of Facts," *Proceedings of the Aristotelian Society* 100, no. 1, pp. 175–192.

Tejedor, C., 2015. *The Early Wittgenstein on Metaphysics, Natural Science, Language and Value.* London & New York: Routledge.

Wittgenstein, L. 1922. *Tractatus Logico-Philosophicus.* Trans. Charles K. Ogden. London: Routledge & Kegan Paul. [TLP]

Wittgenstein, L. 1965. "A Lecture on Ethics," *The Philosophical Review* 74, no. 1, pp. 3–12.

Wittgenstein, L. 1977. *On Certainty*, ed. G.E.M. Anscombe and G.H. von Wright, tr. D. Paul and G.E.M. Anscombe, amended 1st Edition. Oxford: Blackwell. [OC]

Wittgenstein, L. 1961. *Notebooks 1914-1916*, ed. Georg H. von Wright and Gertrude E. M. Anscombe. Trans. Gertrude E. M. Anscombe. Oxford: Blackwell. [NB]

Wittgenstein, L. 1971. *Prototractatus.* Ed. B. F. McGuinness, T. Nyberg and G. H. von Wright. Transl. B. F. McGuinness and D. Pears. London & New York: Routledge.

Wittgenstein, L. 2009. *Philosophical Investigations*, 4th Ed. Trans. P.M.S. Hacker and J. Schulte. Trans. G.E.M Anscombe, P.M.S. Hacker and J Schulte. Oxford: Wiley-Blackwell. [PI]

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