

A. Pichler, S. Säätelä:  
*Introduction to Wittgenstein*

Lecture 3 6.9.2022:

- The elementary proposition
- The molecular proposition
- Truth functions
- Nonsense and other problems of the *Tractatus*

# Repetition and outlook

- Philosophical problems arise when being misled by surface structure of our language.
  - Surface vs. depth structure
- Philosophical problems are essentially problems that have to do with sense, reference and truth.
  - Philosophy of *language*
- Philosophical problems are solved by attending to the depth = *logical* structure of language.
- Depth structure, language's real structure is language as logically analyzed.
- Logical analysis and notation help to adequately capture sense, reference and truth.
  - Not "Subject" and "Predicate, but "Begriffsschrift", Function, Logical operator (Connectives and quantifiers)
  - ...
- **My whole task consists in explaining the nature of the proposition.** (NB p. 39, 22.1.1915)
- → Picture theory: How does language represent the world?

# Repetition and outlook

- For there to be reference, there must be simple and basic constituents in our language and thought that connect with the world, that refer to things in the world.
- In order to solve our philosophical problems, we need to separate, on the level of depth grammar, what has reference from what has not reference.
- Only propositions that can be true, but aren't *necessarily* true, can express a thought and say something about the world and thus have *sense* (cf. tautologies).
- Only propositions that can be false, but aren't *necessarily* false, can express a thought and say something about the world and thus have *sense* (cf. contradictions)
- I.e. only “bi-polar” propositions can say something about the world and have sense.
- The truth value (True / False) of an elementary proposition is determined by its picturing relation to the world.
- The (output) truth value of a molecular proposition is determined as a function of the (input) truth values of the elementary propositions it is composed of.
- Which is the home of meaning, sense, reference, and truth in language and thought? The elementary proposition / the thought (“Gedanke”).

# Repetition and outlook

- The elementary proposition plays an indispensable role for the picture theory and the *Tractatus* philosophy of language.
- The colour exclusion problem (and other problems) brings Wittgenstein to abandon the *Tractatus* notion of the elementary proposition.
- The abandonment of the elementary proposition brings with it the abandonment of the *Tractatus* account of
  - sense
  - reference
  - truth
  - necessity and impossibility ...

# The elementary proposition

# My whole task consists in explaining the nature of the proposition. (NB p. 39, 22.1.1915)

Language (Sprache)	Reality / World (Wirklichkeit / Welt)
<p style="text-align: center;">o o o o o</p> <p>names (<i>einfache Zeichen, Namen</i>)</p>	<p style="text-align: center;">o o o o o</p> <p>simple objects (<i>einfache Gegenstände</i>)</p>
The name refers to the simple object, but only in the context of an elementary proposition.	
<p style="text-align: center;">oo</p> <p><b>elementary proposition</b> (<i>Elementarsatz, einfacher Satz</i>): a concatenation of names</p>	<p style="text-align: center;">oo</p> <p>(elementary) state of affairs / state / status rerum (<i>Sachverhalt</i>): a concatenation of simple objects</p>
An elementary proposition has <i>sense</i> . If the state of affairs that is asserted by the elementary propositions obtains, then the elementary proposition is <i>true</i> , and the state of affairs a <i>fact</i> ( <i>Tatsache</i> ).	
<p style="text-align: center;">oo → oo</p> <p>«If it rains, my cat gets wet.» molecular proposition (<i>zusammengesetzter Satz</i>)</p>	<p style="text-align: center;">oo oo</p> <p>«It rains. My cat gets wet.» (molecular) state of affairs (<i>Sachlage?</i>)</p>

- Elementary propositions have sense (Frege).
- Elementary propositions don't have reference ( $\neq$  Frege).
- Elementary propositions are bi-polar.
- Elementary propositions are simple.
- Elementary propositions are logically independent of each other.
- The sense of an elementary proposition is 100% determinate.
  - Without 100% determinacy of sense, it is unclear which are the objects referred to (and, as a consequence, it cannot be decided whether the proposition is true or false).
  - The reference of a simple name is 100% determinate.
- It is only within an elementary proposition that the simple name refers to the simple object (Frege).

# The molecular proposition



# What is a *molecular proposition*?

- Through logical operators, a molecular proposition is built out of elementary propositions.
- Molecular propositions result from logical operations on elementary propositions.
  - The logical operators do *not* represent (and do not refer).
    - ≠ Frege and Russell who assume that there are «logische Gegenstände» and hence also have a different conception of logic
  - With molecular propositions we perform logical operations on our elementary pictures of the world.
- Logical connectives:  $\sim$ ,  $\&$ ,  $\vee$ ,  $\rightarrow$
- Examples of molecular sentences built with logical connectives:
  - "It rains and my cat is grey":  $p \& q$
  - "It rains or my cat is grey":  $p \vee q$
  - "If it rains, my cat is grey":  $p \rightarrow q$
  - "If it rains, my cat gets wet":  $p \rightarrow r$

# Logical connectives

p	~	&	v	→		q
W						W
W						F
F						W
F						F

# Truth and truth functions

# How can I find out whether an *elementary proposition* is true?

TLP 2.223:

- In order to discover whether the picture is true or false we must compare it with reality.

TLP 4.024:

- To understand a proposition means to know what is the case, if it is true.

How can I find out whether a molecular proposition is true?

p	&	q
W	W	W
W	F	F
F	F	W
F	F	F
(1)	(3)	(2)

How can I find out whether a molecular proposition is true?

p	v	q
W	W	W
W	W	F
F	W	W
F	F	F
(1)	(3)	(2)

How can I find out whether a molecular proposition is true?

$p \rightarrow q$

W    W    W

W    F    F

F    W    W

F    W    F

(1)    (3)    (2)

How can I find out whether a molecular proposition is true?

*Sheffer stroke*  $\sim(p \ \& \ q)$

p		q
W	F	W
W	W	F
F	W	W
F	W	F
(1)	(3)	(2)



# N.B.:

- The truth **table** method for establishing the truth of a molecular proposition presupposes that the elementary propositions which it is composed of, indeed are *elementary propositions in the sense of the TLP*: That they are logically independent of each other; that their truth values can be assigned independently of each other; **that the truth value of one elementary proposition is True / False entirely independently of the truth value of another elementary proposition!**

# Tractatus 5.101: Possible truth value series for two propositions p, q

Die Wahrheitsfunktionen jeder Anzahl von Elementarsätzen lassen sich in einem Schema folgender Art hinschreiben:

(WWWW)(p, q)	Tautologie	(Wenn p, so p; und wenn q, so q.) ( $p \supset p \cdot q \supset q$ )
(F WWW)(p, q)	in Worten:	Nicht beides p und q. ( $\sim(p \cdot q)$ )
(WF WW)(p, q)	" "	Wenn q, so p. ( $q \supset p$ )
(WWF W)(p, q)	" "	Wenn p, so q. ( $p \supset q$ )
(WWW F)(p, q)	" "	p oder q. ( $p \vee q$ )
(F F WW)(p, q)	" "	Nicht q. ( $\sim q$ )
(F WF W)(p, q)	" "	Nicht p. ( $\sim p$ )
(F WW F)(p, q)	" "	p, oder q, aber nicht beide. ( $p \cdot \sim q \vee q \cdot \sim p$ )
(WF F W)(p, q)	" "	Wenn p, so q; und wenn q, so p. ( $p \equiv q$ )
(WF WF)(p, q)	" "	p
(WWF F)(p, q)	" "	q
(F F FW)(p, q)	" "	Weder p noch q. ( $\sim p \cdot \sim q$ ) oder ( $p   q$ )
(F F WF)(p, q)	" "	p und nicht q. ( $p \cdot \sim q$ )
(F WF F)(p, q)	" "	q und nicht p. ( $q \cdot \sim p$ )
(WF F F)(p, q)	" "	q und p. ( $q \cdot p$ )
(F F F F)(p, q)	Kontradiktion	(p und nicht p; und q und nicht q.) ( $p \cdot \sim p \cdot q \cdot \sim q$ )

# The colour exclusion problem

- Elementary propositions are bi-polar.
  - Elementary propositions are simple.
  - Elementary propositions are logically independent of each other.
  - The sense of an elementary proposition is 100% determinate.
  - But what if there are types of propositions for which it seems excluded that we reach a state of
    - Complete analysis
    - Complete simplicity
    - Complete determinacy of sense
    - Logical independence
- ?

# «Can you give me an example of an elementary proposition?»

- The *Tractatus* doesn't give examples of simple objects.
- The *Tractatus* doesn't give examples of elementary propositions.
- Our typical everyday language sentences are not like elementary propositions:
  - They are molecular rather than elementary propositions.
  - They are often not capable of taking both truth-values (are not «bi-polar»), or are not truth-/falsehood-capable at all (e.g. «Give me an apple!», «Hi!»).
  - They typically contain complex expressions referring to complex objects.
  - They are typically *not* logically independent of each other.
  - They sometimes don't seem to have much of an internal structure (e.g. „Hi!“).
  - ...

# But the *Tractatus* gives examples of what is *not* an elementary proposition

TLP 6.375

- Just as the only necessity that exists is *logical* necessity, so too the only impossibility that exists is *logical* impossibility.

TLP 6.3751

- For example, the simultaneous presence of two colours at the same place in the visual field is impossible, in fact logically impossible, since **it is ruled out by the logical structure of colour.**
- Let us think how this contradiction appears in physics: more or less as follows – a particle cannot have two velocities at the same time; that is to say, it cannot be in two places at the same time; that is to say, particles that are in different places at the same time cannot be identical.
- (It is clear that the logical product of two elementary propositions can neither be a tautology nor a contradiction. **The statement that a point in the visual field has two different colours at the same time is a contradiction.**)

# Colour statements: candidates for elementary propositions?

- Sense-data statements:
  - «Here red»
  - «There green»
  - «This heavy»
  - «Here pain»
  - ...
- Does it make sense to conceive of sense-data statements as elementary propositions?
  - «This is red», «This is green» ...

# Wittgenstein's further development of the colour exclusion problem, and its consequences

*Some Remarks on Logical Form*" and other writings from 1929-30

TLP: There is only logical necessity / impossibility

- 1) According to the TLP, «a is red» and «a is green» exclude each other.
- 2) Since there is, according to the TLP, only logical necessity / impossibility, «exclude each other» means, according to the TLP, «contradict each other».
- 3) According to the TLP, «a is red & a is green» must thus entail a logical contradiction\* which will become manifest when properly analyzed.
  - But Wittgenstein does not succeed in showing (3). An alternative is:
- 4) Analyze «a is red» and «a is green» into propositions that no longer exclude each other.
  - But Wittgenstein does not succeed in (4) either.
- 5) Thus, Wittgenstein is stuck with sentences that exclude each other – but for which he cannot show that they *logically contradict* each other.
- 6) Are «a is red» and «a is green» two elementary propositions? Yes or No???
  - Not further analysable? -> Yes ...
  - Contradict each other? -> No ...

\* NB: «a is red & a is green» is not a logical contradiction, while «a is red & a is not red» is a logical contradiction.



# The colour exclusion problem and its consequences

TLP: Elementary propositions are logically independent of each other.

- 1) The truth values of elementary propositions are, according to TLP, independent of each other.
- 2) Since colour statements can stand in a relation of mutual exclusion to each other, they cannot, according to TLP, be elementary propositions.
- 3) Since colour statements cannot, according to TLP, be elementary propositions, they must be analysable into simpler propositions, and their analysis must eventually yield elementary propositions which do *not* exclude each other (TLP #4.211, #6.3751).
- 4) If the analysis of colour statements into such elementary propositions (that do not exclude each other) cannot be successfully achieved, we may want to recognize the colour statements themselves as elementary propositions - which would imply that we accept elementary propositions which *do* exclude each other – which is not correct according to TLP.
- 5) Now, it seems indeed to be the case that colour statements cannot be analysed further into elementary propositions that do *not* exclude each other. Should we therefore just go for (4) and
  - a. *pace TLP*, conceive of the colour statements themselves as elementary propositions?
  - b. *pace TLP*, accept that there are elementary propositions that do exclude each other, and thus are *not* independent of each other!?
- 6) If there are some elementary propositions that are not independent of each other, we may just as well throw TLP's entire notion concept of elementary proposition overboard!!!!????

# Three TLP views are at stake

- If color statements cannot be analyzed further into statements that lead to elementary propositions which are logically independent of each other, and we as a consequence consider these color statements themselves elementary propositions ...
  - Then at least some elementary propositions are mutually exclusive and not independent of each other!
- Three Tractatus views are at stake:
  - The *independency* view of elementary propositions
    - Elementary propositions can be mutually exclusive (“a is red” and “a is green” exclude each other for “phenomen(ologic)al” impossibility)
  - The view that elementary propositions are *simple*
    - Colour statements can be analyzed further into statements of colour degree, and propositions ascribing degree are not simple.
  - The view that logic “must take care of itself” (TLP #5.473)
    - We seem to need more than logical necessity / possibility only! On the basis of logical syntax / logical analysis alone we cannot show how color statements can exclude each other!
- The *Tractatus* conception of elementary propositions can just as well be given up!?

If we no longer have TLP's  
elementary propositions ...



A whole lot is being  
thrown over board!

# Consequences for accounting for sense, meaning and truth

Abandoning the logical independence view of elementary propositions means abandoning truth functionality!

p	q	$\sim$	$\&$	$\vee$	$\rightarrow$
W	W	F	W	W	W
W	F	W	F	W	F
F	W	F	F	W	W
F	F	F	F	F	W

# My whole task consists in explaining the nature of the proposition. (NB p. 39, 22.1.1915)

Language (Sprache)	Reality / World (Wirklichkeit / Welt)
molecular proposition (zusammengesetzter Satz)	a group of states of affairs (Sachlage?)
<b>elementary proposition</b> <b>(Elementarsatz) [sense]</b>	state of affairs (Sachverhalt)
true elementary proposition (wahrer Elementarsatz) [truth]	fact (Tatsache)
name (einfaches Zeichen, Name) [have <b>reference</b> only in the context of an elementary proposition]	simple object (einfacher Gegenstand)

Some other problems  
with the Tractatus

# Sloppiness?

- Was nun Ihre eigene Schrift anbetrifft, so nehme ich gleich an dem ersten Satze Anstoss. Nicht, dass ich ihn für falsch hielte, sondern weil mir der Sinn unklar ist. "Die Welt **ist** alles, was der Fall ist". Das "ist" wird entweder als blosser Copula gebraucht, oder wie das Gleichheitszeichen in dem volleren Sinne von "ist dasselbe wie". Während das "ist" des Nebensatzes offenbar blosser Copula ist, kann ich das "ist" des Hauptsatzes nur in dem Sinne eines Gleichheitszeichens verstehen. Bis hier ist, glaube ich, kein Zweifel möglich. Aber ist die Gleichung als Definition zu verstehen? Das ist nicht so deutlich. Wollen sie sagen: "Ich will unter 'Welt' verstehen alles, was der Fall ist? Dann ist "die Welt" der erklärte Ausdruck, "alles was der Fall ist" der erklärende. In diesem Falle wird nichts damit behauptet von der Welt oder von dem, was der Fall ist, sondern, wenn etwas behauptet werden soll, so ist es etwas über den Sprachgebrauch des Schriftstellers. Ob und wieweit dieser etwa mit dem Sprachgebrauch des Lebens übereinstimme, ist eine Sache für sich, auf die aber für den Philosophen wenig ankommt, nachdem er seinen Sprachgebrauch einmal festgestellt hat. ... (Frege in a letter to Wittgenstein. In: Ludwig Wittgenstein: Gesamtbriefwechsel/ Complete Correspondence. Electronic Edition, 3.4.1920, IntelLex <http://pm.nlx.com>)



# Arrogance?

- "I asked Wittgenstein whether, when he wrote the *Tractatus*, he had ever decided upon anything as an *example* of a 'simple object'. His reply was that at that time his thought had been that he was a *logician*; and that it was not his business, as a logician, to try to decide whether this thing or that was a simple thing or a complex thing, that being a purely *empirical* matter! It was clear that he regarded his former opinion as absurd." (N. Malcolm, Ludwig Wittgenstein A Memoir, p.70)

# Inconsistencies?

- TLP #2.04: The totality of existent atomic facts is the world.
- TLP #2.06: The existence and non-existence of atomic facts is the reality.
- From #2.04 and #2.06 one is tempted to conclude that
  - «reality» = the totality of both the obtaining and the non-obtaining states of affairs
  - «world» = the subset of obtaining states of affairs only,  
but this seems contradicted by #2.063:
- TLP #2.063: The total reality is the world.

# Inconsistencies?

- Wittgenstein's letter to Russell, 19.8.1919: "What is the difference between Tatsache and Sachverhalt?" Sachverhalt is, what corresponds to an Elementarsatz if it is true. Tatsache is what corresponds to the logical product of elementary props when this product is true. The reason why I introduce Tatsache before introducing Sachverhalt would want a long explanation.
- «Tatsache is what corresponds to the logical product of elementary props when this product is true»?? – Isn't Tatsache what corresponds to an elementary proposition when its product is true?
- «Sachverhalt is, what corresponds to an Elementarsatz if it is true»?? - Yes, this is correct; but Sachverhalt is also, what corresponds to an Elementarsatz if it is *false*, isn't it? See TLP #2: Was der Fall ist, die Tatsache, ist das **Bestehen** von Sachverhalten. Thus, Sachverhalte can also „*nicht bestehen*“, *not* obtain! What corresponds to a Sachverhalt which does not obtain? An Elementarsatz which is false.

# ”Nonsense”

- The sentences of logic, of mathematics, of the foundations of the natural sciences, of ethics and even of philosophy are not bi-polar and therefore ”pseudo-propositions” (either senseless or nonsensical).
  - Tautologies (and contradictions) are senseless (”sinnlos”).
  - Sentences which contain value concepts are nonsensical (”unsinnig”).
  - A proposition that contains a sign without reference is nonsensical (”unsinnig”). (TLP #5.4733)
  - Sentences which contain formal concepts are nonsensical (”unsinnig”).
    - Examples for formal concepts include ”object”, ”complex”, ”number” (TLP #4.126ff). See TLP #4.1272: So one cannot say, e.g. ”There are objects ...”
- TLP #4.124, #5.5351, #6.54: Attempts at describing the logic of our language – though important they may be – are condemned to fail to make sense since they attempt at *saying* what only can be shown: what *can* be shown of the ”Gerüst der Welt” is shown by every use of language.

# ”Nonsense”

Russell, in his preface to TLP, reg. “The sentences of philosophy are non-sensical”: “... Mr Wittgenstein manages to say a good deal about what cannot be said ...”

- Is the context-principle nonsense? (TLP 3.3 a.o.)
- Is the sign-symbol distinction nonsense? (TLP 3.32 a.o.)
- Are the elementary proposition and the truth tables part of the ladder to be thrown away?
- What is it that we understand when (we feel that) we understand what the *Tractatus* says about ethics, logic, philosophy ... about understanding itself? According to the *Tractatus* account of understanding, we should not understand anything!
  - Important nonsense vs. Plain nonsense
  - Cf. “Resolute readings” of the *Tractatus*

# Simple objects

- "Real" (material particles of physics) or phenomenal (points in the visual field, objects of acquaintance)?
- "Things" only or also properties and relations? If elementary propositions of the form " $a \in P$ " are to be possible, then simple objects have to include also properties?!
  - See Ms-102,147r[3] (date: 19150616): [Auch Relation und Eigenschaften etc. sind Gegenstände](#).
- Realist or idealist (or quietist) interpretation?