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elementary proposition (*Elementarsatz*) Traditional grammar regarded subject-predicate sentences like 'Mary is blond' as simple. Logical atomism, by contrast, used modern logic to show that such propositions are 'molecular', that is, truth-functions of simpler propositions, just as ' $p \cdot q$ ' and ' $p \supset q$ ' are truth-functions of ' p ' and ' q '. 'Atomic' or 'elementary' propositions are 'the simplest' propositions into which all others can be analysed but which cannot themselves be analysed into simpler propositions (RUL 8.12; NL 95-7; NM 111). For Russell, the foundations of knowledge also provide the foundations of linguistic meaning. According to his empiricist 'principle of acquaintance', every proposition which we can understand must consist of names which refer to sense-data with which we are acquainted. A proposition is meaningful only if all of its real constituents stand for something, and only the existence of sense- and memory-data is immune to Cartesian doubt. 'This is white', referring to a present sense-datum, is about 'as simple a fact as one can get hold of', but Russell did not rule out that the analysis of propositions might 'go on forever' (*Logic* 198-202).

The possibility of openended analysis was unacceptable to the early Wittgenstein. His quasi-Kantian theory of symbolism left the actual 'composition' of elementary propositions to the 'application of logic': only future analysis could reveal the composition and logical forms of elementary propositions (TLP 5.557). But he insisted 'on purely logical grounds' (TLP 5.5562) that there must be elementary propositions to ensure that the analysis of propositions terminates, that the sense of propositions is determinate, that no truth-value gaps should occur, and that whether a proposition has sense should not depend on empirical facts. Elementary propositions form the basis of all linguistic representation (see GENERAL PROPOSITIONAL FORM), and hence the core of the PICTURE THEORY. Wittgenstein does not decide what propositions are unanalysable, but specifies, more rigorously than Russell, the conditions they have to fulfil. They must be:

- (a) Logically independent. No two elementary propositions can either be inconsistent with or entail each other. If ' p ' entails ' q ', its sense contains that of ' q ', that is, analysis must reveal ' q ' to be one of the truth-

functional components of p . Equally, if ' p ' contradicts ' q ', it entails, and hence 'contains', ' $\sim q$ '. In both cases ' p ' is complex, not elementary (TLP 4.1211, 4.211, 5.134, 6.3751). This requirement was fuelled by the idea that molecular propositions are truth-functions of elementary ones, which presupposes that in a TRUTH-TABLE each elementary proposition can be assigned a truth-value independently of all others.

- (b) Pictures. They depict a 'state of affairs', assert the existence of a certain combination of OBJECTS. If they are true, that state of affairs exists, it is what Russell called an 'atomic fact' (TLP 4.21).
- (c) A 'nexus' or 'combination' of names. A fully analysed proposition consists exclusively of logically proper NAMES 'in immediate combination', which go proxy for simple objects. Elementary propositions depict states of affairs by combining the names in a way which corresponds to a possible combination of objects (TLP 4.22f).
- (d) Intrinsically positive. Condition (b) implies that all elementary propositions depict, truly or falsely, a 'positive fact', namely the existence of a state of affairs. They say that something is the case, that objects are combined in a certain way, rather than that something is not the case (TLP 4.021-4.023). And condition (a) implies that if ' p ' is elementary, ' $\sim p$ ' cannot be, since the two are contradictories. A false elementary proposition is not the negation of a true one, but rather depicts a different, and non-existent, combination of objects (TLP 2.06, 4.022; RUL 19.8.19).
- (e) Capable of being false in only one way. Propositions about complexes (e.g., ' $\Phi(aRb)$ ') can be false either if the complex does not exist (i.e., if a does not stand in the relation R to b), or if it lacks the property attributed to it (Φ). An elementary proposition, by contrast, excludes exactly one possibility, namely that the objects named by its constituents are not arranged the way the latter are in the proposition (TLP 4.25f).

Some commentators hold that Wittgenstein was deliberately non-committal about any other features of elementary propositions, since they are inessential to the transcendental deduction of their existence. But Wittgenstein inherited other ideas about the nature of propositions from Frege and Russell, notably that they are composed not of subject and predicate, but of function and argument (TLP 3.141, 3.318, 5.47). Russell maintained that the simples named by the constituents of atomic propositions comprise not just 'particulars', but also 'qualities' like colours, and 'relations'. Wittgenstein initially rejected this view, holding that a proposition like 'Socrates is human' is not of the form Fa , but to be analysed as 'Socrates' and 'something is human', and that objects are not of different logical types (RUL 1.13; NL 100, 107). He abandoned the former claim (see GENERALITY), and

his *Notebooks* state explicitly that 'relations and properties are *objects* too' (NB 16.6.15, see 21.6.15; NM 112).

Nominalist interpreters maintain that the *Tractatus*, by contrast with the *Notebooks*, treats properties and relations as logical forms, not objects; elementary propositions are logical networks sprinkled with names of particulars. They have adduced four arguments. The first is that the *Tractatus* indicates that signs for properties and for individuals are of different logical types, and employs different styles of variables for them (TLP 3.323f., 5.5261); Wittgenstein would not have failed to mention that there are two distinct types of *objects*, consequently the difference is one between names (which stand for objects) and other signs. *But* through the claim that they have different LOGICAL FORMS Wittgenstein did sort objects into distinct categories of different combinatorial possibilities. He may have thought it superfluous to state explicitly that the most general distinction is between individuals, properties and relations, given Russell's similar position.

The second is that *Tractatus* 2.0251 states that 'Space, time, and colour (being coloured) are forms of objects.' *But* what are here called forms of objects are not determinate properties (spaces, times, colours), but determinables like being coloured (see TLP 2.0131). Rather, that the *Tractatus* speaks of such determinables as 'formal properties', and also of 'formal relations', suggests that there are also non-formal properties and relations (TLP 4.122). Finally, since an object's form comprises its possibilities of combining with other objects, *Tractatus* 2.0251 and *Proto-Tractatus* 2.0251f. imply that visual objects combine with colours, and hence that colours are objects.

The third argument is that the comparison of propositions with spatial arrangements (TLP 3.1431, 4.012, 4.016, 4.0311) suggests that in an ideal notation properties and relations are displayed not through function-signs, but through spatial properties of names standing for particulars: '*fa*' is expressed by '*v*' and ' $\phi(x,y)$ ' as '*f*'. It has been objected that this would imply, contrary to the *Tractatus*, that the depth-structure of propositions must be expressed in writing. Yet the nominalist proposal is committed only to the possibility of replacing function-signs by relations (spatial or temporal) between signs. But it does ignore that neither the indefinite number of possible properties and relations, nor their different logical multiplicities, can be displayed through discernible configurations. To avoid this difficulty, it has been suggested that relation-signs *occur* in elementary propositions yet without being *names*. But this contradicts condition (c): the only components of elementary propositions are names.

Lastly, it is pointed out that the *Tractatus* holds that, 'Instead of "The complex sign '*aRb*' says that *a* stands to *b* in the relation *R*", we ought to put, "That '*a*' stands to '*b*' in a certain relation says that *aRb*"" (TLP 3.1431f.). But this passage is directed not against the idea that relations are objects but against Russell's claim that '*aRb*' is the name of a complex in

which both relata are in turn linked to the relation *R*. According to Wittgenstein, objects combine in states of affairs not with the aid of further links, but directly, like links in a chain. The components of states of affairs stand in a determinate relation to each other (*aRb* is not identical with *bRa*) without any logical glue. The representation of this is possible because PROPOSITIONS are facts. What represents the relation between *a* and *b* in '*aRb*' is not '*R*' as such, but *that* it occurs between '*a*' and '*b*'. The real component of '*aRb*' that signifies that relation is not '*R*', which looks like the proper names '*a*' and '*b*', but '*xRy*', which is a *relation-name* (see NL 96-8; TLP 2.03f.).

That some names stand for properties and relations is further suggested by three points. First, it is the only way of reconciling two claims about elementary propositions: that they are a nexus of names - (c) - and that they consist of function and argument. Secondly, according to *Tractatus* 4.24, elementary propositions are functions of names and have the form *fx*, $\phi(x,y)$, etc. Thirdly, *Tractatus* 4.123 speaks of shades of colours as objects, at least in an extended use of the term. The realist interpretation is further supported by Wittgenstein's subsequent discussions of the *Tractatus*. Most notably, in a lecture Wittgenstein unequivocally stated that the objects of *Tractatus* 2.01 include properties like colours and spatial relations (LWL 120; see RLF; WVC 220; PG 199-201; TS220 §109; MS127 1.3.44). Moreover, he ascribes to the *Tractatus* the view that a property is an object which can enter into combinations with individuals (GB 134; BT 433-4; BB 17).

The *Tractatus*'s failure to provide examples of elementary propositions is due less to agnosticism than to the difficulties Wittgenstein encountered (in the *Notebooks*) in trying to square his preconceptions about simplicity with his logical specifications. Nevertheless, hints in the *Tractatus*, as well as in previous and later writings, indicate that analysis proceeds in the direction of the phenomenally given (sensory impressions). States of affairs are instantiations or co-instantiations of properties like colours and (spatial) relations at spatio-temporal points or points in the visual field. A point in the visual field stands in a 'colour-space': it must have *some* colour, and combines with a particular colour, like two links in a chain without any additional relations (TLP 2.0131; NB 3.9.14, 6.-7.5.15; PG 211). 'Some Remarks on Logical Form' makes the picture concrete: take your visual field, flatten it and put a grid across. Elementary propositions use the coordinates to refer to a point in the visual field, and ascribe to it a shade of colour (a system reminiscent of PI §48; see also ROC I 61-2, III 58, 149), for example,

- (1) *A* (the spatial point with coordinates x,y) is red.

Accordingly, objects are *minima sensibilia* (NB 7.5.15): particulars like spatial points, ultimate perceptual qualities such as shades of colours, tones and smells and simple spatial relations.

One objection against this interpretation is that the OBJECTS of the *Tractatus* must be indestructible, common to all possible worlds. But unlike Russell's sense-data, Wittgenstein's candidates are not fleeting mental episodes. They are not temporary, and might appear to be *sempiternalia* the existence of which is metaphysically, not just epistemically, guaranteed. Red complexes and sense-data can be destroyed, but, according to the position *Investigations* §§46–59 ascribes to the *Tractatus*, the colour red cannot. The same might be thought of spatio-temporal points: while such a point might fail to have a certain colour, it could not fail to exist. That Wittgenstein extends sempiternality to points in the visual field can be explained by reference to his SOLIPSISM, which insists that the world is what is given to a transcendental subject of representation.

A second objection is that *Tractatus* 6.3751 states that a proposition like (1) is incompatible with, for example, 'A is green' and hence *not* elementary. Wittgenstein thought that (1) can be analysed as a logical product of elementary propositions which entails that A is not green, and seems to have envisaged that the resulting elementary propositions ascribe to A either unanalysable shades of colour, or light of a certain wavelength. In 1929 he realized that this programme is hopeless. The resulting propositions again exclude each other (if A is dark red it cannot be light red, if it only emits light of 620 nm it cannot also emit light of 520 nm). The reason is that like (1) they ascribe to an object one out of a range of incompatible specifications, a determinate of a determinable colour, velocity, electrical charge, pressure, etc. And there is no way of analysing such propositions into simple ones which would satisfy the requirement of logical independence (*see* COLOUR). Wittgenstein's reaction was to abandon not the idea that elementary propositions involve phenomenal qualities, but the insistence on the logical independence of elementary propositions, and with it logical atomism (RLF; PR ch.VIII; MS 105) (Russell had always been less rigorous in this respect, and hence less troubled by colour-exclusion). Elementary propositions may exclude each other. What is compared with reality is never a single proposition, but a 'proposition system': (1) at a stroke determines that A is neither green nor blue, etc. (WVC 63–4; PR 109–12).

In any event, Wittgenstein came to believe that nothing could satisfy his specifications for elementary propositions. Take another candidate with which he had toyed (NB 29.10.14, 20.6.15), propositions which ascribe a spatio-temporal location to physical simples.

(2) The material point *P* is in place x,y,z at time t

excludes *P*'s being in any other place, and hence again is not elementary. It has been suggested that the problem is avoided by propositions which simply combine spatial and temporal coordinates:

(2') x,y,z,t .

This suggestion honours condition (a), since (2') implies nothing about other spatio-temporal points. However, it violates (b). (2') by itself is a merely the *name* of a point. To turn it into a picture of a state of affairs which states that a mass-point exists at a certain spatio-temporal point, one has to add a quantified provision: 'There is a mass-point...' That is, (2') itself is not a proposition. Without reference to qualities and relations nothing can be *said*, and most qualities and relations are determinates of a determinable. Consequently, even if one can construct logically independent propositions, it is improbable that one can analyse ordinary propositions into such propositions.

With the demise of logical atomism, elementary propositions lose their 'earlier significance' (PR 111). However, the notion soldiers on for a while with the idea that the only genuine propositions are sense-datum propositions that describe immediate experience. This position is closer to Russell than to the *Tractatus*, in that it makes semantic primitiveness turn on epistemic primitiveness, and it influenced logical positivism's idea of an observation-sentence. Wittgenstein later rejected it (*see* PRIVATE LANGUAGE ARGUMENT). He also claimed that propositions are simple only in the relative sense that within a given grammatical system there are no provisions for their truth-functional analysis (PG 211), as with the colour-propositions of *Investigations* §48.

ethics Ethics occupies a peculiar role in Wittgenstein's thinking. He attached overarching personal importance to questions of moral value. Yet, his written treatments of ethics are brief and obscure, while his views on language have had a strong, albeit intermittent and diffuse, influence on analytic moral philosophy. Wittgenstein's personal moral outlook was ego-centric and contemplative. In this he was shaped by Schopenhauer and by Weininger's *Sex and Character*, which proclaimed that 'logic and ethics are fundamentally the same, they are no more than duty to oneself' (159). One has a moral obligation to strive for logical clarity. The SAYING/SHOWING distinction of the *Tractatus* gives substance to the first part of Weininger's slogan: only the empirical propositions of science are meaningful, since they picture contingent states of affairs (truly or falsely). What Wittgenstein calls the 'higher' (TLP 6.42, 6.432), all areas of value, share with the logical structures of language the fate of being ineffable; they cannot be said, they can only be shown. Ethics, aesthetics and logic are linked by virtue of being 'transcendental': while everything factual is 'accidental', they try to express what could not be otherwise, the 'preconditions of the world' (NB 24.7.16; TLP 6.13, 6.421).

However, unlike the logical structure of language, ethical value is not even shown by any meaningful propositions, although it may be shown in