

"Graphical Problems in Wittgenstein's *Nachlaß*" in: Johannessen, K. and Nordenstam, T. (eds) *Culture and Value: Philosophy and the Cultural Sciences*, 751-761. Kirchberg a/W, Austria: Die Österreichische Ludwig Wittgenstein Gesellschaft, 1995. ISSN 1022-3398  
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## **Graphical Problems in Wittgenstein's *Nachlaß***

### **Note to the online version**

There are 22 graphics in this paper. In 1995 they were published as endnotes. In this version they are inserted in the running text as originally intended.

### **Abstract**

This paper describes some features of Wittgenstein's *Nachlaß* which lie on the boundary between text and graphics. These deliberately ambiguous features are introduced as part of Wittgenstein's method of using "text-experiments" comparable to "thought-experiments". These features present problems of interpretation, and therefore of representation, in print or as encoded text for computer-aided analysis because their ambiguity must be maintained. The avoidance of the problem by the use of names is rejected with reference to Wittgenstein's discussion of universals in BLB. The resultant system of encoding graphics for computer-aided analysis at the Wittgenstein Archives is briefly described. Finally, in any representation of the *Nachlaß*, the need to maintain the integration of graphics and text is emphasised.

### **Graphical Problems in Wittgenstein's *Nachlaß***

The primary objective of the transcriptions being undertaken at the Wittgenstein Archives at the University of Bergen is to present material which is capable of textual analysis by computer. However, Wittgenstein's philosophical works are well known for containing graphics. In my catalogue of the graphics in the published works (Biggs and Pichler 1993) I identified 479 instances, and work in progress compiling a database of graphics in the manuscripts in the *Nachlaß* (MSS 101-182 as defined in von Wright 1982) contains approximately 2500 instances.

In some cases these graphics may be included or excluded without affecting the

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ability to analyse the text. But there are some graphics which act as word-substitutes. Therefore even if exclusively textual analysis is desired, some encoding is necessary in such places to indicate the presence of a graphic. In addition to the unequivocal use of graphics, there are many instances of features which lie at the very margin of the distinction between graphics and text. These features are a symptom of Wittgenstein's philosophical method and this paper focuses on them and considers the implications for the mark-up of the body text.

[752]

The general impression one gains from the *Nachlaß* is that the scripts are working documents, full of corrections, amendments and compositional instructions. Some of these annotations made by Wittgenstein on his own writings are graphical in character. For example, there are many occurrences of arrows indicating the repositioning of text on a single page. He also uses a series of marks and ciphers to stand for editorial instructions such as moving sections to locations in other scripts, indentation of new sections, etc. All this commentary, both graphical and textual, on the base text may be referred to as the *meta-text*. The meta-text contains interesting information on Wittgenstein's compositional process, but consists of signs which are not to be reproduced in the reorganised or edited text itself. We can thus distinguish between the *diplomatic* version of the text, and the *normalised* version; the former reproducing the meta-text either typographically or in facsimile, and the latter in which the instructions contained in the meta-text are implemented.

The term "graphic" is itself somewhat vague, and may be used to describe a wide variety of phenomena. Wittgenstein's method, particularly in the later writings, is to question our philosophical assumptions about the way that language is operating, and one means by which this is achieved is to present text-experiments, rather like thought-experiments. In these experiments a new sign is introduced. It is often a simple pictorial graphic with more than one reading:



MS 144 p.38

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It is possible, if undesirable, to omit this pictorial graphic in a normalised version of the text because it serves as an *illustration*. In other words, the text makes sense with or without it but the illustration demonstrates or reinforces what is said in the text. Graphics which are *syntactically integrated* in the text cannot be omitted, though there are examples where its exact orthography is not important, e.g.:



MS 134 f.59

In an earlier folio of the same manuscript, in addition to noting the presence of an arrow, representing its orientation is also necessary to preserve the sense, e.g.:



MS 134 f.57

Here, the arrow is a conventionalised pointing sign. In a typographic representation of the manuscript, the exact orientation and appearance may be substituted by a "type" which is capable of indicating the sense of opposition in the second example, e.g: "this: ? ", and not this: ? ". Felicitous transcription in this case could be regarded as maintaining sense without necessarily maintaining appearance.

[753]

Substituting the name of a graphic for its graphical representation may be possible in some instances, though normally the inability to differentiate types from tokens results in an inability to name a graphical form. General names do not give information other than marking the presence of a graphic, and when substituted may not integrate satisfactorily with the body text, e.g. compare:

Wenn wir jemandem ein gewisses Zeichen etwa zeigen, so fällt ihm eine Ziffer ein... (RFM 1974 VI §44)

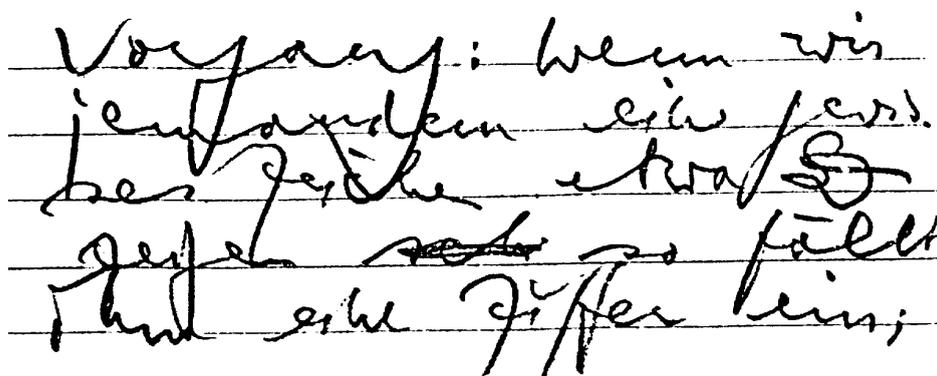
and;

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When we show someone a certain sign e.g. , a numeral occurs to him... (RFM 1978 VI §44)

as normalised versions of;



MS 164 p.133

The use of general names is misleading if subsequent textual analysis interprets all graphical representations as general representations.

there is a tendency rooted in our usual forms of expression, to think that the man who has learnt to understand a general term, say, the term "leaf", has thereby come to possess a kind of general picture of a leaf... one which only contains what is common to all leaves. (BLB p.17f.)

The use of general pictorial graphics or genre-pictures is an established practice of non-denotative visual representation (Goodman 1976 §1.5). However, here Wittgenstein contrasts it with our temptation to assume the necessity of denotation by linguistic universals, e.g. Goethe's *Urpflanze*.

Even if names are sought for each graphic, Wittgenstein introduces specific text-experiments based on ambiguity of reading and naming. Such a graphic is the ambiguous character  in MS 132 p.183 (RPP-I §539, etc.). Its function is similar to the binary switching of the duck-rabbit illustration. As an ambiguous pictorial graphic, the duck-rabbit is compared with understanding the meaning of a word (PI p.214). Such examples illustrate the role of a sign within a community

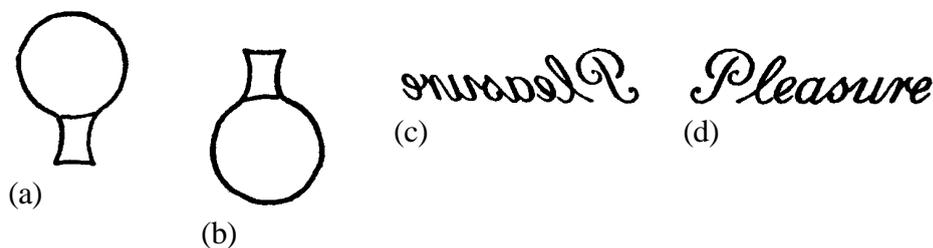
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of users by presenting our community with a kind of *double-entendre*. The use of a visual metaphor with two clearly opposed interpretations, coupled with the thought-experiment of "aspect-blindness", questions our assumptions about the connection between signs and their use.

Character ambiguity is also found in the representation  $\mathfrak{R}$ , which has a typographical form identical to both a mirrored Latin character R and the Cyrillic upper case character Ya. However, the mirrored R and Ya must be differentiated [754] for analytical purposes. Differentiation in this case is achieved not by detailed graphical analysis but by the textual context, e.g. Russian text in MS 166 pp.57-65.

Wittgenstein uses whole words in "mirrored writing" in PI and LW (p.198 and §599 respectively), to comment on our changed perception of script when reversed. The corresponding manuscript passage for PI (MS 144 p.46) does not include a sample, only a meta-textual instruction to include mirrored writing. In the manuscript for LW (MS 137 p.135a) there is inverted writing with a meta-textual instruction to represent it as mirrored writing. In these cases it is difficult to know what should be represented in an edited or normalised representation since the text of PI is preceded by the experiment to "hold the drawing of a face upside down...". Four figures then follow in the comparative pairings: (a) is to (b) as (c) is to (d). However, in the published edition of PI, (a) is a 180° rotation of (b) while (c) is a horizontal reflection of (d). This provides an example of the inappropriate graphical representation of the pair (a),(b) or (c),(d).



Ambiguous characters may also be used as non-conventional signs. For example, Wittgenstein rotates a Latin character A (MS 152 p.29) through 90° increments. It appears at one point to be similar to the logical notation  $\forall$ . However, this sign may alternatively be the inverted Latin

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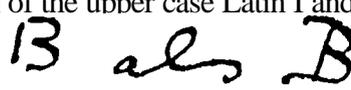
character A, or a sign used habitually in the meta-text to indicate text to be moved to another location in the script, e.g.:



MS 130  
p.55

Whether a form is a graphical sign or other character representation is not always clear. It may also be desirable to substitute standard characters, e.g.  $\nabla$ , for graphical representations to facilitate on-screen or printed representation. However, for computer-aided analysis an encoded character representation must indicate the difference between logical "for all" and "inverted or rotated Latin A" or any other sign, even if the printer instruction is identical. This may be achieved by a combination of graphical and *character disambiguation* codes.

Character disambiguation is also necessary to distinguish between a mirrored upper case Latin E (e.g.  in MS 132 p.30) and the logical notation  $\exists$ ; a rotated upper case Latin M (e.g.  in MS 132 p.40) and the upper case Greek S. Additionally some novel composites are proposed, for example the combination of the upper case Latin I and the numeral 3 to create an upper case

Latin B (e.g.  in MS 132 p.97). Each encoding might differentiate between a graphic and a standard character, or cue the graphical interpretation of a particular orthographic token.

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Thus far, the distinction between graphics and text has been made on the basis of whether a feature belongs to a conventional sign set. The ambiguous character formed a marginal case and extremes were represented by the Latin alphabet as non-ambiguous orthographic types, and overtly pictorial graphics such as the duck-rabbit. However, the sign set of the Latin alphabet must also be arranged in a left-to-right linear distribution. Where the distribution of the signs on the page departs from this convention it may again be appropriate to assign a "graphics" code. For example, a table, whether ruled or unruled, may be regarded as a graphic.

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The left-right reading convention itself forms part of a text-experiment. For example, our practice of writing p to the fifth place as 3.14159 is contrasted with an alternative spatial technique in Z §699 (MS 131 p.144, also published in RPP-I §330):



Z §699

This "alter[s] its appearance to the point of unrecognizability by us". The example makes the comparison with a practice which we do recognize, that of translating a lyric poem into another language, or solving the problem

How is this joke (e.g.) to be translated (i.e. replaced) by a joke in the other language? (Z §698)

Felicity is here presented as the appropriate replacement of one joke by another, which is equivalent to the replacement of a textual practice with a graphical one.

We have a graphical calculus to demonstrate the comprehensiveness of lists. This graphical practice may be clearly seen in the standard layout of the first two columns of a truth-table:

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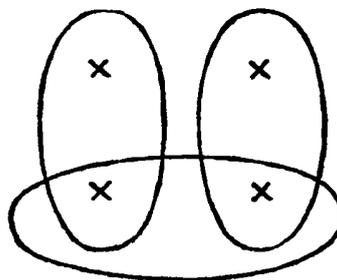
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T	T	
T	F	
F	T	
F	F	

The technique of systematically varying the permutation of the elements enables the author to demonstrate comprehensiveness. It is also seen in other tabular arrangements, e.g. PG p.348:

A B C  
 A C B  
 B A C  
 B C A  
 C A B  
 C B A

The graphical layout shows that no line is repeated and proves that there are therefore six permutations of the set of letters, i.e. that there is "a *single pattern*" [756] (RFM-I §28). However, alternative graphical practices may prove, for example, that  $2+2+2=4$ :



RFM-I §38

Indeed, Wittgenstein draws our attention to the implicit graphical proof in many of

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our mathematical concepts including counting. (§§28-36).

In addition to the problems of interpreting and therefore of representing graphics on-screen or on paper, there is the problem of providing users with a compatible system of search and retrieval. Although some file formats can contain text based information in the file, e.g. TIFF (Tagged Image File Format), most graphical images are unanalysable by methods which are comparable to the analysis of the text string. The Wittgenstein Archives use codes specific to the representation of graphics which allows them to be located within the text string. As indicated above this sometimes labels a graphical layout of otherwise normal typographical characters, e.g. tables. To differentiate basic graphical forms an embedded keyword system has been devised which groups graphics according to their appearance. This grouping allows indexing and retrieval of graphics independently from viewing and analysing the images themselves.

The keyword system currently divides the full range of graphics into 17 primary classifications, e.g. *Schema*, which comprises all forms of tabular layout. Secondary keywords differentiate between variants on this form, e.g. ruled Schema such as truth tables, etc. A tertiary keyword is available to differentiate the number of similar elements in the whole graphic, e.g. two such Schema. By using up to three keywords, graphics of a similar physical appearance may be easily searched and retrieved. This indexing currently identifies 106 basic appearance types.

Graphics having identical primary, secondary and tertiary keywords will not necessarily be tokens of the same type, e.g. a truth table and a set of dots in the same pattern. However, it will normally enable comparisons to be made between structurally similar graphics and their textual context. Combined use of graphical and non-graphical codes in searches is also possible. For example, ambiguous characters such as  $\mathcal{F}$  12 and Я13 have the same graphics keywords but the latter also has a Russian character code when it could be read as the Cyrillic Ya.

## Conclusion

It is possible to omit some, but not all, of the 2500 graphics in a normalised representation of MSS 101-182. For computer-aided analysis codes need to be

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[757]

inserted to show the presence of a graphic and information about the general nature of the graphic. Conventional signs may be named, e.g. arrows, but may also need secondary codes to indicate orientation in order to preserve the sense of the textual context.

Although the majority of graphics are clearly pictorial, there are also examples which lie close to, or cross, any boundary which might be drawn in an attempt to divide the two. Graphics may also encompass the non-conventional page layout of standard text. Encoding must not proscribe a particular interpretation as conventional or unconventional notation as such signs are often introduced for their ambiguity. For the purposes of analysis it is desirable to be able to identify all graphics whether pictorial in character or not. It is also desirable to represent as much as possible in text strings, on screen or on paper without resorting to graphics files. The Wittgenstein Archives has therefore decided to use a graphics code which may be attached to a graphics file, or to a feature which, whilst representable by typographical means, nonetheless has graphical characteristics. The use of further keywords enables combined text and graphics searches to be undertaken which maintains the complete integration of the two elements, apparent in the *Nachlaß* itself.

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