

## 13. The “Diktat für Schlick”: Authorship Research and Computational Stylometry Revisited

Michael Oakes, Alois Pichler

University of Wolverhampton; University of Bergen

### Abstract

Both the authorship and the dating of the so-called “Diktat für Schlick” (DFS), once attributed to Ludwig Wittgenstein and assigned by Georg Henrik von Wright to the Wittgenstein Nachlass as item 302, are debated topics in Wittgenstein and Vienna Circle research. Schulte (2011) and Manninen (2011) hold that DFS was authored by Friedrich Waismann rather than Wittgenstein. Applying techniques from computational stylometry to the authorship question, the paper concludes that DFS is located stylometrically in the middle between Waismann’s and Wittgenstein’s writings, but slightly closer to Wittgenstein, and so Wittgenstein authorship is hence stylometrically still not unlikely. The paper concludes by presenting a number of factors that speak in favour of the view that DFS might originally indeed have been dictated by Wittgenstein. For the computational stylometry component, the paper uses the Eder, Rybicki and Kestemont’s (2016) “Stylometry with R” package; the degree of similarity and dissimilarity between documents is calculated by Burrows’ Delta measure; and the results are displayed using Hierarchical Cluster Analysis and Principal Components Analysis. For the text corpus part, the paper uses texts authored by Schlick, Waismann and Wittgenstein. For the archival research part, the paper refers to materials from the Schlick Nachlass in the North Holland Archives, the Waismann Nachlass in the Bodleian Libraries, the Rose Rand Nachlass in the Pittsburgh Archives of Scientific Philosophy, the Ludwig Wittgenstein Nachlass in the Trinity College Cambridge Wren Library, and the Cornell copy of the Ludwig Wittgenstein Nachlass. The paper is a follow-up on Oakes and Pichler (2013); for the current paper we have extended the Waismann text corpus with more texts written under the influence of Wittgenstein, a.o. *Logik, Sprache, Philosophie* (1976).

**Keywords:** computational stylometry; Ludwig Wittgenstein; Friedrich Waismann; Moritz Schlick; Rose Rand; archive materials; dictated manuscripts; stenography; authorship disputes; dating disputes; writing style

### 13.1. Applying computational stylometry to Wittgenstein Nachlass item 302, the so-called “Diktat für Schlick”

Ludwig Wittgenstein (1889-1951) and Friedrich Waismann entered, on the initiative of Moritz Schlick, in the early 1930s a close cooperation on a publication offering a systematic and updated presentation of Wittgenstein’s philosophy.<sup>1</sup> For this purpose Waismann conducted

---

<sup>1</sup> Manninen dates the beginning of this cooperation to December 1931: “Serious collaboration between Wittgenstein and Waismann began immediately following the meeting on 9 December 1931”

discussions with Wittgenstein, had access to Wittgenstein's manuscripts from which he produced excerpts and summaries, and received, either directly or via Schlick, dictations from him (Waismann 1976, Nachwort). However, in 1935 the joint book project was abandoned. Some of the work already done made it nevertheless into Waismann's own publications, incl. *The Principles of Linguistic Philosophy* (Waismann 1965), published in the original German as *Logik, Sprache, Philosophie* in 1976 (LSP), as also his earlier *Einführung in das mathematische Denken* (1936).

The text in our focus here stands in the context of this joint publication project and is commonly referred to as "Diktat für Schlick". Wittgenstein trustee Georg Henrik von Wright (1916-2003) accepted it as a part of the Wittgenstein Nachlass and catalogued it as Nachlass item no. 302. He also included in his description of the item the label under which it is commonly known: "The so-called Diktat für Schlick" (von Wright 1982, 49) / "Sog. Diktat für Schlick" (von Wright 1986, 58).

However, both the authorial status, the authorship and the dating of the item are debated. With regard to authorial status, views range from regarding the item a "Kompositionsskizze" that was at least co-authored by Wittgenstein with a view of sketching (also) his own independent publication (Keicher 1998, 211), to acknowledging it at most as a part of the joint publication project which was however produced by Waismann (Schulte 2011, Manninen 2011). Von Wright himself seems to have thought that the item was dictated by Wittgenstein to Schlick: "302-308. Eight typescripts are known of dictations by Wittgenstein to Schlick ..." (von Wright 1982, 56) and dates the origin of the text "[a]pproximately 1931-33" (1982, 49). In contrast to von Wright's dating, Pichler 1994 (123) assumes as possible earliest dating the second half of 1933; Keicher (1998, 83) proposes 1933-34; Baker dates it to December 1932 (VOW 2003, xv); Iven (2009, 67ff.) dates it to September 12-20, 1933; Manninen (2011, 9) finally thinks that it stems only from 1935. While neither Pichler nor Keicher challenge von Wright's view that the first author of the text was indeed Wittgenstein, that the text originates in a dictation by Wittgenstein, and that the text was directly dictated to Schlick, each of these points have again been questioned by others. Keicher 2000 (210) adds an argument for the view that the text was dictated to Schlick.

Proposals about the possible addressee of the dictation include not only Schlick, but, most prominently, also Waismann (e.g. Baker in VOW, xlvi). Substituting Waismann for the addressee is consistent with the information given on a cover sheet that was included in the 1967 Cornell microfilming (vol. 99 in the print version) of a transcript of the Waismann typescript version of the item: "Diktat für Schlick This typescript was found among Waismann's papers. Dictated by Wittgenstein, probably to Waismann. Date: 1932-1933".<sup>2</sup> Most importantly, not only von Wright's view that Schlick was the actual addressee and protocollant of the dictation, but also his view that Wittgenstein was the author of the dictation has been questioned: Schulte 2011 and Manninen 2011 argue that the authorship of the Diktat für Schlick is indeed to be located in Waismann rather than Wittgenstein. Manninen argues that Waismann used to regularly present recent developments of Wittgenstein's philosophy at Moritz Schlick's seminars in Vienna, and that the text was indeed authored by Waismann for precisely such a presentation in 1935. The text would thus be nothing but a "presentation by Waismann for Schlick's seminar early in 1935, in this sense a dictation für Schlick, although not by Wittgenstein. It was written down on this occasion in shorthand by Schlick and also by Rose Rand, both of them listening to Waismann's presentation" (Manninen 2011, 251). Iven summarizes the state of the debates in the following way: "Bis heute ... ist jedoch unklar, wann dieses Diktat, wenn man es denn überhaupt so bezeichnen kann, entstand und wer der eigentliche Urheber bzw. Protokollant oder Adressat war." (Iven forthc.).

It should be emphasized that none of the participants in the debate questions that Wittgenstein had at least some share in the authorship of the Diktat für Schlick (in the following

---

(Manninen 2011, 2). Just a few weeks earlier, Wittgenstein had let Schlick know that he no longer wanted Waismann to continue his planned book on the *Tractatus* since he now disagreed with "very, very many" of its formulations (Letter by Wittgenstein to M. Schlick 20.11.1931, no. 37 in Iven 2015).

<sup>2</sup> A copy of the transcript is kept at the Wittgenstein and von Wright Archives at the University of Helsinki.

abbr. as "DFS") - if not by direct dictation to either Schlick or Waismann, then via reuse of his thought and texts through Waismann. The real issue of the debate is not whether Wittgenstein was to some degree involved, but rather: How strongly was *Waismann* involved in the making of the text? Of Schlick we have to assume that, if the text was dictated to him, he would try to accurately write it down. The same would apply to Rose Rand's involvement in any writing down or copying of the text. But was Waismann maybe already the first receiver of the dictation? Was he maybe even its first author rather than receiver only? If the text was dictated by Wittgenstein to either Schlick or Waismann, was he when editing the text subsequently taking on more and more capacities of authorship? Or was he only intended as an addressee of the dictation further down in the line, after the item was first dictated to Schlick and then maybe typed out (possibly by R. Rand) for further use and editing by Waismann for the joint book project?

Our paper is intended as a contribution to this discussion as supported by computational stylometry (Sect. #2-3) and further reflections on DFS's archival situation (Sect. #4). We have already approached this question in Oakes and Pichler (2013). Our computational stylometry question was then and is also now: "... what can computational stylometry, using *this specific method on these specific texts*, tell us in relation to our *specific research questions*" (Oakes and Pichler 2013, 222). The specific stylometric approach and software adopted was the "Stylometry with R" package of Eder, Rybicki and Kestemont (2016). The specific text corpus for stylometric comparison consisted of: (a) DFS in typescript version, (b1) the Wittgenstein Nachlass item (Big Typescript alias item Ts-213, without revisions in Wittgenstein's hand, 1932-33 (= BTt), (b2) the Wittgenstein Nachlass item Big Typescript alias item 213, with revisions in Wittgenstein's hand, 1933-34 (= BTh), (c) Schlick texts amounting from the Vienna period (= SCH), (d) Waismann texts from the Vienna period (= WAI). Each of the texts (a)-(b) can be inspected in both facsimile and transcription in the *Bergen Electronic Edition* of Wittgenstein's Nachlass (BEE) as well as in the more updated *Bergen Nachlass Edition* on Wittgenstein Source (BNE).<sup>3</sup>

The questions treated by us back in Oakes and Pichler (2013) were the following: (1) How can computational stylometry contribute to investigating the authorship question? (2) How can computational stylometry contribute to investigating the dating question? For investigating the authorship question, DFS was compared to BT, SCH and WAI; for investigating the dating question, DFS was compared to BTt and BTh. Given the specific stylometric approach and the specific corpus as described above, we concluded that:

- 1) DFS was closer to BTh than to SCH which suggested that DFS was closer to Wittgenstein authorship than to Schlick authorship.
- 2) DFS was closer to BTh than to either WAI or SCH which suggested that DFS was closer to Wittgenstein authorship than to Waismann authorship.
- 3) DFS was closer to BTh than to BTt which suggested that DFS was to be dated 1933-34 rather than 1932-33.

For the current paper we build on the continued ongoing discussions and the following two assumptions derived from our 2013 paper: The authorship question most relevant to us here is really about Wittgenstein vs. Waismann authorship rather than Wittgenstein or Waismann vs. Schlick authorship; the Wittgenstein corpus to be compared to is BTh, the Big Typescript including Wittgenstein's handwritten revisions rather than the Big Typescript without Wittgenstein's handwritten revisions. However, for investigating the issue of Wittgenstein vs. Waismann authorship, we have since 2013 always wanted to check our stylometric results against a text corpus that was extended with additional writings in German by Waismann, including *Logik, Sprache, Philosophie* (LSP), the most comprehensive text arising from Waismann's and

---

<sup>3</sup> For reproducing the text base of Ts-213 without revisions in Wittgenstein's hand (= BTt), we recommend use of IDP where one can choose "Exclude handwritten revisions in typescript".

Wittgenstein's joint work.<sup>4</sup> LSP was completed by Waismann in Oxford only in 1937, going through some additional revision in 1938-39 (LSP, Nachwort, 657f.) but goes, as mentioned, back to the early 1930s, when Wittgenstein and Waismann met regularly in Vienna for joint work on the book. LSP thus coincides with the period of Wittgenstein's and Waismann's cooperation as well as the *post* and *ante quem*s for dating DFS. We expected that the inclusion of the additional Waismann writings could have an impact on allocating DFS in the stylometric landscape, for example, that it might lead to diminishing the stylistic distance between DFS and Waismann's writings. We also wondered how LSP did compare stylistically to the other Waismann writings included (= WAIS). Or, related to this, how close both LSP and WAIS would turn out to be to the Wittgenstein Nachlass item BTh. Since much of LSP's thought, text and wording originates in Wittgenstein's own thoughts and wordings, one would expect that LSP could be as close to BTh, as we had found DFS to be. Naturally, Waismann would always have wanted not to have Wittgenstein's wordings and expressions completely disappear from the text. Additional questions included, whether it, on the extended text basis, would be possible to locate elements of style that characterized both LSP and DFS, but not BTh. Could including LSP and additional writings by Waismann in our stylometric experiments maybe help identify the specific Waismannian elements in, and contribution to, editing Wittgenstein's thoughts and texts, thus Waismann's *own* style as it entered DFS?

Rerunning our experiments, we now obtained the following results:

- 4) Comparing LSP and WAIS shows surprisingly *no consistent stylistic distinction between LSP and WAIS*; LSP seems stylistically different from Waismann's other works in that the WAIS texts are rather spread out over Figure 5 below, while the individual chapters of LSP cluster close together. This result is surprising because one would expect the influence of Wittgenstein's style on LSP to be stronger than its influence on Waismann's other writings. Thus we needed to see how the Wittgenstein BTh texts would appear when added to the same diagram.
- 5) Comparing DFS to LSP, WAIS and BTh shows *DFS equidistant between LSP, WAIS and BTh*; DFS seems thus stylistically different from both Waismann's works and from Wittgenstein's BTh, while at the same time also very close to both Waismann's works and Wittgenstein's BTh. Our current results are consistent with our results from 2013 in that DFS was shown to be closer to BTh than to Waismann's works, even though the Waismann corpus now included more items that were under the strong influence of Wittgenstein's writings.
- 6) Comparing WAIS and LSP to BTh shows WAIS slightly to the right of LSP which is well to the right of BTh; LSP seems thus stylistically slightly closer to BTh than the other Waismann writings. This result suggests that *a specifically Wittgensteinian (vs. Waismannian) style is only slightly more present in LSP than in WAIS*. This finding was only made apparent by the addition of the BTh texts to the comparison of WAIS and LSP.

The result most important for us here is that *DFS, while it has stylistic marks of both BTh and LSP, is still almost equidistant between the two*. The inclusion of LSP and WAIS in our studies has thus on the one hand indeed led to a slight revision of our 2013 result which clearly suggested a Wittgenstein rather than a Waismann authorship of DFS. But on the other hand, the result does not suggest sufficient stylistic closeness of DFS to LSP and WAIS so that one could derive Waismann rather than Wittgenstein authorship from it. In fact, in the similarity graph, DFS is located almost in the middle between the two, albeit slightly closer to BTh. Wittgenstein authorship is hence still not unlikely. However, we did find some interesting deviations which we want to comment upon further down.

Our results are, as were the results from Oakes and Pichler (2013), compatible with each of the competing views surrounding the question of authorship. They do neither exclude that DFS

---

<sup>4</sup> Another candidate for inclusion would naturally be also Waismann's *Einführung in das mathematische Denken* (Waismann 1936).

was originally dictated by Wittgenstein to Schlick and later edited further by Waismann (as Iven holds in his 2009); nor do they exclude that DFS was originally dictated by Wittgenstein to Waismann and later edited further by Waismann (as Baker holds in VOW); nor do they exclude that Waismann, using texts going back to Wittgenstein, himself stood for the compilation of the original text and dictated it (a.o.) to Schlick and Rand (as Manninen holds in his 2011 paper). While our results strengthen the position that Waismann had at least a co-authoring hand in the production of DFS, they do not imply that Waismann also actually *authored* DFS; the *Waismannian* parts of the style of DFS might simply be a result of his editing the original dictation by Wittgenstein. If, on the other hand, DFS should have originated much more in Waismann's than in Wittgenstein's authorship, as Manninen holds, then it seems surprising that DFS stylistically is closer to BTh than LSP is; LSP being a paradigm for such a text originating much more in Waismann's than in Wittgenstein's authorship. DFS is in fact *equidistant* between LSP and BTh (see Figure 4), while LSP, though slightly closer to BTh than the other Waismann writings, is significantly more to the right of BTh than DFS (see Figure 7). The only accounts with which our results therefore are *not* compatible, would be accounts which deny that either Wittgenstein or Waismann have had *any* hand in the composition of DFS, to be precise: *of DFS, as it entered our computational stylometry study*. However, none of the competing hypotheses about DFS authorship makes such a strong claim.

We present the details of our experiments in Sect. #3. However, before that we want to present at least briefly the computational stylometry techniques used in our experiments.

### 13.2. Methodology

Computer or Computational stylometry (CS) is the computational analysis of writing style. Traditionally it is used in cases of disputed authorship to determine the most likely author of a text of uncertain authorship, such as DFS in the present study. In our analysis, we make use of Eder, Rybicki and Kestemont's (2016) "Stylometry with R" package, which is freely downloadable. The first task is to decide on the list of plausible candidates for authorship of the disputed text, and then to collect a number of texts undisputedly written by those authors. The texts should be characterised by the numbers of linguistic features they contain, where in our case we use the 100 most common words in the vocabulary. Thus for each text we find how many times (ignoring case) "die" is found in each text under consideration, the number of times "das" is found in each text, and so on. We chose the number 100 because that, as we found for Oakes and Pichler (2013), most clearly distinguished the texts by Waismann from those by Wittgenstein. The next step is to estimate the inter-textual distances between the texts. There are a number of measures for this, and we use the popular "Delta" measure of Burrows (2002). If two texts are identical, the distance between them is 0, otherwise the distance is positive, and in proportion to the extent they differ. The inter-textual differences for all the pairwise comparisons between the texts are stored in a matrix. The matrix is used as the basis for a number of visual representations of the distances between the texts. We use two, Hierarchical Cluster Analysis (HCA) and Principal Components Analysis (PCA). Finally these steps are repeated with the addition of the disputed text(s), in our case here DFS.

HCA produces a diagram called a "dendrogram", such as the one in Figure 1 which looks like a tree on its side. All the texts are joined at the "root" on the left, and individual texts appear on the right. Each text is joined to its most similar text, and the distance between those texts is proportional to the length of the branch connecting them, as measured on the scale at the bottom. To find the distances between the other texts, such as BTh\_Allgemeinheit from Wittgenstein's BTh and LSP\_XVIII from Waismann's LSP, find the distance on the bottom scale of the vertical bar connecting them, which corresponds to a Delta distance of almost 5. The diagram has two main branches, one mainly corresponding to Wittgenstein texts, and the other mainly to Waismann texts. Specifically we use Ward's (1963) method of HCA, the default option in the "Stylo"

The PCA analysis such as the one in Figure 2 is a two-dimensional map, where similar texts appear close to one another and dissimilar texts appear far apart. The horizontal axis is the first

principal component (PC1), where the extremes are low and high occurrences of groups of linguistic features (frequent words) which tend to occur in the same texts as each other. PC1 is that group of words which most accounts for the differences in texts, while the second principal component (PC2) is the group of words which accounts for the next most difference between the texts.

The texts used in our analyses are the following:

**Table 1: Texts used in the analyses**

Text	Author	Abbr.
Diktat für Schlick (1933-34): in the typescript version originally published in Wittgenstein 2000 (BEE)	Ludwig Wittgenstein? Friedrich Waismann?	DFS
Erkenntnistheorie und moderne Physik; Erleben, Erkennen, Metaphysik; Ernst Mach, der Philosoph; Gibt es ein Materiales Apriori? Positivismus und Realismus; Quantentheorie und Erkennbarkeit der Natur; Über das Fundament der Erkenntnis; Vom Sinn des Lebens; Die Wende der Philosophie; Wilhelm Jerusalem zum Gedächtnis (1926-36) (Schlick 2008)	Moritz Schlick	SCH
Logik, Sprache, Philosophie (1937) (Waismann 1976)	Friedrich Waismann (except Vorrede which is by Moritz Schlick)	LSP
Die Natur des Reduzibilitätsaxioms (1928); Logische Analyse des Wahrscheinlichkeitsbegriffs (1930); Was ist logische Analyse? (1939-40); Von der Natur eines philosophischen Problems (1939); Logische und psychologische Aspekte in der Sprachbetrachtung (1947-48)	Friedrich Waismann	WAIS
Big Typescript (1933-34); in the typescript version, , incl. handwritten revisions, originally published in Wittgenstein 2000 (BEE)	Ludwig Wittgenstein	BTh

### 13.3. Analysis

Figures 1 and 2 below show the outputs obtained when the set of texts indisputably by either Wittgenstein or Waismann alone were each compared against the others. The resulting table of pairwise distances between the texts formed the basis of the Hierarchical Cluster Analysis (HCA) shown in Figure 1 and the Principal Component Analysis (PCA) shown in Figure 2. In general

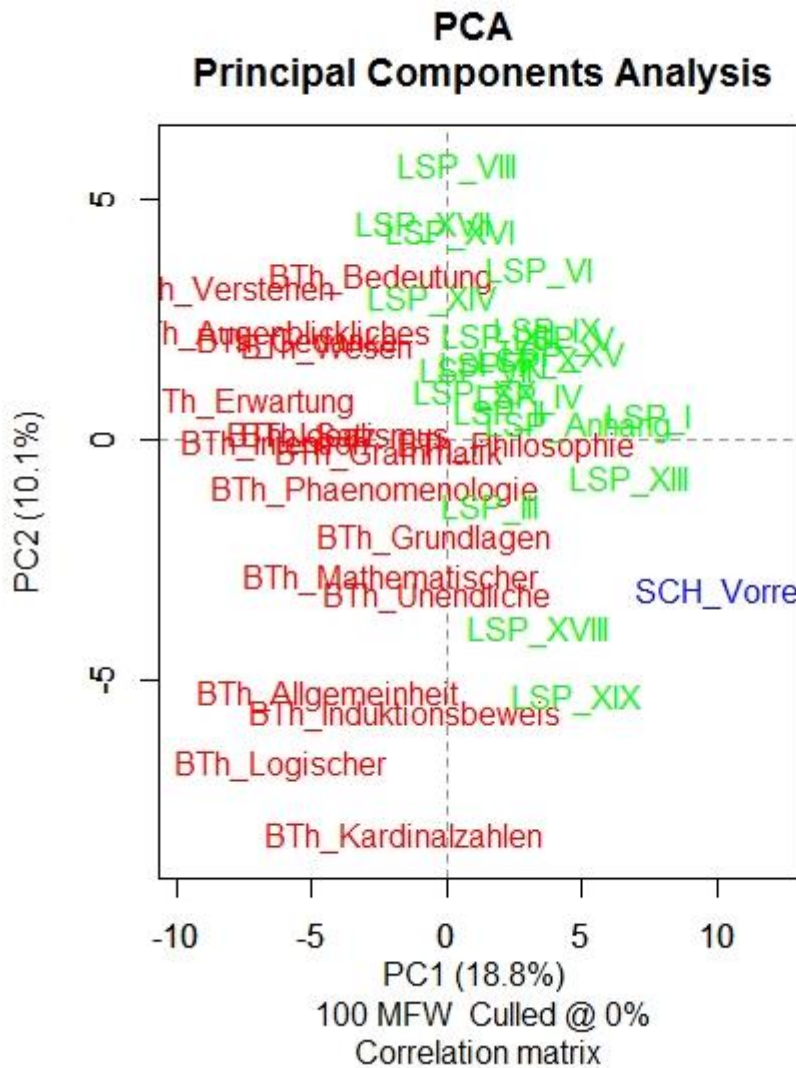
Figure 1 shows clear separation between Wittgenstein's BTh (shown in red) and Waismann's LSP (shown in green). The one exception is where BTh\_Philosophie seems interestingly to have stylistically more in common with Waismann's LSP than with the other parts of BTh. We do not at present have any explanation for this. Figure 1 shows that DFS appears in the same cluster as BTh. This is because there were just two main clusters in Figure 1, so DFS had to appear with either LSP or BTh, even though it is probably only slightly closer to BTh. In the PCA (see Figure 2), it is possible to place a text equidistant between two other groups of texts, reflecting its true position.

In Figure 2, the Principal Components Analysis (PCA) of the Wittgenstein and Waismann texts, the texts are more clearly separated between Waismann on the left hand side and Wittgenstein on the right (negative and positive values on the first principal component respectively). BTh\_Philosophie appears however again midway between the clusters for the two authors. SCH\_Vorrede appears to the left of the Waismann texts. The "Vorrede" or preface to Waismann's LSP, was actually signed by Moritz Schlick, and not unexpectedly appears in the Schlick clusters for both HCA and PCA (SCH\_Vorrede, in Figures 3 and 4). It at the same time appears in Figures 1 and 2 to have a writing style that is closer to Waismann's than to Wittgenstein's.





Figure 2: Principal Components Analysis for Waismann's LSP and Wittgenstein's BTh



In Figures 3 and 4 we introduce further texts, several definitely written by Schlick and already included in Oakes and Pichler (2013), as well as DFS. In these figures the Wittgenstein texts are shown in red, the Waismann texts in blue, the Schlick texts in black, and DFS in green. The Hierarchical Cluster Analysis (HCA) in Figure 3 shows clear distinct clusters for Schlick (SCH), Waismann's LSP and Wittgenstein's BTh, except where "BTh\_Philosophie" clusters with the Waismann texts and DFS clusters with BTh. The "Vorrede" to Waismann's LSP clusters expectedly with the Schlick texts.

In the Principal Components Analysis (PCA) of Figure 4, the clusters for the Waismann and Wittgenstein texts are generally distinct, but there is some overlap between them. The colour coding is the same for Figure 4 as for Figure 3. For example, BTh\_Philosophie appears more similar to Waismann's LSP than to Wittgenstein's, while the "Anhang" of Waismann's LSP appears more similar to Wittgenstein's BTh than to Waismann's LSP texts. It is in this area of overlap that DFS appears, showing that the stylometry technique does not attribute DFS conclusively to either Waismann or Wittgenstein. The "Vorrede" to LSP appears clearly in the cluster of Schlick texts.

In Figure 4, LSP and BTh differ in their positions on the PC2 (Second Principal Component) axis. The frequent words most typical of BTh's style and the style of LSP can be found by using the command `a = stylo()` to run the analysis. This also causes additional numeric data to be stored in a file called `a`. A second command `sort(a$pca.rotation[,2])` will return an ordered list of the words

most associated with the extremes of PC2. Thus the words (ignoring case) most associated with the writing style of BTh are "als", "auch", "muß", "denn", "sein", "du", "ich", "heißt", "nicht", "dem", while the style of LSP is associated with frequent usage of "wir", "uns", "diese", "eine", "eines", "Sprache", "nun", "die", "Wort", "einer".

Figure 5 shows no consistent variation between Waismann's other texts (WAIS) and LSP. In general the LSP chapters are closely clustered together, while the WAIS texts are scattered throughout the diagram. LSP is in red, while WAIS is in blue.

Figure 6 shows that LSP is distinct from BTh, the texts which appear clearly to the right. The WAIS (non-LSP) texts now appear slightly to the left of the LSP chapters. BTh is in red, LSP in green and WAIS in blue.

Figure 7 uses the same set of texts as Figure 6, with the addition of DFS. DFS appears in an intermediate position between BTh and LSP, but is somewhat closer to BTh. BTh is in red, LSP in blue, WAIS in black and DFS in green.



Figure 4: Principal Components Analysis for texts by Schlick (Sch), Waismann (LSP), Wittgenstein (BTh), and DFS

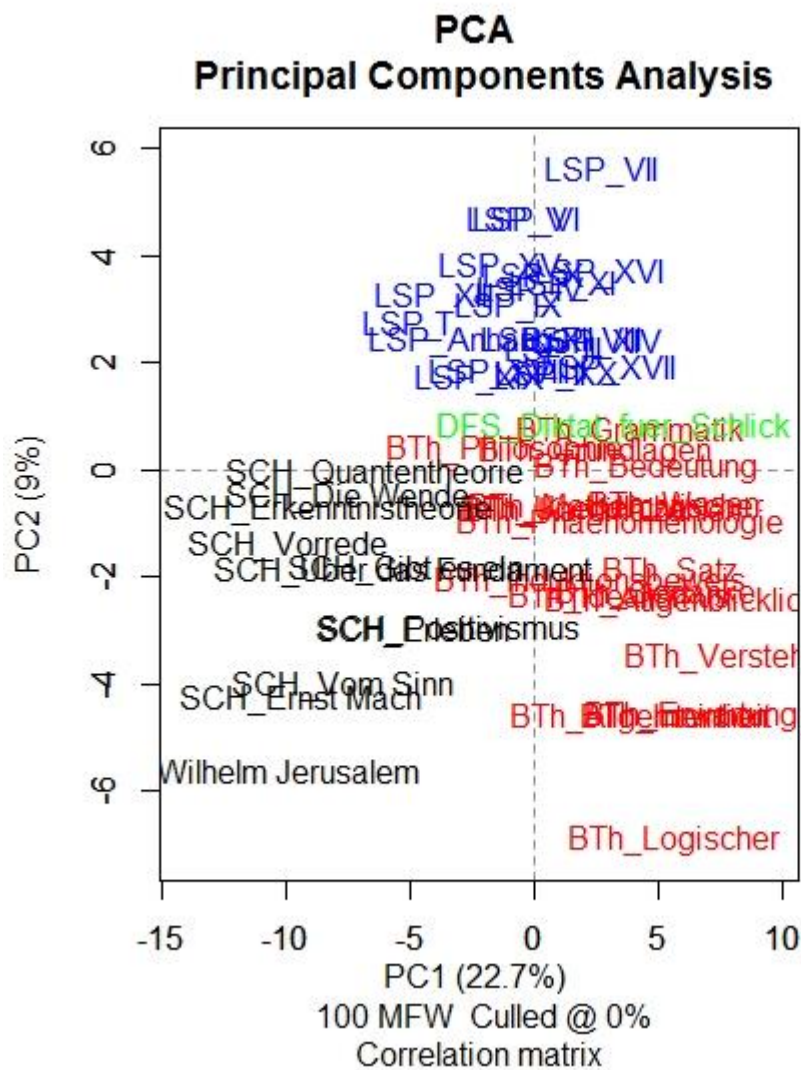


Figure 5: Principal Components Analysis for texts by Waismann (LSP and WAIS)

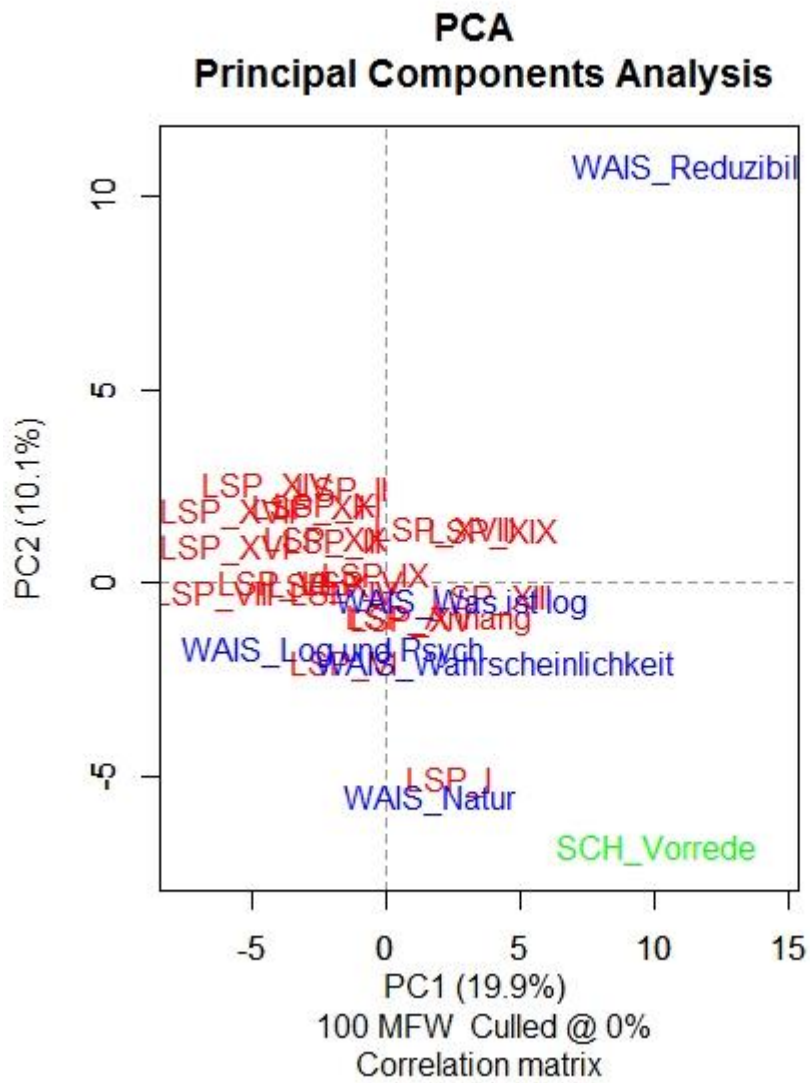


Figure 6: Principal Components Analysis for texts by Schlick (Vorrede to LSP), Waismann (LSP and WAIS) and Wittgenstein (BTh)

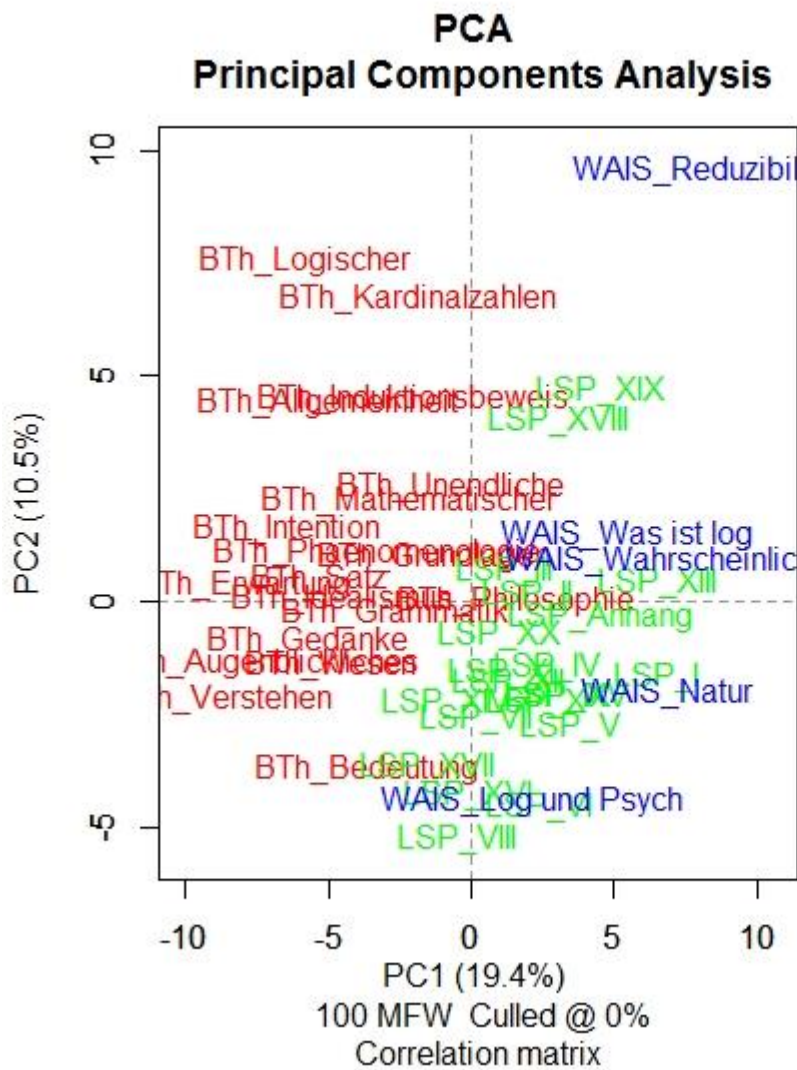
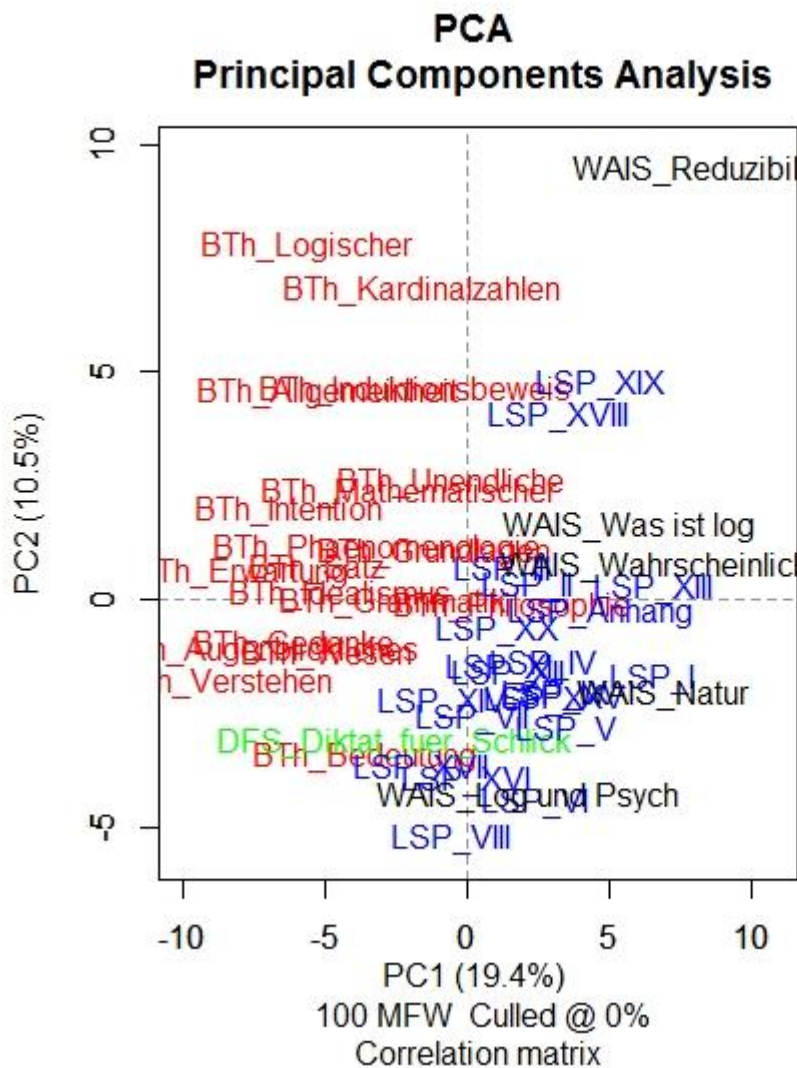




Figure 7: Principal Components Analysis for texts by Schlick (Vorrede to LSP), Waismann (LSP and WAIS), Wittgenstein (BTh), and DFS



#### 13.4. Discussion of results and outlook

Schulte (2011), arguing that DFS was authored by Waismann, attributes important evidence to the references, vocabulary and style of DFS:

Another point to consider are direct and indirect references to other authors. Neither the reference to Nietzsche (VoW, 12) nor the discussion of Heidegger's "Das Nichts nichtet" (72) are in Wittgenstein's usual style. The awkward statement about the influence of Adolf Loos (76) was certainly not phrased by Wittgenstein himself. And it is unthinkable that Wittgenstein should have referred to the *Logisch-philosophische Abhandlung* [Wittgenstein's first philosophical work] by the absurd name 'Traktat' (which on the other hand was used by Waismann). (Schulte 2011, 239)

Regarding use of "Traktat", one should take notice of the fact that Wittgenstein is also in WWK cited as referring in the conversations to his first philosophical book by "Traktat" (77, 182 and 209; from January 2 1930, December 9 1931 and July 1 1932, respectively), rather than

“Abhandlung”.<sup>5</sup> It may indeed be that “Traktat” was mostly Waismannian and Vienna Circle speech only. The stenograms seem to confirm that “Traktat” may not origin in the original dictation: In the (allegedly original) Schlick stenogram (183/D.1, 2v; see Fabian 2007) “Traktat” seems put in square brackets (as though Schlick wanted to mark the reference to the *Tractatus* as his addendum), and in the Rand stenogram (RR 11-16-3, 3r)<sup>6</sup> “Traktat” is either added *post* first writing, or from the beginning put in the right margin (as though it should be marked as something not dictated by Wittgenstein, but still a reference worthwhile including). But rather than weakening, this seems to strengthen the view that DFS originally was dictated by *Wittgenstein*: While he may not have made the reference to the *Tractatus*, or at least not have used the title “Traktat” himself, Schlick and Rand may have considered it worthwhile to include the reference, and *added* it post dictation, hereby marking it as not being part of the original dictation. If the text of the dictation, on the other hand, should originate with Waismann - why should Waismann not have included the reference and used the “Traktat” label from the beginning?

Manninen (2011) holds that DFS was not dictated by Wittgenstein, but produced by Waismann on his own, even if with a basis in texts and oral communications by Wittgenstein, and as a part of presenting Wittgenstein’s recent philosophical developments. Manninen continued to argue for his thesis in other, yet unpublished papers:

The *Diktat für Schlick* has been seen as Wittgenstein's dictation to Waismann and more recently as Wittgenstein's dictation to Schlick, in any case as a dictation by Wittgenstein. In the following, I will defend the thesis that it was *not* a dictation by Wittgenstein, but a dictation by Waismann, or, more specifically, a dictation *to* Schlick and others *within* Schlick's Circle.<sup>7</sup>

However, in other work Manninen discusses, without taking a final position, carefully the pros and contras of all other possible scenarios, including the one that Iven (2009) proposes as well as some alternative ones. We think, as stated above, that our results are compatible with any of Schulte’s (2011) and Manninen’s (2011) views, as well as with Iven’s (2009) view, and that the only view they are incompatible with would be one that excludes Waismann (or Wittgenstein) from any contribution to the authorship of the item which entered the text base of our CS study, i.e. DFS in the version of the typescript preserved in the Trinity College Cambridge Wren Library and originally published in the BEE (2000). This version is, with regard to the typed text, identical with the version kept in the North Holland Schlick archives (183/D.3; see Fabian 2007).

It is only then when the text base of our experiments is extended further with transcriptions of the two original stenograms, the DFS related materials contained in Waismann notebooks and the Waismann “Vorstufen” material (see VOW, xxxix), as well as the Waismann DFS related typescripts (Section F, “Ältere Reste”; see Schulte 1979 and item 4 in Table 2 below), published by G. Baker in VOW, that we might be able to come to more precise conclusions. Naturally, in addition to CS techniques and methods one will also need detailed document comparisons helping to establish the text genetic and chronological dependencies. So far, the stenograms themselves seem to have received insufficient research attention - surely partly due to the difficulty of deciphering the shorthand scripts they are written in. The DFS archival situation includes at least the documents listed below. While we have not yet been able to study

---

<sup>5</sup> We have not yet been able to cross check the published texts of WWK with Waismann’s original records, and thus to establish whether “Traktat” possibly also in these cases was added only *post* conversation.

<sup>6</sup> Ludwig Wittgenstein, “Manuscripts I and II”. Rose Rand Papers identifier 31735061817973. In: VI. Rose Rand’s Research Notes, Transcriptions, Manuscript Fragments, and Minutes, 1912-1978, Container: Box 11, Folder 16. University of Pittsburgh: Archives of Scientific Philosophy. For facsimiles and an item description see <https://digital.library.pitt.edu/islandora/object/pitt:31735061817973> (accessed October 21, 2021).

<sup>7</sup> J. Manninen: “An Analysis of the So-Called Diktat für Schlick, Attributed to Wittgenstein” (unpublished).



each of the documents in detail, we consider it a viable hypothesis that the sequence in which we list them in the following table largely corresponds also to their chronological sequence:<sup>8</sup>

**Table 2: "Diktat für Schlick" archival items**

	Document	Produced by	Archive	Identifier
1.	Stenogram in Stolze-Schrey 37 pages	Moritz Schlick	North Holland Archives in Haarlem  Schlick Nachlass	183/D.1
2.	Stenogram in Gabelsberger and occasionally also normal script 65 pages	Rose Rand	Pittsburgh Archives of Scientific Philosophy  Rand Nachlass	11-16-3
3a.	Typescript based on no. 183/D.1 32 pages	Friedrich Waismann(?)	North Holland Archives in Haarlem  Schlick Nachlass	183/D.3
3b.	Typescript based on no. 183/D.1, carbon copy of item 3a <sup>9</sup>  Originally part of Waismann Nachlass 32 pages	Friedrich Waismann(?)	Trinity College Cambridge Wren Library  Wittgenstein Nachlass	
4.	Dispersed DFS related typescripts of brief lengths and with each a heading, but	Friedrich Waismann	Oxford Bodleian Libraries	"Ältere Reste" F 4-7, 15, 18, 47, 80, 84-87, 89, 91, 93, 99, 101-102

<sup>8</sup> Here we don't take into account the issue of the origin and dating of DFS' last page (see Manninen's "Analysis" paper).

<sup>9</sup> The Wren Library exemplar is, according to the front cover of the folder which contains the item, a "[c]arbon copy of typescript", "[P]resented by BFMcGuinness May 1969". Items 3a and 3b contain a few handwritten corrections in the same (Waismann's?) hand. Item 3a provided the text base for our stylometric experiment.

	with many changes to the underlying DFS parts <sup>10</sup>		Waismann Nachlass	
	In total 52 pages			

Rand's stenogram RR 11-16-3 (item 2 in Table 2 above) contains on the top of p.4r a note saying that what, in her stenogram, is underlined by one straight line is her own underlining, but that what is underlined by double straight line is - *Wittgenstein's* underlining: "v. Wittg. unterstr.". Manninen correctly notes in his "Analysis" paper that Rand's double underlinings not always coincide with the single underlinings in Schlick's stenogram (item 1 in Table 2 above), but still thinks it plausible that the Rand stenogram bases on the Schlick stenogram, and thus reproduces its single - "Wittgenstein's" - underlinings in her own stenogram as double underlinings. Manninen discusses in his "Analysis" paper also the possibility that DFS originates already from the Christmas break 1931-32 and was dictated by Wittgenstein to Waismann - with *Rose Rand* taking the shorthand notes. But from the little of comparison of the two documents we could do so far, it seems that the Schlick stenogram is indeed earlier than the Rand stenogram, the latter being more orderly, containing less deletions, and transferring the only two subheadings occurring in the Schlick stenogram in neat form to the new stenogram.<sup>11</sup> The two subheadings are "Verstehen eines Satzes analog dem Verstehen einer Melodie als Melodie" and "Verstehen eines Genrebildes". The first subheading can be found in the Schlick stenogram on p.5, in the Rand stenogram on p.2v, and in the Wren and North Holland Archives typescript exemplars on p.2; the second can be found in the Schlick stenogram on p.17, in the Rand stenogram on p.8r, and in the Wren and North Holland Archives typescript exemplars on p.8.

The idea that the Rand stenogram is earlier than the two typescript exemplars fits with one of the several hypotheses Manninen discusses, namely that Rand received "Schlick's dictations from Schlick's shorthand notebook after Schlick's return from the meeting with Wittgenstein in Istria 1933. When one was used with one shorthand style, she or he could not read another one without special expertise. So it was necessary for the writer to dictate the contents for a person who used a different shorthand method. The text could well have been meant for use by Waismann. ...".<sup>12</sup> If this suggested scenario is correct, then the DFS typescript could have been

<sup>10</sup> The Waismann Nachlass in the Bodleian Archives does not contain DFS in one continuous and complete typescript, but only the set of related short F "Ältere Reste" typescripts (see Schulte 1979 and VOW, footnote apparatus). It may be just as appropriate to keep these typescripts, which only when arranged in the sequence F 99-84-18-85-102-101-87-86-4-87-91-5-80-6-15-47-89-93-7 make up the text sequence of the original DFS (see VOW, Contents Table), separated from the list of DFS archival items and thus to not include them in the table above. Schulte thinks that the "Ältere Reste" typescripts were earlier than DFS (2011, 240), but to us they appear to be later than the original DFS and to represent a *Waismannian* transformation of the DFS text into independent smaller chunks which each per se elaborate specific DFS contents further. Also Baker thinks that these typescripts are "excerpted" from DFS, and he regards them as "attempts to work towards the text of *Logik, Sprache, Philosophie*" (VOW, xxxi). We are indebted to the Bodleian Special Collections and especially to Superintendent Oliver House for providing us with copies of the Waismann F "Ältere Reste" material.

<sup>11</sup> Manninen argues in his "Analysis" paper that, on the basis of holding that both stenograms were taken simultaneously, it doesn't make sense to try to determine which of the two is the earliest: "Both Moritz Schlick's and Rose Rand's shorthand manuscripts were made while listening to this dictation. For this reason it is impossible to say which of them was the original and which a copy. They were both "original" documentations of Waismann's lecturing, so close to Wittgenstein as Waismann was able to be. The *Diktat für Schlick* is an excellent candidate to be counted among those of Wittgenstein's writings - or presentations of Wittgenstein's thought - which were read in the Circle." Unfortunately, Manninen does not discuss why the two, although allegedly being taken simultaneously of the same dictation, still differ significantly in tidiness of writing, location of corrections etc.

<sup>12</sup> J. Manninen: "Dictations. Ludwig Wittgenstein's dictations to Friedrich Waismann and Moritz Schlick (including the problem of Rozalie Rand's notes)" (unpublished).

produced by Waismann on the basis of the Rand stenogram. One exemplar of the typescript, the top copy, could then have been given to Schlick (item 3a in Table 2 above, kept today with the Schlick Nachlass in the North Holland Archives), while the other, the carbon copy (item 3b in Table 2 above), remained with Waismann, but was later, as confirmed by the note on the Wren Library folder for the item, "physically separated from Waismann's papers and deposited with Wittgenstein's papers in the Library of Trinity College, Cambridge" (VOW, xl). It would thus have been the "Waismann exemplar" which in 2000 was published in the BEE. Both the Wren and the North Holland Archives typescript exemplars contain handwritten corrections and additions (by Waismann?). G. Baker, when editing DFS for VOW, included and interpolated additional subheadings stemming from the Waismann "Ältere Reste" DFS related typescript in the Bodleian Libraries (item 4 in Table 2 above).<sup>13</sup>

While Manninen ("Dictations") thinks that Rand's note on the double underlinings ("by Wittgenstein") may indicate that the shorthand notes were actually taken by Rand during the Christmas break 1931-32, he does not make more out of it. To us, Rand's comment clearly either suggests that she herself knew or believed that the DFS text was authored by Wittgenstein, or that she believed it was sufficiently authored by Wittgenstein that she could attribute the underlinings to him. Either Waismann, during dictation at the seminar (if this is the story), communicated that the underlinings were Wittgenstein's (thus basing himself on a text source stemming from Wittgenstein), or Rand had access to a text source whose underlinings were either in Wittgenstein's hand or could indirectly be attributed to Wittgenstein, or she was directly present at a dictation by Wittgenstein where he would lift his voice in order to stress the words to be underlined. Each of these scenarios casts doubt on any view that questions that Wittgenstein in any substantial way had an important hand in authoring the text. Combining these reflections with the results from our CS investigations, it seems that the hypothesis that the DFS was originally dictated by Wittgenstein to Schlick still remains plausible, and that the passages underlined in Schlick's stenogram would be the passages where Wittgenstein would during dictation lift his voice in order to put stress on a specific word or phrase. According to Manninen ("Analysis"), the Rand stenogram is "almost identical, so far as I can judge, with Schlick's manuscript and the typescript corresponding to it".

We have ourselves not yet been able to compare the text of the two stenograms in sufficient detail with each other, nor in sufficient detail the text of the Wren and North Holland Archives typescript exemplars on the one hand with the text of the two stenograms on the other. Most importantly, we have not yet been able to compare these four documents *stylometrically* with each other. But it is only by carrying out such detailed comparisons and stylometric studies that one will be enabled to establish whether the Waismannian style which is undeniably present in DFS possibly came in post-stenogram (which would strengthen the hypothesis of Wittgensteinian authorship), or maybe was already there with the Schlick and Rand stenograms (which would strengthen the opposed hypothesis of Waismannian authorship). It is also only then and if Waismannian style can be shown to come in post-stenogram, that we can start approaching an answer to the question which are the specific Waismannian elements in, and contribution to, editing Wittgenstein's thoughts and texts, thus Waismann's *own* style as it entered DFS. We ask the reader to keep in mind that it was the text of the typescript exemplars in the Wren and North Holland Archives which (so we assume) already have gone through Waismann's hand, on which our comparison of DFS to WAIS, LSP and BTh, yielding a clear connection of DFS to Waismann's text, was based. It would be very interesting to try to find out whether DFS's development from the stenogram to the typescript versions was a process of stylistic distancing from BTh on the one hand, and approximation to WAIS and LSP on the other. For this, further transcription and CS work is required.

---

<sup>13</sup> The transcript filmed for the Cornell microfilm doesn't contain any other subheadings than the two contained in the original Wren Library and North Holland Archives typescripts.

## References

- Baayen, R. Harald. 2008. *Analysing Linguistic Data. A Practical Introduction to Statistics Using R*. Cambridge: Cambridge University Press.
- Berndt, Thomas J. 2002. "Friendship quality and social development." *Current Directions in Psychological Science* 11: 7-10.
- Burrows, John. 2002. "'Delta': a Measure of stylistic difference and a guide to likely authorship." *Literary and Linguistic Computing* 17/3: 267-87.
- Eder, Maciej, Jan Rybicki, and Mike Kestemont. 2016. "Stylometry with R: a package for computational text analysis." *R Journal* 8/1: 107-121. Accessed October 21, 2021. <https://journal.r-project.org/archive/2016/RJ-2016-007/index.html>.
- Fabian, Reinhard. 2007. "Wiener Kreis Archiv (Noord-Hollands Archief, Haarlem/NL): Inventarverzeichnis des wissenschaftlichen Nachlasses von Moritz Schlick." Accessed October 21, 2021. <https://docplayer.org/16959754-Wiener-kreis-archiv-noord-hollands-archief-haarlem-nl-inventarverzeichnis-des-wissenschaftlichen-nachlasses-von-moritz-schlick.html>.
- Iven, Mathias. 2009. "Wittgenstein und Schlick. Zur Geschichte eines Diktats." In *Stationen. Dem Philosophen und Physiker Moritz Schlick zum 125. Geburtstag*, ed. Friedrich Stadler and Hans Jürgen Wendel, 63-80. Wien/New York: Springer.
- . 2015. "Er 'ist eine Künstlernatur von hinreissender Genialität': Die Korrespondenz zwischen Ludwig Wittgenstein und Moritz Schlick sowie ausgewählte Briefe von und an Friedrich Waismann, Rudolf Carnap, Frank P. Ramsey, Ludwig Hänsel und Margaret Stonborough." *Wittgenstein Studien* 6: 83-174.
- . [Forthc.] "Diktate - Friedrich Waismann und Moritz Schlick." In *Wittgenstein-Handbuch. Leben - Werk - Wirkung*, eds. Anja Weiberg and Stefan Majetschak. Heidelberg: J.B. Metzler.
- Keicher, Peter. 1998. "Untersuchungen zu Wittgensteins 'Diktat für Schlick'." In *Arbeiten zu Wittgenstein*, eds. Heinz Wilhelm Krüger and Alois Pichler, 43-90. Working Papers from the Wittgenstein Archives at the University of Bergen 15. Bergen: Wittgenstein Archives at the University of Bergen.
- . 2000. "Aspekte musikalischer Komposition bei Ludwig Wittgenstein. Studienfragmente zu D 302 und Opus MS 114ii/115i." In *Das Verstehen des Anderen*, ed. Katalin Neumer, 199 - 255. Frankfurt am Main: Peter Lang.
- Manninen, Juha. 2011. "Waismann's Testimony of Wittgenstein's Fresh Starts 1931-35." In *Friedrich Waismann - Causality and Logical Positivism*, ed. Brian McGuinness, 243-265. Vienna Circle Institute Yearbook 15. Dordrecht: Springer.
- . [Unpublished] „An Analysis of the So-Called Diktat für Schlick, Attributed to Wittgenstein.”
- . [Unpublished] „Dictations. Ludwig Wittgenstein's dictations to Friedrich Waismann and Moritz Schlick (including the problem of Rozalie Rand's notes).”
- Oakes, Michael, and Alois Pichler. 2013. "Computational Stylometry of Wittgenstein's 'Diktat für Schlick'". In *The many facets of corpus linguistics in Bergen: In honour of Knut Hofland*, eds.

- Lidun Hareide, Christer Johannson and Michael Oakes, 221-240. Bergen: Bergen Language and Linguistics Series (BeLLS).
- Pichler, Alois. 1994. *Untersuchungen zu Wittgensteins Nachlaß*. Working Papers from the Wittgenstein Archives at the University of Bergen 8. Bergen: Wittgenstein Archives at the University of Bergen.
- Schlick, Moritz. 2008. „Erleben, Erkennen, Metaphysik.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 33-54. Wien: Springer Verlag.
- . „Ernst Mach, der Philosoph.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 61-68. Wien: Springer Verlag.
- . „Vom Sinn des Lebens.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 99-125. Wien: Springer Verlag.
- . „Wilhelm Jerusalem zum Gedächtnis.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 137-141. Wien: Springer Verlag.
- . „Erkenntnistheorie und moderne Physik.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 161-172. Wien: Springer Verlag.
- . „Die Wende der Philosophie.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 213-222. Wien: Springer Verlag.
- . „Positivismus und Realismus.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 323-362. Wien: Springer Verlag.
- . „Gibt es ein Materiales Apriori?“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 455-469. Wien: Springer Verlag.
- . „Über das Fundament der Erkenntnis.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 487-514. Wien: Springer Verlag.
- . „Quantentheorie und Erkennbarkeit der Natur.“ In *Gesamtausgabe Band I/6: Die Wiener Zeit - Aufsätze, Beiträge, Rezensionen 1926-1936*, hg. und eingeleitet von Johannes Friedl und Heiner Rutte, 807-820. Wien: Springer Verlag.
- Schulte, Joachim. 1979. „Der Waismann-Nachlaß: Überblick – Katalog – Bibliographie.“ *Zeitschrift für philosophische Forschung* 33/1: 108-140.
- . 2011. „Waismann as Spokesman for Wittgenstein.“ In *Friedrich Waismann - Causality and Logical Positivism*, ed. Brian McGuinness, 225-242. Vienna Circle Institute Yearbook 15. Dordrecht: Springer.
- Waismann, Friedrich. 1928. „Die Natur des Reduzibilitätsaxioms.“ *Monatshefte für Mathematik und Physik* 35/1: 143-146.

- . 1930. "Logische Analyse des Wahrscheinlichkeitsbegriffs, *Erkenntnis* 1: 228-248.
- . 1936. *Einführung in das mathematische Denken. Die Begriffsbildung der modernen Mathematik*. Wien: Gerold & Co.
- . 1939-40. "Was ist logische Analyse?" *Erkenntnis* 8: 265-289.
- . 1939. "Von der Natur eines philosophischen Problems." *Synthese* 4: 340-350, 395-406.
- . 1947/48. "Logische und psychologische Aspekte in der Sprachbetrachtung." *Synthese* 6/9-12: 460-475.
- . 1976. *Logik, Sprache, Philosophie*. Mit einer Vorrede von Moritz Schlick, hg. von Gordon P. Baker und Brian McGuinness unter Mitwirkung von Joachim Schulte. Stuttgart: Philipp Reclam jun. [LSP]
- . 2003. *The Voices of Wittgenstein: The Vienna Circle. Ludwig Wittgenstein and Friedrich Waismann*, ed. Gordon Baker. London and New York: Routledge. [VOW]
- Ward, Joseph H. 1963. "Hierarchical Grouping to Optimize an Objective Function." *Journal of the American Statistical Association* 58/301: 236-244
- Wittgenstein, Ludwig. 1984. *Werkausgabe Band 3: Ludwig Wittgenstein und der Wiener Kreis*. Frankfurt am Main: Suhrkamp. [WWK]
- . 2000. *Wittgenstein's Nachlass: The Bergen Electronic Edition*, edited by Wittgenstein Archives at the University of Bergen under the direction of Claus Huitfeldt. Oxford: OUP. [BEE]
- . 2015. Wittgenstein Source Bergen Nachlass Edition, edited by the Wittgenstein Archives at the University of Bergen under the direction of Alois Pichler, in: Wittgenstein Source (2009-) [wittgensteinsource.org], Bergen. [BNE]
- . 2016. Interactive Dynamic Presentation of Ludwig Wittgenstein's philosophical Nachlass [<http://wittgensteinonline.no/>], edited by the Wittgenstein Archives at the University of Bergen under the direction of Alois Pichler, Bergen. [IDP]
- Wright, Georg Henrik von. 1982. "The Wittgenstein Papers." In Georg Henrik von Wright, *Wittgenstein*, 35-62. Oxford: Basil Blackwell.
- . 1986. "Wittgensteins Nachlaß." In Georg Henrik von Wright, *Wittgenstein*, 45-76. Übersetzt von Joachim Schulte. Frankfurt a. M.: Suhrkamp.