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# ‘Game on!’ A research project on the Prussian Kriegsspiel

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## ABSTRACT

*The Prussian Kriegsspiel was the very first professional wargame and was originally introduced in the Prussian army in 1824 but has so far seen very little systematic research. This research project has compiled a corpus from all the rulesets currently extant, which was then made subject to formal and linguistic analysis. This yielded results in three important areas: First, by comparing them with a collection of contemporary texts on military theory it was possible to identify Kriegsspiel rulesets as distinctive text types. Second, comparing the rulesets gave valuable insights into the developmental history of the Kriegsspiel. And finally, it was possible to distinguish three distinctive phases in the development of the Kriegsspiel.*

## Introduction

Although the Prussian army is possibly one of the most intensively researched military organisations in history, the Prussian *Kriegsspiel*, the first professional wargame ever introduced to a military organisation, has seen surprisingly little scholarly attention.<sup>1</sup>

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<sup>1</sup>Brief overviews can be found in Matthew B. Caffrey, *On Wargaming. How Wargames Have Shaped History and How They May Shape the Future*, (Washington: Naval War College Press, 2019), pp. 15-35; Paul Schuurman, 'A Game of Contexts: Prussian-German Professional Wargames and the Leadership Concept of Mission Tactics 1870-1880', in *War in History* 26 (2019), pp. 1-21; Jorit Wintjes, *Das Preußische Kriegsspiel*, (Opladen: Budrich, 2019), pp. 10-19; Jorit Wintjes, *When a Spiel is not a Game. The Prussian Kriegsspiel from 1824 to 1871*, in *Vulcan* 5 (2017); Jon Peterson, *A Game Out of All Proportions: How a Hobby Miniaturized War*, in: Pat Harrigan/Matthew G. Kirschenbaum (ed.), *Zones of Control. Perspectives on Wargaming*, (Cambridge/Mass.: The MIT Press, 2016), pp. 3-31; Martin van Crefeld, *Wargames: From Gladiators to Gigabytes*, (Cambridge: Cambridge University Press, 2013), pp. 145-153; Jon Peterson, *Playing at*

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While contemporaries, both Prussian and foreign, ascribed considerable importance to the *Kriegsspiel*, resulting in large numbers of publications appearing in the second half of the nineteenth century, most of that material has been forgotten. Recent years have seen a significant rise in interest in professional wargaming which has surprisingly not resulted in an increase of interest in its history.<sup>2</sup> As a result, some of the discussions among professional wargamers closely follow discussions in the Prussian army of the nineteenth century. A better understanding of the Prussian *Kriegsspiel* could lead to a better understanding of the capabilities and limitations of professional wargaming today.

The *Kriegsspiel* is a real-time command-post exercise played on a topographic map; units are represented by tokens which are (roughly) to the same scale as the map, allowing participants to gain experience of the difficulties of moving forces through space. The simulation of combat situations is based on an appointed set of rules. One key advantage of the *Kriegsspiel* is its accessibility - no knowledge of the rules is required from the participants; they work as a staff team in much the same way they would do in a field exercise. At the same time the reliance on facilitators is a crucial limitation of the *Kriegsspiel*.<sup>3</sup>

One key element of the Prussian *Kriegsspiel* are the rulesets; at least 18 of these were published between 1824 and 1903 by several different authors, all of whom were active officers of the Prussian army (see Table 1). While modern interpreters have taken closer looks at some individual rulesets, notably the original 1824 *Kriegsspiel* and the rulesets developed by Wilhelm von Tschischwitz in the 1860s and early 1870s, the rulesets have never before been analysed in their entirety. This is unfortunate, as the surviving rulesets offer a wealth of information on the development of the *Kriegsspiel*. The research project “Game on!” has therefore collected all surviving rulesets in one corpus of texts for the first time; this not only allowed an initial exploration of the developmental history of the *Kriegsspiel* but has prepared the foundation for future systematic research into the *Kriegsspiel*. The main focus of the initial exploration was on gaining a better understanding of the textual character of the rulesets; to that end these were analysed employing computer linguistics and stylometrics methodology.

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*the World. A History of Simulating Wars, People and Fantastic Adventures from Chess to Role-Playing Games*, (San Diego: Unreason Press, 2012), pp. 221-240.

<sup>2</sup>UK Ministry of Defence *Wargaming Handbook* (2017):

<https://www.gov.uk/government/publications/defence-wargaming-handbook>.

Accessed 8 June 2021.

<sup>3</sup>For a more detailed description see <https://cosimwue.github.io/2019/11/03/prussian-kriegsspiel.html>. Accessed 8 June 2021.

## Preparing the Corpus

The first step in making the *Kriegsspiel* rulesets accessible was creating a corpus of texts that was machine readable. This meant turning texts published in various formats between 1824 and 1903 into plain text files. Once the plain text versions were ready the basic semantic features of the texts were then annotated based on the structure of the texts; in all cases the original orthography was retained, and only obvious errors corrected.<sup>4</sup> For the purpose of annotating the texts, standard techniques of computational linguistics were used which then had to be extended and adapted in order to accommodate for the specific structure of the rules. For an initial analysis, only the three different service arms (infantry, cavalry, and artillery) were annotated in the texts; however, the tagset used for annotating the texts can easily be expanded for future, more detailed analysis.

Once the rulesets had been collected in a corpus, a second corpus of contemporary texts on military theory was put together; the comparison between *Kriegsspiel* rulesets and “normal” military literature of the time allows insights into the textual character of a *Kriegsspiel* ruleset, which at present is still lacking a precise definition. This comparative corpus contains a small selection of contemporary articles and books on the Prussian *Kriegsspiel* itself as well as several tactical treatises, some of which written by authors of *Kriegsspiel* rulesets.<sup>5</sup>

For the initial exploration of the corpus, three different approaches were taken. First of all, the developmental history of the *Kriegsspiel* was considered – does an analysis of the corpus allow a tentative establishment of a sequence of phases in the history of the *Kriegsspiel*? Then a closer look was taken at the coverage of the different service arms in the respective rulesets – can trends be discerned throughout the development of the *Kriegsspiel*? Finally, the frequency of key words and phrases was analysed – is it possible to judge from word frequency the actual importance of certain elements of the rulesets?

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<sup>4</sup>Examples for the former include the orthographic variants *Theil* and *Teil* (“part”).

<sup>5</sup>For example, the corpus includes Carl von Decker’s *Die Taktik der drei Waffen: Infanterie, Kavallerie und Artillerie einzeln und verbunden* (Berlin: Mittler, 1828) or J. Meckel’s *Allgemeine Lehre von der Truppenführung im Kriege* (Berlin: Mittler, 1883).

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ID	Author	Year	City	Publisher
R	Bernhard von Reisswitz	1824	Berlin	Trowitzsch
RS	Anonymi/Karl von Decker; August von Witzleben	1828	Berlin	(Ernst Mittler) <sup>6</sup>
A1	Anonymus	1846	Berlin	Ernst Mittler
A2	Anonymus	1855	Berlin	Ernst Mittler
Tsch1	Wilhelm von Tschischwitz	1862	Neisse	Graveur, Neumann
Tsch2	W. v. Tschischwitz	1867	Neisse	Graveur, Neumann
Tsch3	W. v. Tschischwitz	1870	Neisse	Graveur, Neumann
Tr1	Thilo von Trotha	1870	Berlin	Ernst Mittler & Sohn
Tr2	T. v. Trotha	1872	Berlin	Ernst Mittler & Sohn
Tsch4	W. v. Tschischwitz	1874	Neisse	Graveur, Neumann
Tr3	T. v. Trotha	1874	Berlin	Ernst Mittler & Sohn
M1	Jakob Meckel	1874	Berlin	Vossische Buchhandlung
M2	J. Meckel	1875	Berlin	Vossische Buchhandlung
N1	Julius Carl Friedrich Naumann	1877	Berlin	Ernst Mittler & Sohn
N2	J. C. F. Naumann	1881	Berlin	Ernst Mittler & Sohn
Z	Carl von Zimmermann	1901	Berlin	Ernst Mittler & Sohn
I	Friedrich Immanuel	1903	Berlin	Ernst Mittler & Sohn
ME	J. Meckel; Fritz von Eynatten	1903	Berlin	Vossische Buchhandlung

**Table 1: Bibliographic list of the rulesets of Prussian *Kriegsspiele*.**

### Initial Results

In all, there are 18 texts written by 11 different authors.<sup>7</sup> The sharp increase in the frequency of publications from the 1860s onwards is striking. This can be explained by both contemporary historical events – Prussia’s sudden, and, for many contemporaries, unexpected rise to become continental Europe’s premier land power – and technological progress, which made it necessary to frequently update the rulesets.<sup>8</sup>

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<sup>6</sup>The 1828 ruleset was a supplement to the 1824 rules published in the *Zeitschrift für Kunst, Wissenschaft und Geschichte des Krieges* (vol. 13, pp. 68–105); Karl von Decker was one of its editors.

<sup>7</sup>In 1846 the Magdeburg artillery officer Gustav Weigelt produced a set of rules which circulated among the officers of the garrison, see Anonymus, *Review of Trotha, Anleitung* (Berlin: 1870), in *Militair-Wochenblatt* 55 (1870), pp. 100-101; it appears to be the only 19 Century ruleset that has not survived.

<sup>8</sup>See Wintjes, *When a Spiel is not a Game*, pp. 12-21.

ID	Pages	Chapter	Infantry <sup>9</sup> – relation <sup>10</sup>	Cavalry <sup>11</sup> – relation	Artillery <sup>12</sup> – relation	Appendix	Use of Dice
R	71	6	34 – 5,6%	25 – 4,1%	8 – 1,3%	✓	✓
RS	37	0	51 – 22%	107 – 46%	8 – 3,5%	x	✓
A1	53	26	61 – 16%	51 – 13%	48 – 13%	✓	✓
A2	53	26	61 – 16%	51 – 13%	48 – 13%	✓	✓
Tsch1	21	30	13 – 6,9%	27 – 14%	16 – 8,5%	x	✓
Tsch2	21	30	13 – 6,9%	27 – 14%	16 – 8,5%	x	✓
Tsch3	26	30	17 – 8%	32 – 15%	15 – 7%	✓	✓
Tr1	43	28	22 – 10%	32 – 15%	4 – 1,9%	✓	✓
Tr2	43	28	22 – 10%	32 – 15%	4 – 1,9%	✓	✓
Tsch4	34	31	31 – 14%	30 – 14%	15 – 7%	✓	✓
Tr3	41	28	22 – 11%	36 – 19%	N/A	✓	✓
M1	10	0	N/A <sup>13</sup>	N/A	N/A	✓	✓
M2	62	21	N/A	N/A	N/A	x	✓
N1	112	17	N/A	N/A	N/A	✓	✓
N2	105	17	24 – 5,1%	40 – 8,6%	42 – 9%	✓	✓
Z	40	8	N/A	N/A	N/A	x	✓
I	115	10	N/A	N/A	N/A	✓	x/✓ <sup>14</sup>
ME	55	21	N/A	N/A	N/A	✓	x

**Table 2: Results of Formal Analysis.**

Close examination of the texts' structure enables some initial observations on the developmental history of the *Kriegsspiel*: changes in the general character of the texts

<sup>9</sup>Paragraphs dedicated to infantry.

<sup>10</sup>Relation between the number of structurally assigned paragraphs of the individual arms of service per ruleset and the number of all paragraphs per set of rules.

<sup>11</sup>Paragraphs dedicated to cavalry.

<sup>12</sup>Paragraphs dedicated to artillery.

<sup>13</sup>Due to a lack of structural reference to the different service arms the specified paragraphs could not be counted.

<sup>14</sup>According to Immanuel, it should be the umpires decision whether to use dice or not; in his opinion, they are unnecessary (Friedrich Immanuel, *Anleitung und Beispiele zum Regimentskriegsspiel* (Berlin: Mittler, 1903), p. 29).

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can be detected around 1862 and again around 1875. These changes include the amount of detail found in the rulesets, which become significantly shorter around 1862, focussing on what were perceived to be the core issues of the *Kriegsspiel*. While the early rulesets were fairly long and complex, those published from 1862 onwards generally range from 20-50 pages; only after 1875 does the number of pages increase again. Based on this formal analysis it is possible to identify an early phase of development including the original 1824 *Kriegsspiel*, the 1828 supplement and the 1846 and 1855 rulesets, a middle phase including the rulesets published by Wilhelm von Tschischwitz, Wilhelm von Trotha and Jakob Meckel between 1867 and 1875 and a late phase including all rulesets published after 1875 (Table 2).

Analysing the coverage of the three arms of service produced some interesting results that are currently difficult to interpret. Thus, an analysis of the number of paragraphs covering infantry, cavalry or artillery appears to suggest that the importance of the respective arms of service varied considerably between *Kriegsspiel* rulesets from the three phases.<sup>15</sup>

For example, infantry seems to occupy a prominent place in the early rulesets, is then considerably less often mentioned in the middle phase of development, only to be mentioned more frequently again in the late phase (Figure 1). While it is fairly easy to determine whether this change in frequency represents an actual change in coverage as it does, it is much harder to assess whether this reflects a change in tactical thinking, a change in the general character of the *Kriegsspiel* rulesets or whether it is simply a matter of style; further comparative studies are necessary here.

Going deeper into the text, an examination of some of the linguistic features of the rulesets enabled a number of important observations: Firstly, taking a closer look at the relative frequency of nouns, verbs and adjectives suggests that each phase of *Kriegsspiel* history has a distinctive “rules’ style”. Visualizing word frequency with word clouds illustrates this point: the two examples of the word cloud for the 1874 edition of the Tschischwitz ruleset (Figure 2) and the Meckel ruleset published in 1875 (Figure 3) differ both in actual and in the distribution of the most frequent words.

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<sup>15</sup>It is important to note that the data in Table 2 refers to the number of paragraphs dedicated to the respective service arms, not to the mere mentioning of the words “infantry”, “cavalry” or “artillery”. The lack of data in most of the later rulesets is due to a significant change in their textual structure; from the mid-1870s onwards the rulesets were no longer organised in paragraphs dedicated to certain actions or capabilities.

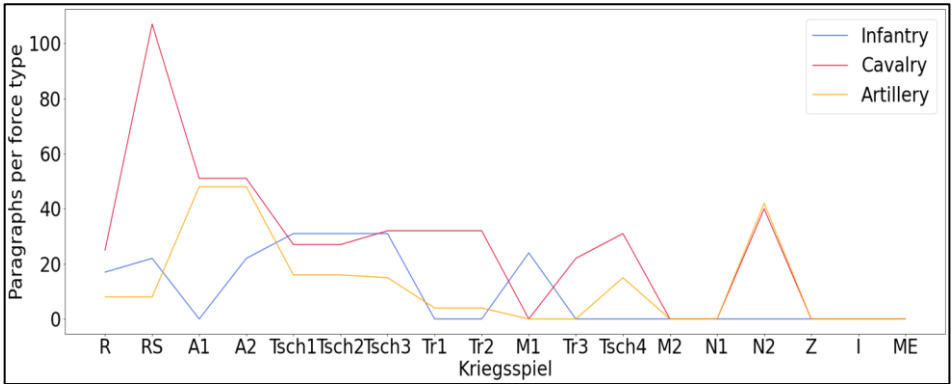


Figure 1: Distribution of Service Arms of service in all rulesets.



Figure 2: Word Cloud of the most frequent content words, Tsch4

In the Tschischwitz ruleset, dice (*Würfel*) clearly play a very prominent role, as do the decision (*Entscheidung*), infantry (*Infanterie*) and forces in general (*Truppen*); in comparison, the umpire (*Vertraute*) and cavalry (*Kavallerie*) do not find mention as frequently. The Meckel ruleset presents a very different picture: the most frequent word is *Kriegsspiel*, followed by token (*Truppenzeichen*), scale (*Maßstab*) and the set of gaming materials (*Apparat*). Also, the distribution of word frequency changes; while in the Tschischwitz ruleset a considerable difference in word frequency can be observed among the most frequent words, in Meckel these words are more evenly distributed,



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suggesting a generally more varied vocabulary. Comparing the Tschischwitz and Meckel word-clouds shown above with those from other ruletexts shows that both, while published within a year, belong to different phases of *Kriegsspiel* developmental history, with Tschischwitz representing the middle phase of development, while Meckel already represents the late phase. On the whole the stylistic analysis confirms the result of the structure of the texts with regard to *Kriegsspiel* history.



**Figure 3: Word Cloud of the most frequent content words, MI.**

Analysing the most frequent words in the Meckel also served to illuminate one of the most important issues of current *Kriegsspiel* scholarship – that of the emergence of the so-called “free” *Kriegsspiel*. Existing scholarship mostly assumes that the ‘free’ *Kriegsspiel*, that is a *Kriegsspiel* unencumbered by dice and tables, with all decisions made by the facilitators, supplanted the ‘traditional’ *Kriegsspiel* from the mid-1870s onwards.<sup>16</sup> Looking at the word clouds at first seems to support this view. However, while dice (*Würfel*) do not rank among Meckel’s most frequent words and hence do not appear in his word cloud, a close reading of his text leaves little doubt that dice were actually very important to him. Clearly in this case the word cloud then does not represent the actual importance of the dice for the ruleset – Meckel actually emphasises the importance of dice several times;<sup>17</sup> he also explains that the

<sup>16</sup>See eg Sebastian Schwägele, *Planspiel – Lernen – Lerntransfer. Eine subjektorientierte Analyse von Einflussfaktoren*, (Bamberg: BoD, 2015); Kalman J. Cohen, Eric Rhenman, The Role of Management Games in Education and Research, in *Management Science* 7, 1961, p. 131-166.

<sup>17</sup>Jakob Meckel, *Anleitung zum Kriegsspiele. Erster Theil: Direktiven für das Kriegsspiel*, (Berlin: Vossische Buchhandlung, 1875), p. 19.

information provided by his predecessors was so extensive that he mostly refers to them, which may explain why dice do not appear among his most frequent words. Indeed, dice remained a central element of the *Kriegsspiel* and were not completely abolished after 1875; only a very small number of rulesets dispensed with their use completely.

The case of dice usage shows that word clouds – while eminently useable for analysing usage – are less well suited for analysing the actual content of a text. In the case of Meckel’s ruleset, however, the word cloud may offer some insights into the emergence of the traditional narrative of the “free” *Kriegsspiel*: if understood as a visualization of a brief thumbing-through of a text where only the most frequent words remain in memory, then such a cursory glance at for example the Meckel texts might indeed have given the impression of a *Kriegsspiel* without dice.

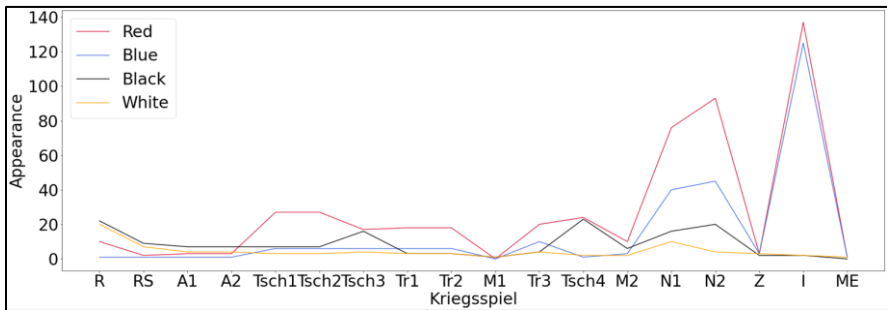


Figure 4: Appearance of the colours red, blue, white, and black in all rulesets.

### Conclusions

The creation of a first corpus of Prussian *Kriegsspiele* has been successful. All rulesets published between 1824 and 1903 that are currently known to exist have been digitised and prepared for machine reading; they form the basis for the present research project and can serve as a starting point for future research into the Prussian *Kriegsspiel*. It is planned to make the texts available in an open access database at some point in the future.

Using computational linguistics and stylometrics as analytical tools has also turned out to be successful; taking a closer look at the texts has produced a number of important results suggesting that further, more detailed analysis should be undertaken. At the same time word frequency analysis has shown that any linguistic analysis has to be accompanied by a close reading and a sound interpretation of the actual texts.

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Much remains to be done. Shortly after the present study was completed, a previously unknown set of rules by Konstantin von Altrock published in 1908 has surfaced. This shows that the topic of the Prussian *Kriegsspiel* is far from exhaustively explored, and that not only more in-depth research is necessary on the corpus of texts already collected, but that it is still possible to find primary material relevant to the developmental history of the *Kriegsspiel*. Moreover, so far only the Prussian *Kriegsspiel* has been analysed; neither translations and rules from other countries nor contemporary secondary material have been considered as yet.

A comprehensive study of the *Kriegsspiel* and its eventual use in other armies can provide an interesting window into the military culture of the time. As the Prussian *Kriegsspiel* was specifically designed to fit to the tactics and technology employed by the Prussian army, seeing how its rules were adapted by other armies will provide insights into how other armies' practices differed from those of the Prussian army.

Perhaps even more importantly, the surviving rules of the Prussian *Kriegsspiel* constitute the earliest corpus of serious gaming rulesets; the Prussian *Kriegsspiel* can be understood as the very first detailed attempt of depicting a complex chain of events in a simulative game with a set of complex rules. Analysing how the rules evolved over time can provide some insights into how contemporaries tried to cope with a world influenced by rapid technological and societal progress.