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Christopher Salahub

Seen to be done:
A statistical investigation of peremptory challenge

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Co-Adviser None
Adviser: Prof. Dr. Marloes Maathuis

Preface

This work would be nowhere near as polished or complete without the effort of Prof. Dr. Marloes Maathuis to ensure I was performing analysis with a clear direction and purpose. I would like to thank her for finding time in her busy schedule to allow for weekly meetings. The group meetings organized by her Ph.D. student Marco Eigenmann were also critical in the development of more nuanced analysis and intuitive visualizations. I thank Marco Eigenmann for organizing them, and Jinzhou Li, Armin Fingerle, Sanzio Monti, and Qikun Xiang for attending my presentations and listening attentively. A special thanks is extended to Cédric Bleutler and Leonard Henckel, both of whom were especially engaged and participated in lengthy discussions both during and outside of the group meetings.

I would like to acknowledge in particular Prof. Dr. Tilman Altwicker for his detailed suggestions on where to look for more legal context on the topic and Prof. Dr. Samuel Baumgartner for his research suggestions. They were very important at providing the necessary information to begin a first investigation of the topic. Of course, without the cooperation of Dr. Ronald Wright, Dr. George Woodworth, Dr. Barbara O'Brien, and Dr. Catherine Grosso for generously providing me with the data from their investigations on the subject of peremptory challenge. Without this data, the visualizations and modelling presented here simply would not have been possible, and so I am exceptionally grateful that they were so enthusiastic to share the fruits of their labour to help cultivate mine.

Abstract

Short summary of my thesis.

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Notation and Terms

In order to facilitate clarity despite brevity, a list of terms used in this paper is presented here.

Prosecution/State The legal representation which argues for conviction

Defence The legal reperesentation which argues against conviction

Court Reference to the judge, prosecution, and defence

Venire The population sample from which a jury is selected

Jury The final group of (usually) twelve chosen venire members which judge the guilt or innocence of the accused/defendant

Accused/Defendant The individual on trial for a crime

Voir dire From old French "to speak the truth", this is the questioning process used by the court to assess the suitability of a venire member to sit on the jury

Struck In the context of a venire member being rejected from the jury, struck indicates removal by peremptory challenge or challenge with cause

Litigants The accusor and the accused

Chapter 1

Introduction

The Gerald Stanley murder trial was noteworthy for all of the wrong reasons. The first reason was the crime itself. The rural region around Biggar, Saskatchewan (Quenneville (2018)) is not known for crime, indeed, the crime statistics collected by Statistics Canada suggest it is one of the safest in the province (Statistics Canada (2018)). Any murder at all would be worthy of attention and subject to plenty of drama. But beyond the damage this trial has done to the community, this trial is noteworthy because it led to a significant re-examination of the legal jurisprudence surrounding the jury selection process culminating in the proposition of Bill C-75 by the Canadian government in March of 2018 (42nd Parliament of Canada (2018a)), less than two months after the trial's verdict (Quenneville and Warick (2018)).

Bill C-75, in part, aims to ameliorate one of the critical points of contention about the Gerald Stanley case: the use of peremptory challenges in jury selection. The outsized impact of the case was due, in large part, to it's racial aspect. Gerald Stanley, a white man, was accused of second degree murder in the killing of Colten Boushie, a First Nations man. Given Canada's troubled history with First Nations groups, this alone would have been enough to make the trial a flash point for race issues, but that was not the worst aspect of the trial. Rather, it was the alleged use of peremptory challenges to strike five potential jurors who "appeared" to be First Nations, resulting in an all-white jury, that proved to be the most controversial and influential facet of the entire affair (Harris (2018), MacLean (2018)).

With Bill C-75 currently moving through the Canadian parliamentary system, having completed its second reading in June 2018 (42nd Parliament of Canada (2018b)), a close re-examination of the practice of peremptory challenge is warranted. A great deal of ink has already been spilled on both sides of the debate (see Hasan (2018), Zinchuk (2018), and Roach (2018)), but startlingly little of this discussion has been based on any hard evidence on the impact of peremptory challenge in jury selection. This paper aims to provide analysis and evidence to illuminate the topic further by analyzing three separate peremptory challenge data sets collected in the United States, namely Wright, Chavis, and Parks (2018), Grosso and O'Brien (2012), and Baldus, Woodworth, Zuckerman, and Weiner (2001). While this data cannot tell us if challenges were racially motivated in the Stanley trial, stepping back from this fraught legal episode to take a wider view of the practice of peremptory challenge provides a more sober place to start the discussion of its place in modern jury trials.

This paper will proceed in five parts. Chapter 2 provides a brief history of the practice of peremptory challenges in jury trials, in particular explaining their original motivation, past implementations, and how they have developed in the United States, the United Kingdom, and Canada. Chapter **??** proceeds to discuss the three data sets obtained, explaining the sources and collection methods before detailing the cleaning and preprocessing. Chapter **??** then provides the details and results of the analysis performed on the different data sets. It begins discussing the Jury Sunshine data set, which was used as a 'test' set of sorts, where analysis could be flexibly performed before the final analysis methods were turned to the other two data sets. The results of this analysis are compared to previous works in Chapter **??**. Finally, the results and findings are summarized in **??**, and recommendations based on the observations obtained here are provided.

Chapter 2

Peremptory Challenges

As the focus of this text is the legal practice of peremptory challenges, and these are a specific practice which may not be known in detail to the reader, a brief exploration of their history, motivation, and current use is presented here. It is not meant to be exhaustive, but rather to provide context and references for an interested and motivated reader to learn more. Indeed, many details have been omitted from the summary of the history here. Roughly, the presentation of the history of jury trials follows the comprehensive and exhaustively referenced description provided by Hoffman (1997), with additional context and opinion on certain details provided by von Moschzisker (1921), Forsyth (1994), and Brown (2000). Information regarding the history of the Canadian system was provided by Brown (2000) and Petersen (1993).

Before reviewing the history, it is best to give some context. The central and unchanging function of a jury in a jury trial system is to judge the innocence or guilt of an accused in light of evidence. As discussed in von Moschzisker (1921) and Forsyth (1994), the expectation of how this act is perform has varied throughout history. In the distant past, von Moschzisker (1921) and Hoffman (1997) report that the central function of the jury was to collect evidence, and so they assumed the role commonly performed by modern police detectives, and so the selection of the most "trustworthy" individuals of some reknown was paramount. This is contrasted with the modern jury, which performs no collection of the evidence, but instead merely judges the guilt of the accused, and is meant to be composed of a panel of peers or "equals" sampled at random from the population, an idea markedly different from, but motivated by, the Magna Carta (see Davis (1963) and Hoffman (1997)).

Peremptory challenges are a departure from this random selection. They are a privileged removal of a venire member - to be replaced by a new randomly selected venire member - by either the prosecution or defence without providing a justification to the court. The modern motivation for this was best described by Justice Byron R. White in Supreme Court of the United States (1965):

> The function of the challenge is not only to eliminate extremes of partiality on both sides, but to assure the parties that the jurors before whom they try the case will decide on the basis of the evidence placed before them, and not otherwise. In this way, the peremptory satisfies the rule that, "to perform its high function in the best way, justice must satisfy the appearance of justice."

2.1 History

2.1.1 Pre-English History

Although precise timelines are hard to establish, there is evidence that jury trials have occurred in some form or another since antiquity. The concept, that of judgement by a group of peers, is so ancient that it is prevalent not only in historical records, but in myth. As Hoffman (1997) indicates, both Norse and Greek mythology feature groups of individuals assessing the guilt or collecting evidence about the actions of a peer.

Outside of the realm of myth, Hoffman (1997) reports on evidence of the use of juries in Ancient Egypt, Mycenae, Druid England, Greece, Rome, Viking Scandanavia, the Holy Roman Empire, and Saracen Jerusalem. It should be noted that in none of these areas was the jury trial the primary form of conflict resolution practiced. Nonetheless, it is clear the jury trial has a broad and long history of use.

Something similar to the modern peremptory challenge does not appear until Rome, however. The Roman *Judices* were groups of senators selected to judge the guilt of the accused in a legal case. Hoffman (1997) presents evidence of the selection of 81 Senators to sit on one of these *Judices*, after which the litigants were permitted to remove fifteen of these Senators each. This egalitarian reduction of the jury size seems analogous to the modern peremptory challenge system in placing the power of removal with the litigant and suggesting no justification is necessary for their removal.

2.1.2 In English Law (1066–1988)

Peremptory challenge does not reach is modern form, with a jury size that is held constant, until it was established in the English legal system. It should be noted that despite some previous debate on the topic, the most modern historical evidence suggests that the basis of the English practice was not related to the system used in the selection of *Judices* in Rome. The English system appears to be its own beast entirely.

The currently accepted theory is that the jury system was introduced to England during the Norman conquest of 1066. Following the official adoption of juries in the Assize of Clarendon in 1166, and the outlaw of trials by ordeal (the most common method of trial at that time) in 1215, peremptory challenges began to appear in England in the late thirteenth century. The challenges were officially recognized in 1305 when Parliament outlawed their use by the Crown, only to replace them with an analogous system of so-called "standing-aside"[1].

It should be noted here that although the challenges issued between the Assize of Clarendon and this 1305 act are called "peremptory," they may not serve the same purpose as the modern challenges. Indeed, as Hoffman argues Hoffman (1997), the challenges at this point in history may have been challenges with cause. The lack of a need to discuss the justification for such a causal challenge can be attributed to two factors: the function of these early courts in small communities where the court would be familiar with the venire members, and the justification of prosecution challenges under the paradigm of royal infallibility.

[1] For a detailed explanation of this system see Hoffman (1997)

While the first of these, where both sides simply "know" why an individual is being challenged seems tenuous at best, the second justification for the Crown's use of challenges seems quite reasonable. If the king cannot be wrong in his judgement and he has some reason to feel that a venire member cannot serve on the jury, then it would be highly disrespectful to ask him to justify his action. The Crown prosecutors, as representatives of the king, would be similarly shielded from criticism. The growth of peremptory challenges from the Crown to the defence was then simply an act done out of a desire to limit the power of the monarch and improve the chances of any individual facing royal inquiry.

While the logic of the expansion of these challenges is lost to time, their legal limits are not. From a maximum of 35 challenges allowed at their peak, the allowed number of challenges has only decreased over the centuries. This culminated in the Cyprus spy case in the late 1970s, which led to a "sustained campaign in Parliament and in the press alleging that defence counsel were systematically abusing it."Hoffman (1997) Ultimately this campaign was settled by the Criminal Justice Act of 1988, in which the Parliament of the United Kingdom abolished the practice. It did not, however, abolish the use of "standing-aside" by the Crown, although the practice has been heavily curtailed with strict guidelines to its use Attorney General's Office of the United Kingdom (2012).

2.1.3 In American Law (ca. 1700–1986)

2.1.4 In Canadian Law (1867–1988)

2.2 Modern Practice

2.2.1 In American Law

2.2.2 In Canadian Law

2.2.3 The Gerald Stanley Trial

Whatever justification for the modern and historical practice of peremptory challenges a proponent espouses, it should be clear from the fallout of the Gerald Stanley trial that peremptory challenges have failed in this case. Rather than guaranteeing the creation of a mutually acceptable jury, their use inspired an atagonistic response to the verdict of the case. In the eyes of many, justice was not done, and peremptory challenges are the specific reason cited.

While

Every time a prospective juror is peremptorily challenged we are telling that prospective juror that the foundation of this system is not evidence, but rather rumor, innuendo, and prejudice. - Morris B. Hoffman Hoffman (1997)

Chapter 3

First Chapter

3.1 To include a picture

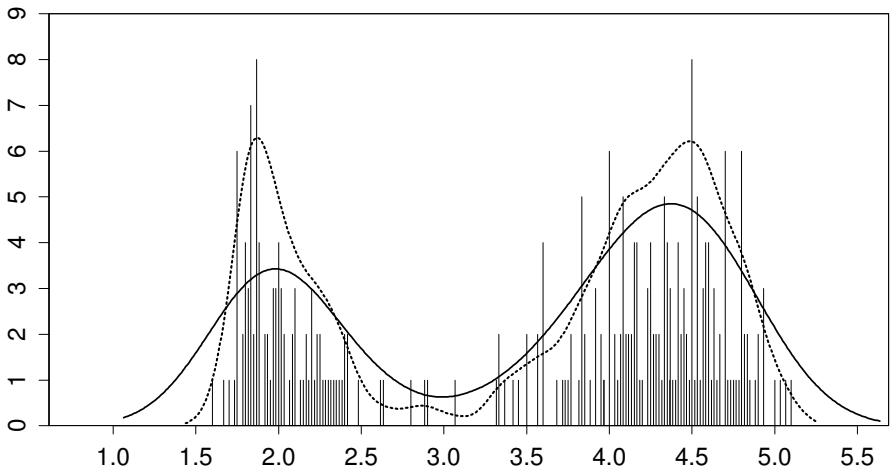

Figure 3.1: Old Faithful Geyser eruption lengths, $n = 272$; binned data and two (Gaussian) kernel density estimates ($\times 10$) with $h = h^* = .3348$ and $h = .1$ (dotted).

Or also with `includegraphics`:

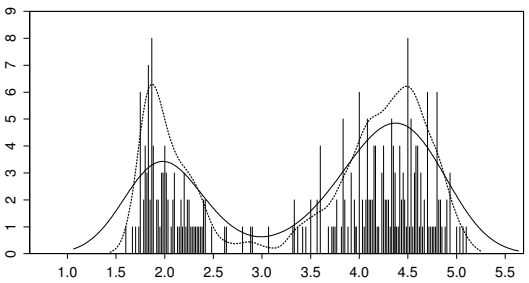

Figure 3.2: Old Faithful Geyser eruption lengths, $n = 272$; binned data and two (Gaussian) kernel density estimates ($\times 10$) with $h = h^* = .3348$ and $h = .1$ (dotted).

3.2 To make a proof

Proof. $1 + 1 = 2$ □

3.3 To include R code

See information in Appendix A.

3.4 Other information

Put a text between quotes: make sure to use nice quotes, such as “quote”.

Cite a document in the bibliography (an example here): Author and Author (tion). Or mention that Hampel (a person) or Stahel and Weisberg (two persons) have already done quite a bit work.

Referencing a different part of your work: please refer to Appendix A.

Chapter 4

Summary

Summarize the presented work. Why is it useful to the research field or institute?

4.1 Future Work

Possible ways to extend the work.

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Appendix A

Complementary information

Additional material. For example long mathematical derivations could be given in the appendix. Or you could include part of your code that is needed in printed form. You can add several Appendices to your thesis (as you can include several chapters in the main part of your work).

A.1 Including R code with verbatim

A simple (rather too simple, see A.2) way to include code or *R* output is to use `verbatim`. It just prints the text however it is (including all spaces, "strange" symbols,...) in a slightly different font.

```
## loading packages
library(RBGL)
library(Rgraphviz)
library(boot)

## global variables
X_MAX <- 150

   This allows me to put as many s  p a   c es   as I want.
I can also use \ and ‘ and & and all the rest that is usually only
accepted in the math mode.

I can also make as
                  many
             line
    breaks as
I want... and
             where I want.
```

A.2 Including R code with the *listings* package

However, it is much nicer to use the *listings* package to include R code in your report. It allows you to number the lines, color the comments differently than the code, and so on.

```
## example to generate an .eps file with the function ps.latex()
## Author: Sarah Gerster and Martin Mächler
## Last revision: 16 Aug 2011

require("sfsmisc") # pdf.latex(), pdf.end(), etc

pdf.latex(file='test_plot.pdf') #, main=TRUE)
## no main=TRUE is needed to leave enough space for the plot title
## but see below

## make sure the legends are large enough
par(cex=1.5)

## Make sure your lines are "visible" enough. Otherwise your plot
## won't look very nicely in your text.
plot(-10:10, (-10:10)**2, type="l", lty=5,
     xlab="my_x", ylab="my_y",
     ## no main title: NOT recommended for figures in text which
     ## have a \caption{..}
     lwd=4, col='blue')
lines(-10:10, 0:20, type="p", lwd=4, pch=23,col='red')
legend(-3, 90, c("func1","func2"),lwd=4,col=c('blue', 'red'),
       lty=c(1,1),cex=1)
pdf.end() # starts the previewer (which refreshes itself;
          # at least on Linux at SfS
```

A.3 Using Sweave to include R code (and more) in your report

The easiest (and most elegant) way to include R code and its output (and have all your figures up to date with your report) is to use Sweave. You can find an introduction Sweave in `/u/sfs/StatSoftDoc/Sweave/Sweave-tutorial.pdf`.

Appendix B

Yet another appendix....

B.1 Description

Something details.

Something else other definition.

B.2 Tables

Refer to Table B.1 to see a left justified table with caption on top.

Table B.1: Results.

Student	**Grade**
Marie	6
Alain	5.5
Josette	4.5
Pierre	5

Epilogue

A few final words.

Declaration of Originality

The signed declaration of originality is a component of every semester paper, Bachelor's thesis, Master's thesis and any other degree paper undertaken during the course of studies, including the respective electronic versions.

Lecturers may also require a declaration of originality for other written papers compiled for their courses.

I hereby confirm that I am the sole author of the written work here enclosed and that I have compiled it in my own words. Parts excepted are corrections of form and content by the supervisor .

Title of work (in block letters):

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Authored by (in block letters):
For papers written by groups the names of all authors are required.

Name(s):	**First name(s):**
Muster	Student

With my signature I confirm that

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- I have documented all methods, data and processes truthfully.
- I have not manipulated any data.
- I have mentioned all persons who were significant facilitators of the work .
- I am aware that the work may be screened electronically for plagiarism.
- I have understood and followed the guidelines in the document *Scientific Works in Mathematics.*

Place, date:

Zurich August 19th 2009

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For papers written by groups the names of all authors are required. Their signatures collectively guarantee the entire content of the written paper.