**Methods Log**

**Validation**

In order to assess the extent to which our measure captures legislative quality, we assess correlative validity (sometimes known as convergence validity), by proposing alternative measures of legislative quality and discussing the nature of the correlation between these measures. The two alternative measures of legislative quality are: 1) a sentiment analysis of documents that refer to and evaluate laws. 2) expert evaluation of a sample of laws.

**Sentiment analysis of legal commentary on legislation**

To aid in verification of the rushed amendment model of legislative quality by sourcing legal commentary on the act, up to the point of legislative amendment.

Proposed method: sentiment analysis. – A well understood method to measure the reception of action in the public sphere.

Sentiment analysis’ prototypical use case is the measurement of the positive/negative mood of a review written film and television. We adapt the method in order to apply applies to the assessment of a piece of legislation, by aggregating positive and negative sentences to gauge the ‘mood’ of the author in relation to the law. There are two assumptions that must hold in order to adapt sentiment analysis to the evaluation of Acts of Parliament. First, just as film reviews are explicitly about a piece of cinema, so too should be the source documents for our evaluation of laws. This means that we should select referent materials which explicitly mention a given law. Second, authorial intent should incorporate more than simply reference to the law in question, it should also incorporate **evaluation** of the law. If these two conditions don’t hold, then analogy to film reviews does not hold.

Data source: In order to ensure that source documents explicitly discuss a given law, we search for citations of a law in the Australasian Legal Information Institute’s (AustLII) secondary materials collection. Specifically, we source commentary from two Austlii databases:

1. Australian Law Journals: a source of expert commentary:
   1. The Australasian Legal Scholarship Library aims to provide a comprehensive search facility for all academic law journals in Australia and New Zealand. Currently, the search facility below allows searches over 150 law journals and legal scholarship databases.
2. Australian Secondary Materials Databases - including Law Reform
   1. The Australian Law Reform Commission (often abbreviated to ALRC) is an Australian independent statutory body established to conduct reviews into the law of Australia. The reviews, also called inquiries or references, are referred to the ALRC by the Attorney-General for Australia. Based on its research and consultations throughout an inquiry, the ALRC makes recommendations to government so that government can make informed decisions about law reform. [Wikipedia]

For the reasons of specific reference and evaluative intent, we eschew two possible alternative sources: News media and legal citations in case law. In news media, Acts of Parliament rarely receive specific reference, even when commentary refers to matters covered by the law in question. Instead, journalists focus on the story and national narrative, rather than the function of specific acts of parliament. In case law, while judges often cite specific pieces of legislation, their intent in writing opinions on cases is to refer to a law as the principal authority in evaluating a case. Judges do not intend to evaluate laws in deciding cases.

In contrast, expert commentary in law journals and in the Australian Law Reform Commission are more likely to contain content related to the evaluation of specific acts of legislation, fulfilling the two requirements for sentiment analysis of laws: specific reference and intent to evaluate. What is more – specific acts of legislation, where mentioned, are cited. Allowing the researcher to focus on the parts of commentary that are specifically relevant to the act, rather than analysing the entirety of a document.

Of course, sourcing critique from legal journals and the ALRC may bias the evaluation of laws, when compared with news media or public opinion (perhaps analogous to the differences between critic and audience scores in film and television reviews). We know that reviews from field expert lawyers may not reflect the broad political context, but they do at least provide a comprehensive source of critique. The Austlii database indexes the sum of professional legal commentary in scholarly and official journals in Australia, providing a level of specific coverage that we could not hope to achieve using other sources.

Coverage: Using the Austlii database, we were able to obtain coverage from at least one article per Act of Parliament at a rate of: X. Coverage was well distributed across area of law [any exceptions], and time [though x].

While documents in the proposed source materials are likely to contain evaluations of specific laws, we must take extra steps to show that our sentiment analysis evaluates text that satisfies both specific reference and evaluative intent. To ensure specific reference, a sentiment analysis must exclude irrelevant material and isolate passages of text which explicitly refer to the object of evaluation. We ensure and evaluate specific reference by restricting analysis of text data to the passage surrounding a citation of the law in question, rather than analysing the entire document. We justify our choice of restriction by evaluating the relevance of a piece text to the law in question, while varying the inclusion threshold. The simplest threshold is to include only the sentence including the reference, then the two sentences either side, and finally the whole paragraph. Using human coders, we obtain relevance ratings for fixed random samples of each of these thresholds. Our findings demonstrate that relevance declines as the size of the window increases. [We therefore pick X threshold]

To improve the proportion of texts which exhibit intent to evaluate the functioning of an Act of Parliament, we employ a large language model to evaluate the extent to which the text refers to and evaluates the referenced law. [this is very complicated so just do a basic thing and then come back to see if you can improve…]

The sentiment analysis itself uses two approaches. First we employ the well-used dictionary method included in quanteda (Benoit). We then use distilBERT, which employs sentence embedding to produce an AI derived output. [expand more technically on this part]

Both outputs are evaluated using inter-coder reliability with author’s coding on a fixed random sample of sentences. Fig x demonstrates the correspondence between the measures of sentiment.

File architecture:

sentiment\_01\_link\_austlii\_FRL.R

*Link Austlii law ids to the main data so that scraping of references can occur, output data, if anything occurs to you that might be interesting to share, make a short appendix piece.*

sentiment\_02\_specific\_reference.R

*Automate Austlii reference search in law review and ALRC databases – download passages surrounding reference to law, output data. Appendix: show coverage through time and area of law. Show agreement rates for the thresholds, justify choice.*

sentiment\_03\_intent\_to\_evaluate.R

*Use a method determine whether the passage intends to evaluate the referenced law, output data. Appendix: prepare reliability graphs and tables to show ICR. Paste the specific prompt for the LLM as a text file.*

sentiment\_04\_classification\_quanteda.R

*Use quanteda’s sentiment dictionary, output data, histograms over time/type of law*

sentiment\_05\_classification\_ML.R

*Use state of the art sentiment analysis tool, output data.*

sentiment\_06\_reliability.R

*Generate a fixed random sample of sentences for the author to evaluate. Generate graphs and tables for main manuscript quoting inter coder reliability for author.*