# *Applied Scaling & Classification Techniques in Political Science*

Lecture 1 (first part)

An introduction to text analytics

# References


- ✓ Grimmer, Justin, and Stewart, Brandon M. (2013). Text as Data: The Promise and Pitfalls of Automatic Content Analysis Methods for Political Texts. *Political Analysis*, 21(3): 267-297
- ✓ Benoit, Kenneth (2020). Text as data: An overview. In Luigi Curini and Robert Franzese (eds.), *SAGE Handbook of Research Methods is Political Science & International Relations*, London, Sage, chapter 26

# It all began with…

**Language** is the **medium** for politics and political conflict!

Some examples:

- *Candidates* **debate and state** policy positions during a campaign
- *Representatives* **debate** legislation
- *Nations* negotiate and sign **treaties**, with language that signals the motivations and relative power of the countries involved
- *Terrorist groups* reveal their preferences and goals through **public statements**
- *Parties* and *citizens* discuss about politics **on-line**

# It all began with…

It is no therefore exaggeration to consider text as "*the most pervasive - and certainly the most persistent artifact of political behavior*"

As a result, to understand what politics is about we need (**quite often**) to know what political actors (but also citizens) are *saying and writing*

Recognizing that language is central to the study of politics is **not new**…

…however scholars have struggled when using texts to make inferences about politics!

# It all began with…

Why? **Volume matters!** There are simply too many political texts out there!

Rarely scholars are able (time/resources constrain!) to manually read all the texts

# It all began with…

Recent methods have made progress by breaking from traditional (human) content analysis to treat text:

- not as an *object for subjective interpretation*, but…
- …as *objective data from which information about the author can be estimated…i.e.,* **treating words as data!**

What do we mean by that?

# It all began with…

Text is often referred to as "**unstructured data**", because it is structured not for the purposes of serving as any form of data but rather structured according to the **rules of language**

Because "data" means, in its simplest form, information collected for use, **text starts to become data** when we record it for reference or analysis, and this process always involves imposing **some abstraction or structure that exist outside the text itself**

# It all began with…

Absent the **imposition of this structure**, the text remains **informative** - we can read it and understand (on some form) what it means - but it does not provide a **form of information**

That is, **treating texts-as-data** means:

1. arranging texts for the purpose of analysis, using a structure that probably was not part of the process that generated the data itself
2. to make texts amenable to the familiar tools of data-analysis

# It all began with…

Through that, treating **texts-as-data** enables the use of **statistical methods**, allowing inferences to be drawn about observable (and unobservable) underlying characteristics of a text's author and through that…

…it can make possible the previously impossible in political science: **the systematic analysis** of large-scale text collections  that facilitates substantively important inferences about politics

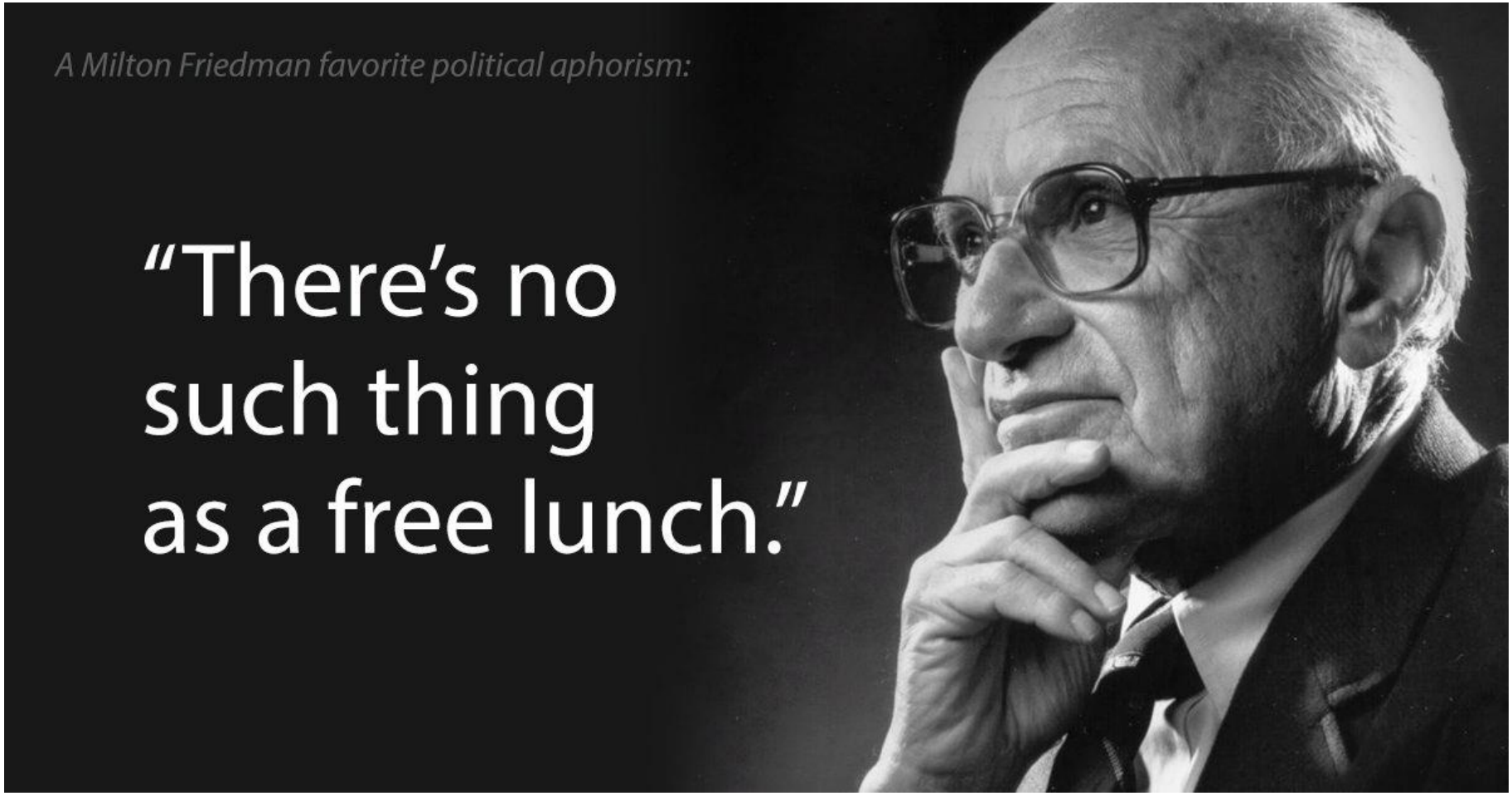
# It all began with…

OK OK you convinced me! But how to that?!? Can we now finally move to the beef?!?

Yes...but before doing that…**beware!!!**

The opportunities afforded by vast electronic text archives and algorithms for text analysis are in a real sense unlimited

Yet in a rush to take advantage of the opportunities, it is easy to overlook some important questions and to underappreciate the consequences of some decisions




Just as no body escapes Newton's laws, no technique can escape the following fundamental principles of text analysis

# Four principles of Automated Text Analysis to keep in mind (as social scientists!)

1) All quantitative models of language are wrong – but some are useful

# The first principle

Data generation process for any text is a **mystery**

If a sentence has complicated structure, its meaning could change drastically with the inclusion of new words (or punctuation…)

# The first principle

**The Sibyl**

"*ibis, redibis, non morieris in bello*"

vs.

"*ibis, redibis non, morieris in bello*"

# The first principle

The **complexity of language** implies that all methods necessarily **fail** to provide an **accurate account of the data-generating process** used to produce texts

That all automated methods are based on **incorrect models of language** implies that the models **should be evaluated** based on their ability to perform some useful social scientific task

2) Quantitative methods amplify humans, not replace them

# The second principle

The **complexity of language** implies that automated content analysis methods will never replace careful and close reading of texts

Rather, such methods are best thought of as **amplifying careful reading and thoughtful analysis**

Researchers still guide the process, make modeling decisions, and interpret the output of the models

«The best technology is **human-empowered** and **computer-assisted**»
(Gary King, Harvard University)

3) There is no a best method for automated text analysis

# The third principle

Different datasets and different research questions often lead to different quantities of interest. This is particularly true with text models!

We should simply acknowledging that there are **different research questions** and designs that imply **different types of models**

As a result, every research question and every text-as-data enterprise is **unique**. Analysts should do their own testing to determine how the decisions they are making affect the substance of their conclusions, and be mindful and transparent at all stages in the process

# 4) Validate, validate, validate

# The fourth principle

As already told, the **complexity of language** implies that automated content methods are **incorrect mo**dels of language

This means that the performance of any one method on a new data set cannot be guaranteed, and therefore **validation** is essential when applying automated content methods

We will discuss about validation a lot!

What should be avoided, then, is the **blind use of any method** without a validation step

For analysts using text as data, there are decisions at every turn, and even the ones we assume are benign may have meaningful downstream consequences!!!

# Having that in mind…

As social scientists, we have two options in front of us…

# Having that in mind…

Either we do like the ostrich…i.e., we can simply ignore the amount of digital textual data currently available for our research!

# Having that in mind…

Or…we can do like Galileo with his telescope: finding **new** patterns in **new** data, with **new** methods (telescope?) available, and, in the best scenario, developing **new** theories thanks to that! After all, the telescope came before Galileo's astronomical theories…