

1. The Historical Method
2. Counterfactual Thinking
3. Agent-based Modelling
4. “Despair”

How can agent-based models help evaluate historical explanations?

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Part 1 – The problem with history

“Although historical studies are frequently perceived as clear narratives defined by a series of fixed events; in reality, **even** where critical historical events may be identified, historic **documentation** frequently lacks corroborative detail to support **verifiable interpretation**.

Consequently, interpretation rarely rises above the level of **unproven assertion** and is rarely **tested** against a range of evidence.

Agent-based simulation can provide an opportunity to **break these cycles of academic claim and counter-claim.**“

Craenen/Gaffney/Haldon 2011

Part 1 - The Historical Method



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The coupling of heterogeneous sources and artefacts facilitates the ,Creation of a form in which one source sheds light on another“

Raul Hilberg



Part 2 - What if...?

„But the path of what happened is so brightly lit that it places everything else more deeply into shadow.” *The 9/11 Commission Report*

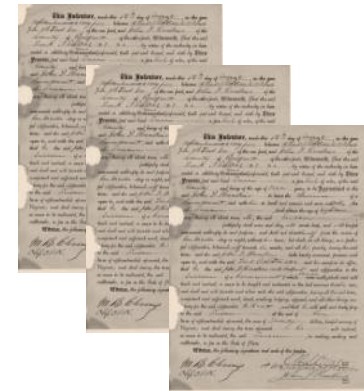
Tools to explore alternative scenarios and potentials

- Counterfactual thinking
- Network analysis
- ABM
- ...?

Part 2 - Main Problems for HABMs

Usually highly fragmentary sources need to be:

- completed,
- interpreted,
- generalized/standardized
- and then harshly simplified.



„Odd ones out?“



Case Studies

- The Disappearance of the Anasazi (Various)
- The march of the Byzantine Army (Craenen et al.)
- The Flu in Manitoba (O'Neil, Sattenspiel)
- The Battle of Trafalgar (Trautteur and Virgilio)

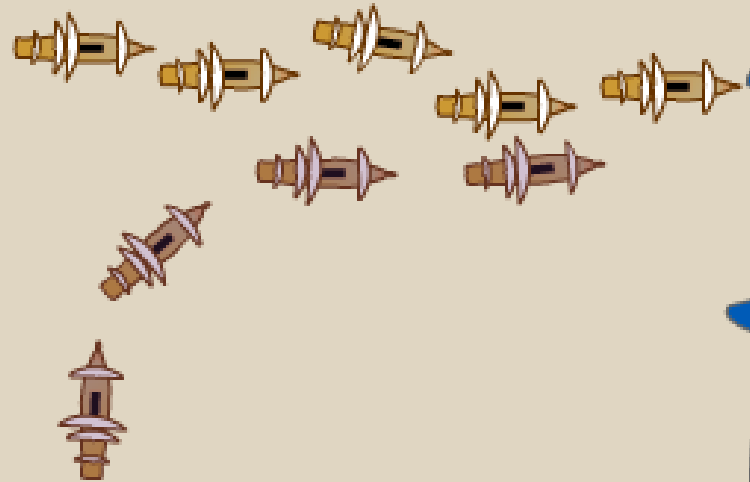
The Battle of Trafalgar



The Battle of Trafalgar

Traditional Tactics

In the age of sail, fleets would manoeuvre into the most advantageous position from which to attack. The aim was to present their entire line of ships broadside to the enemy so they could bring maximum firepower to bear. This invariably resulted in two lines of ships sailing in parallel, exchanging broadside after broadside which often led to inconclusive battles.

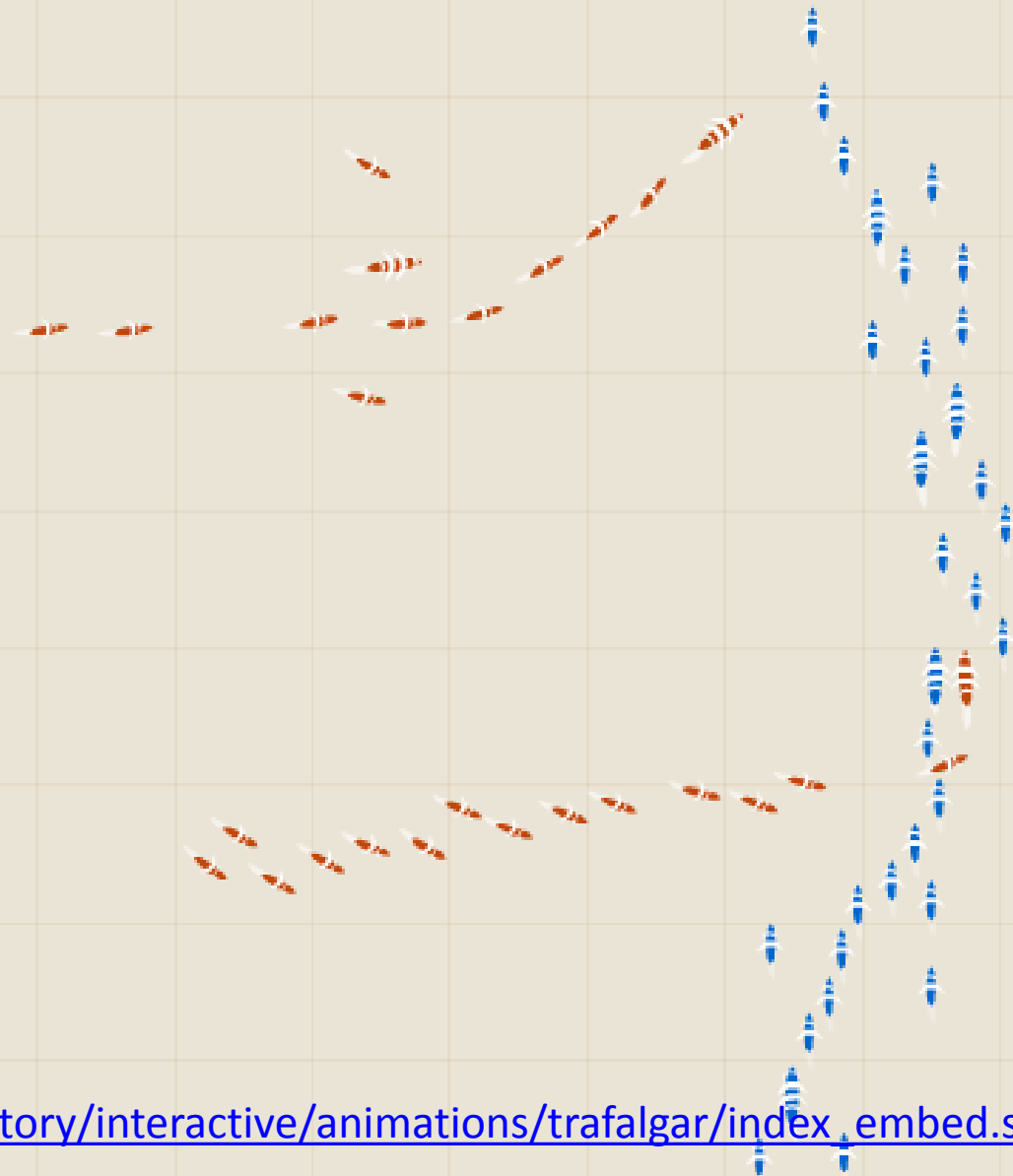


Next



http://www.bbc.co.uk/history/interactive/animations/trafalgar/index_embed.shtml

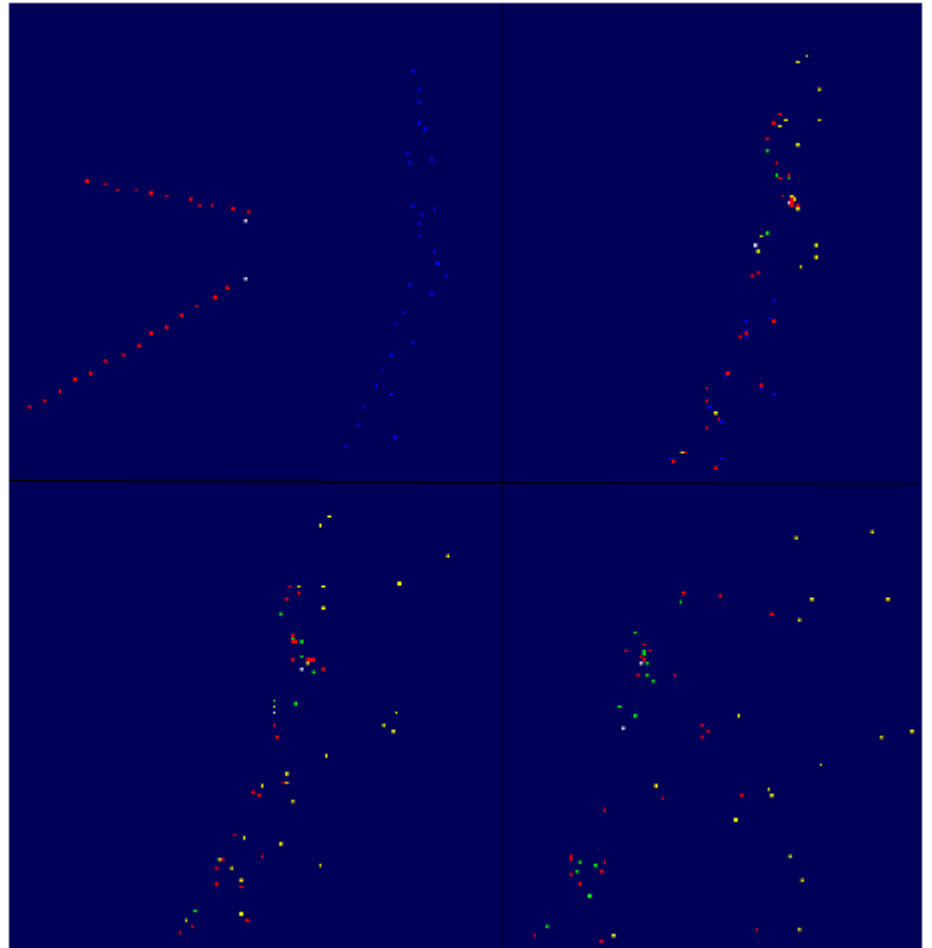
The Battle of Trafalgar



http://www.bbc.co.uk/history/interactive/animations/trafalgar/index_embed.shtml

The Battle of Trafalgar

„Was it really the unconventional formation of his ships that led Nelson to win the battle?“



The Model

- For each ship: local wind conditions, speed, firepower (with differing damage done by close, mid-range and long distance shots) and three basic statuses: attack, retreat and sink.

“[O]ur counterfactual simulations showed that English victory always occur unless the environmental variables (wind speed and direction) and the global strategies of the opposed factions are radically changed, which lead us to consider the British fleet victory substantially ineluctable.”

What it takes

- Scienciness to temporarily shift the weight to numbers (Logistics, Climatology, Epidemiology, Engineering...)
- Very isolated events with few causal factors
- A simple theory of human/agent behaviour which allows for consistent rule-based behaviour
- Good original quantifiable and transferable data

In short: Everything (neo-)historist historians despise.

Summary

The Historical Method	What has been?
Counterfactual Thinking in History	What easily could have been?
Historical Agent-based Models (if they are suitable!)	What could not have been? -Rule out some explanations (Anasazi, Influenza, Marching Army) -Develop a new explanation (Trafalgar)

Source Analysis <--> HABMification <--> Contextualisation -> Interpretation -> Relevance/Meaning

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