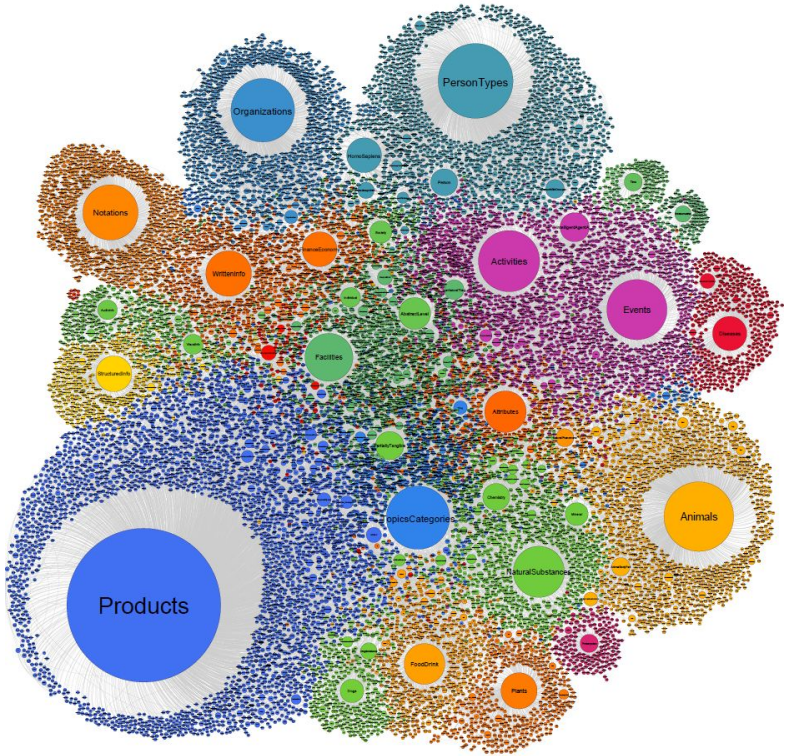
AITP 2019: Symbolic Action

Robert C Kahlert (1), Ben Rode (2), Bettina Berendt (1)

(1) DTAI Group, KU Leuven --- (2) Cycorp Inc, Austin, TX, USA

… using ResearchCYC ™

- First-order predicate calculus w/ HOL extensions
  - Reasoning about Relations
  - Contextualization through Microtheories
- Rule based ⇒ Justifications
- Free for Research Purposes
- Rich ontology of common-sense
- Rich set of Representational “blue-prints”



Majority of RCyc down-compiles to FOL

(Ramachandran, Reagan & Goolsbey, AAAI 2005: *First-orderized ResearchCyc: Expressivity and Efficiency in a common-sense Ontology*.)

http://www.cyc.com/platform/researchcyc/

Action KR is Done

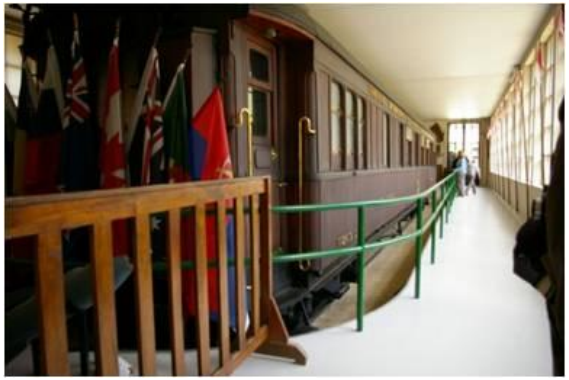
- Arthur C Danto
- Donald Davidson
- Roger Schank & Robert Abelson

Symbolic Action KR

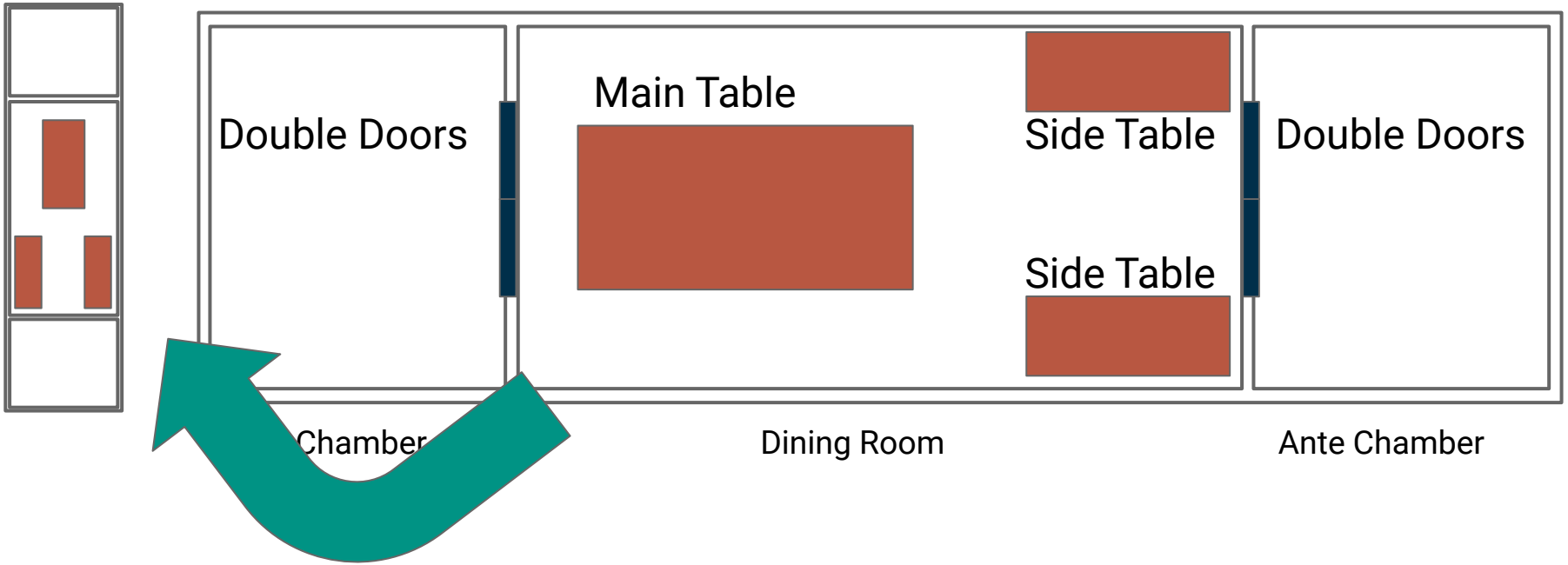
- Arthur C Danto
- ???
- ...

Armistice of Compiègne: Centennial 2018

Mrs Merkel was the first post-war German leader to visit the Compiègne site

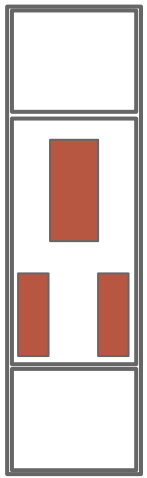


Compiègne Wagon-Lit 2419-D: Layout



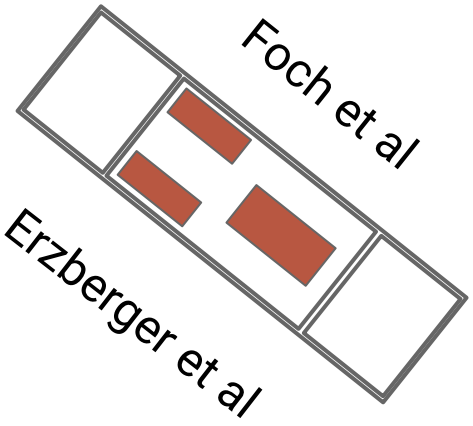
Compiègne 1914: Foch vs Erzberger

Foch et al

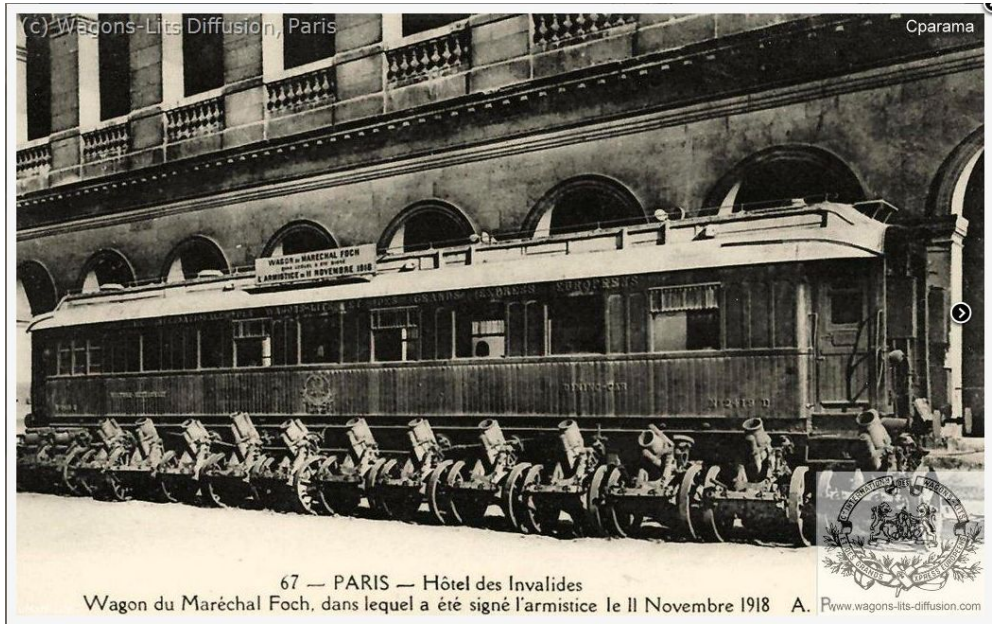


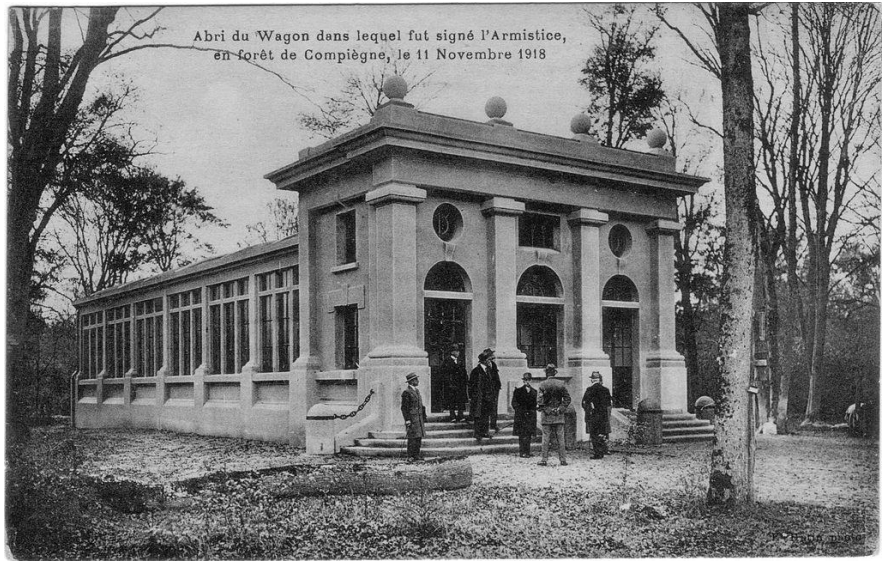
Erzberger et al

(Small Disagreement over Foch's Chair)



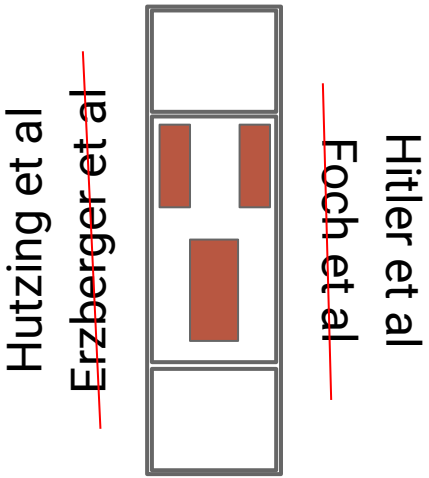
Inter-War Years: Railroad Stardom





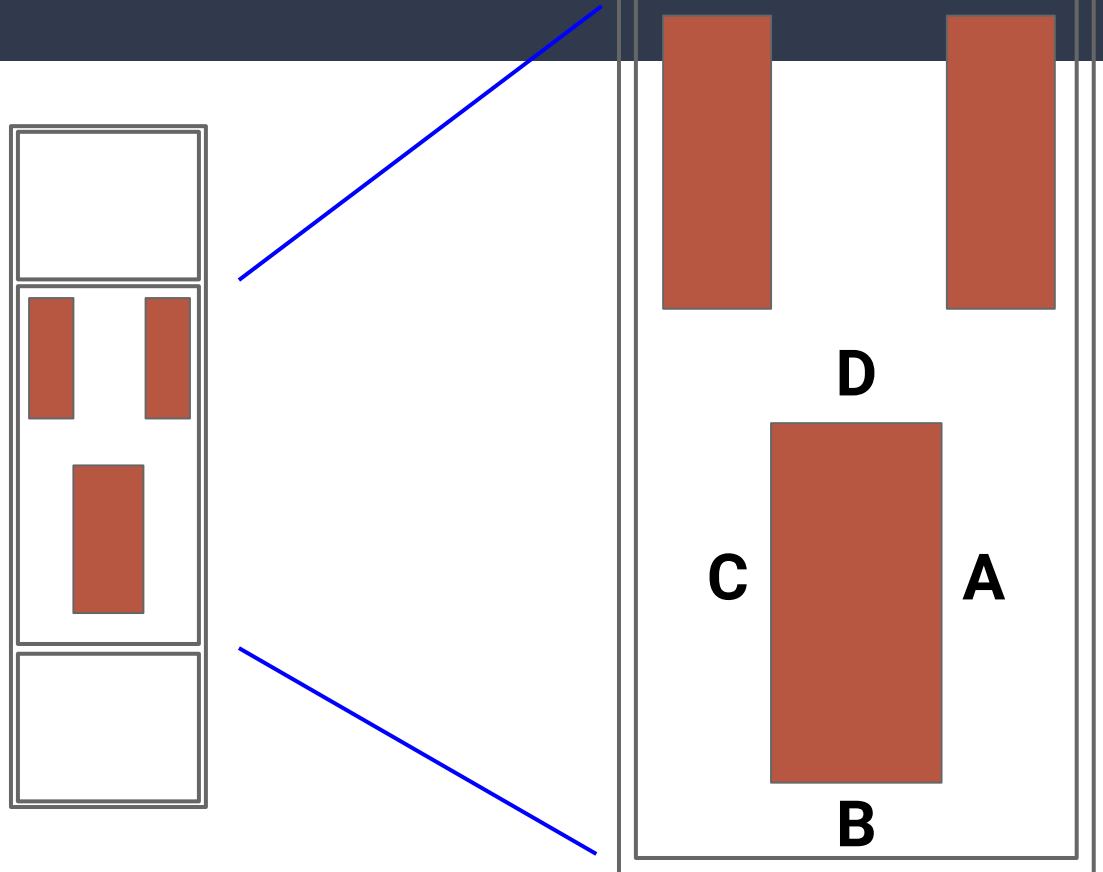
World War II: June 1940, Armistice

Compiègne Rematch 1940: Hitler vs Hutzinger



… leave early & take Souvenirs

In short ...



Side A
- 1918: Foch
- 1940: Hitler

Side B
- *N/A*

Side C
- 1918: Erzberger
- 1940: Hutzinger

Side D
- 2018: Merkel & Macron

Why might Merkel & Macron sit at D?

They want to sit next to each other, signalling friendship, not opposite from each other (confrontational).

They are avoiding the implications of siding with either past winner or loser.

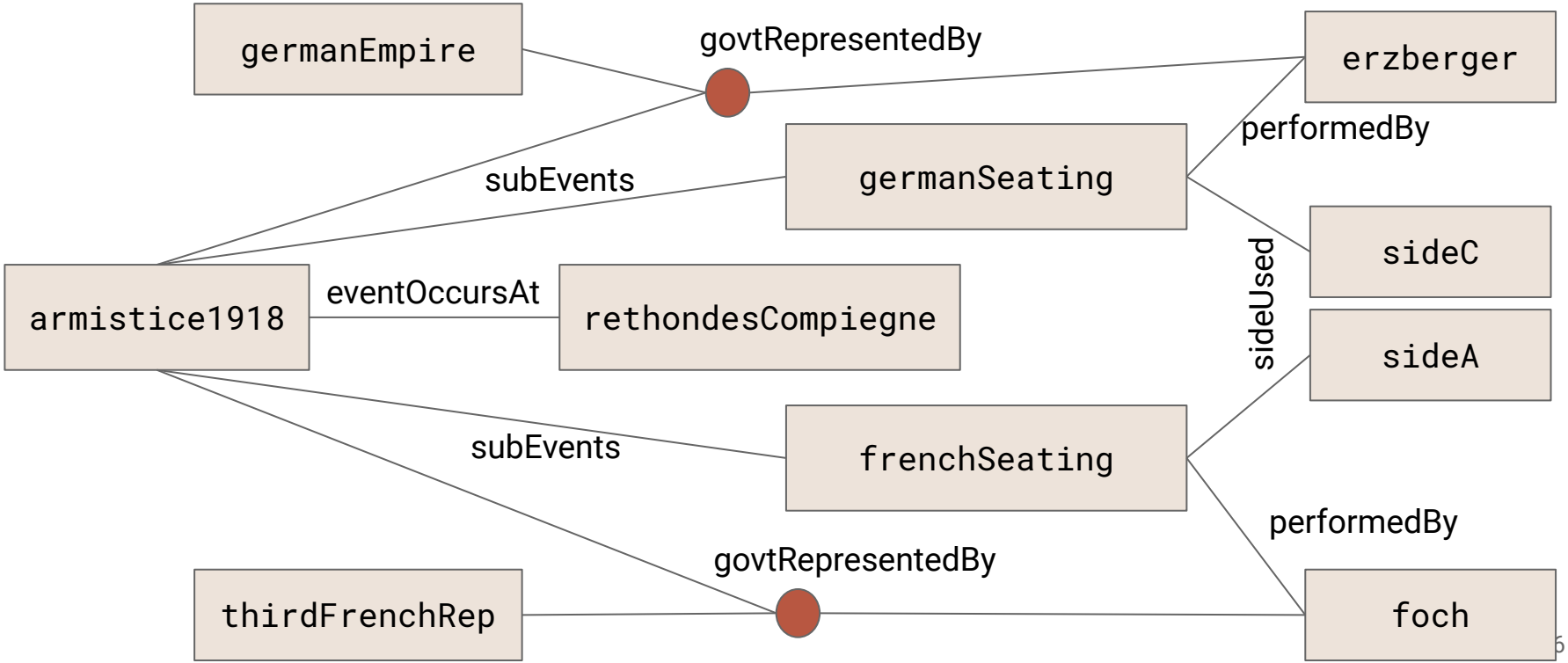
NB: Merkel and Macron are not sitting at B because photographers stand in the antechamber behind B.

Four Queries: Where should they not sit?

```
(avoidTableSide compiegneVisit2018 merkel tableSideA)
(avoidTableSide compiegneVisit2018 merkel tableSideC)

(avoidTableSide compiegneVisit2018 macron tableSideA)
(avoidTableSide compiegneVisit2018 macron tableSideC)
```

Basic Strategy: Friends don’t allude to past fights.

Standard CSR: Davidsonian on Armistice 1918



Standard CSR: Davidsonian on Armistice 1918

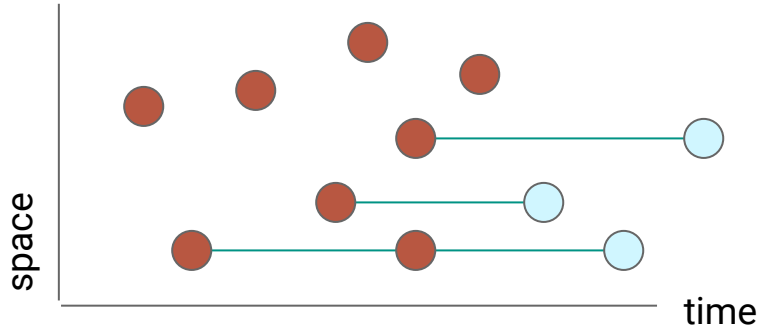
```
tableSideA, tableSideB, tableSideC, tableSideD : table_sides.
        rethondesCompiegne : geographicalSubregion.

foch, erzberger : person.
germanEmpire, thirdFrenchRepublic: govt.
armistice1918: event.

armistice(armistice1918).
eventOccursAt(armistice1918,
  rethondesCompiegne).
governmentRepresentedBy(armistice1918,
  germanEmpire, erzberger).
governmentRepresentedBy(armistice1918,
  thirdFrenchRepublic, foch).

germanSeating1918,
frenchSeating1918: event.

seatingEvent(germanSeating1918).
subEvents(armistice1918, germanSeating1918).
performedBy(germanSeating1918, erzberger).
tableSideUsed(germanSeating1918,tableSideC).

seatingEvent(frenchSeating1918).
subEvents(armistice1918, frenchSeating1918).
performedBy(frenchSeating1918, foch).
tableSideUsed(germanSeating1918,tableSideA).
```

Standard CSR: Davidsonian on Armistice 1940

```
endsBeforeStartOf(armistice1918, armistice1940).
! [X,Y,Z: event] : ((eBSO(X,Y) & eBSO(Y,Z)) => eBSO(X,Z)).

hitler, hutzinger : person.
thirdReich: govt.
armistice1940: event.

armistice(armistice1940).
eventOccursAt(armistice1940,
  rethondesCompiegne).
governmentRepresentedBy(armistice1940,
  thirdReich, hitler).
governmentRepresentedBy(armistice1940,
  thirdFrenchRepublic, hutzinger).

germanSeating1940,
frenchSeating1940: event.

seatingEvent(germanSeating1940).
subEvents(armistice1940, germanSeating1940).
performedBy(germanSeating1940, hitler).
tableSideUsed(germanSeating1940,tableSideA).

seatingEvent(frenchSeating1940).
subEvents(armistice1940, frenchSeating1940).
performedBy(frenchSeating1940, hutzinger).
tableSideUsed(germanSeating1940,tableSideC).
```

“Lemma”: Picking out co-located past Events

```
! [DE: event, VE: event,
  LOC: geographicalRegion ] :
 (( diplomaticEvent(DE)
    & eventOccursAt(DE, LOC)
    & eventOccursAt(VE, LOC)
    & endsBeforeStartOf(DE, VE))
 => pastColocatedDiplomaticEvent(VE, DE)))
```




```
! [E:event] :
  (armistice(E) => contentiousEvent(E)).

! [E:event] :
  (armistice(E) => diplomaticEvent(E)).

! [E: event] :
  (contentiousEvent(E)
   => ~ friendlyEvent(E))))).
```

“Let old Feuds be” Rule

```
! [P: person, RP: person, GOVT: govt, VE: event,
   DE: event, SE: event, TS: table_side] :
 ((pastColocatedDiplomaticEvent(VE,DE)
   & contentiousEvent(DE)
   & subEvents(DE,SE)
   & seatingEvent(SE)
   & performedBy(SE,RP)
   & seatedAtSide(SE,TS)
   & govtRepresentedBy(DE,GOVT,RP)
   & friendlyEvent(VE)
   & govtRepresentedBy(VE,GOVT,P))
  => avoidTableSide(P,VE,TS)))).
```

“Since this is a friendly meeting, don’t sit where your colleague sat at one of the last times when your governments had a bad meeting.”

CSR: Davidsonianize the Visit

```
macron, merkel : person.
fifthFrenchRepublic, federalGermanRepublic: govt.
compiegneVisit2018: event.

eventOccursAt(compiegneVisit2018,
  rethondesCompiegne).
diplomaticEvent(compiegneVisit2018).
friendlyEvent(compiegneVisit2018).
govtRepresentedBy(compiegneVisit2018, federalGermanRepublic, merkel).
govtRepresentedBy(compiegneVisit2018, fifthFrenchRepublic, macron).

endsBeforeStartOf(armistice1940,compiegneVisit2018).
```

… and we get …?

NOTHING

… and we get …?

NOTHING

German Empire =/= German Federal Republic
Third Reich =/= German Federal Republic
Third French Republic =/= Fifth French Republic

```
& govtRepresentedBy(DE,GOVT,RP)
& friendlyEvent(VE)
& govtRepresentedBy(VE,GOVT,P))
```

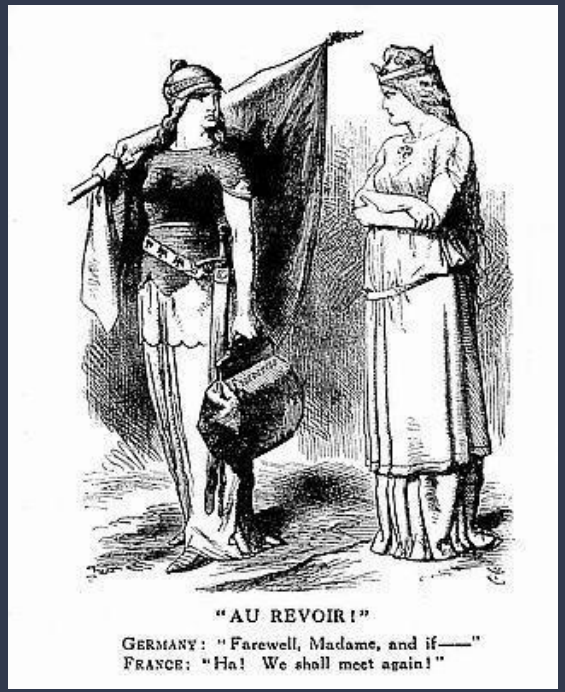
(… since Charlemagne …)
Timeline France* --- Timeline Germany*

- Treaty of Verdun (843)
- Bourbon Dynasty (1589-1792)
- French Revolution (1789-1792)
- First Republic (1792 - 1804)
- Empire of Napoleon I (1804-1814)
- Bourbon Restoration (1814-1848)
- Second Republic (1848-1852)
- Empire of Napoleon III (1852-1870)
- Third Republic (1871-1946)
- Fourth Republic (1946-1958)
- Fifth Republic (1958 to present)

WW1

- Treaty of Verdun (843)
- *Conquest of Prussia (1252) [Burg Memel]*
- … Holy Roman Empire ...
- ...1805)
- Convention of the Rhine (1805-1813)
- German Empire (1871-1918)
- Weimar Republic (1918-1933)
- Third Reich (1933-1945)
- Allied-Occupied Germany (1945-1949)
- Federal Republic of Germany (1949-1990)
- [re-unified] (1990 to present)

Constructed Continuity



France* (aka Marianna)

```
narrativeSuccessor(marianne-FrenchStar, …
  … empireOfNapoleonIII,thirdFrenchRepublic)
  … thirdFrenchRepublic, fourthFrenchRepublic)
  … fourthFrenchRepublic, fifthFrenchRepublic)
```

Germany* (aka Germania)

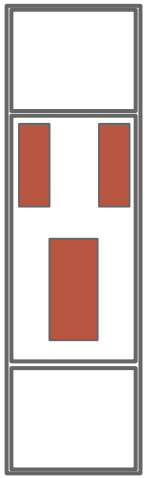
```
narrativeSuccessor(germania-GermanyStar, …
   … germanEmpire,weimarRepublic)
   … weimarRepublic,thirdReich)
   … thirdReich,federalRepublicOfGermany)

! [CC: constrCont, X,Y,Z : govt] :
  ((narrSucc(CC,X,Y) & narrSucc(CC,Y,Z))
   => (narrSucc(CC,X,Z)).
```

“Let old Feuds be” Rule (v2)

```
! [P: person, RP: person, GOVT: govt, PGOVT: govt,
   CC: constrCont, VE: event, DE: event, SE: event,
   TS: table_side]:
 ((pastColocatedDiplomaticEvent(VE,DE)
   & contentiousEvent(DE)
   & subEvents(DE,SE)
   & seatingEvent(SE)
   & performedBy(SE,RP)
   & seatedAtSide(SE,TS)
   & narrativeSuccessor(CC,PGOVT,GOVT)
   & govtRepresentedBy(DE,PGOVT,RP)
   & friendlyEvent(VE)
   & govtRepresentedBy(VE,GOVT,P))
  => avoidTableSide(P,VE,TS)))).
```

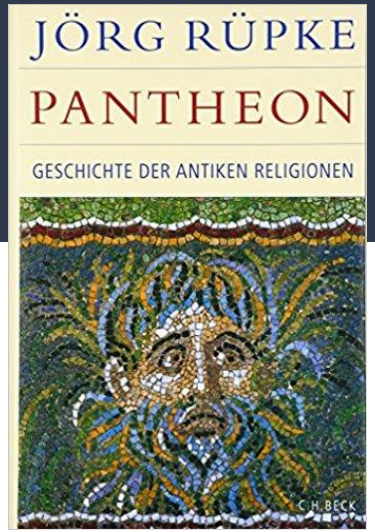
“Since this is a friendly meeting, don’t sit where your colleague sat at one of the last times when the governments that belong to your tradition had a bad meeting.”

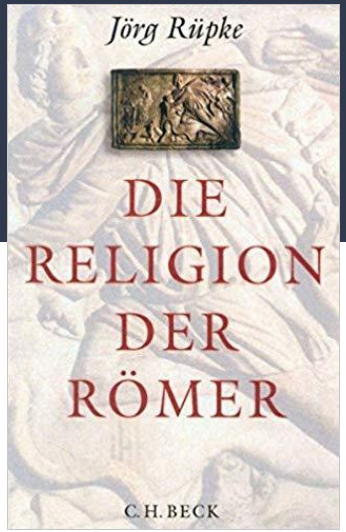
Merkel & Macron avoided {A, B, C} & sit at D

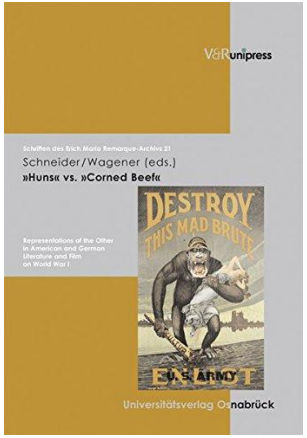


Future Work

- Represent historical *published* Arguments
  - Symbolism in WWI propaganda
  - Symbolism in Republican Roman Religion
  - *Counter:* 18th Century Atlantic Slavery
- Contribute representations as
  - CASC
  - GRUNGE Problems







Thank you for your attention!

Corresponding E-Mail Address:
robert.kahlert@gmail.com

How lame is that?

TPTP Domain Structure

```
|
|-- Social -------|-- Social Choice Theory          SCT     70 /    85
|   Sciences      |-- Management                    MGT     67 /    79
|                 |-- Geography                     GEG      1 /     1
|
|-- Arts and -----|-- Philosophy                    PHI      7 /     7
|   Humanities
|
```

Appendix

On Commemoration: Two Warnings

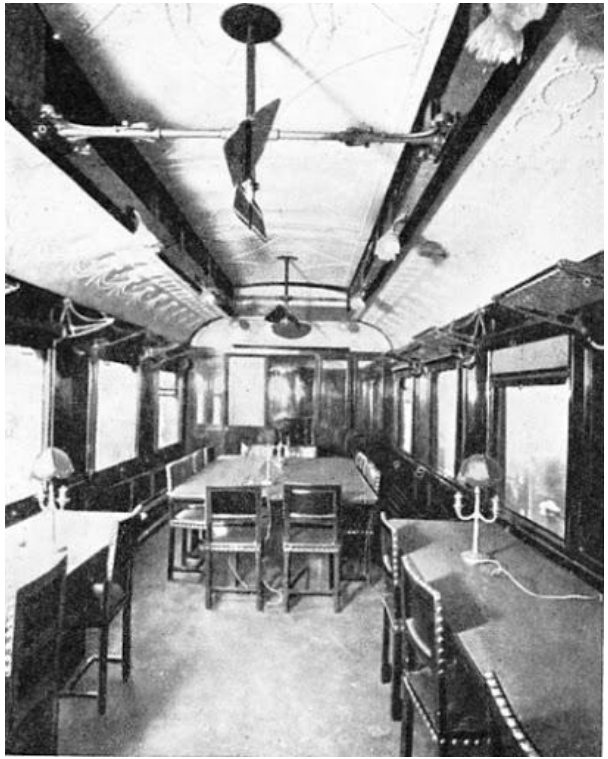
Every decision to commemorate is a decision to simplify and clarify a message by leaving out substantial parts of the story surrounding it.

--Jay Winter

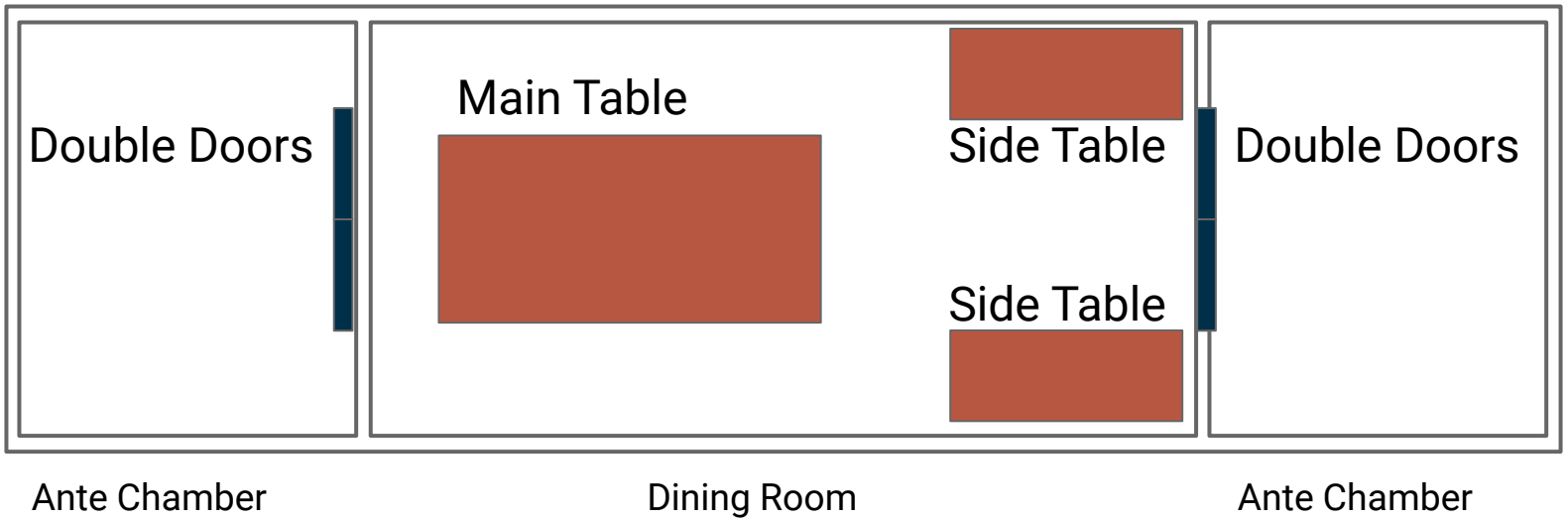
[Commemorations have a] … tendency to eschew ambiguity and to present the past from a single committed perspective ….

--James V. Wertsch

Compiègne Wagon-Lit 2419-D



Compiègne Wagon-Lit 2419-D: Layout



Signature de l'Armistice - 11 Novembre 1918 (5 heures du matin)
De gauche à droite : Général Weygand, Maréchal Foch, Sir Rosslyn-Wemis, Amiral George Hope, Capitaine Laperche.
De gauche à droite : Capitaine de Cavalerie Von Helldorf, Comte Von Oberndoff, Mathias Erzberger,
Général Major Von Winterfeld, Capitaine de Vaisseau Vanselow.