Theoretical Perspectives on the First World War

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These notes:
http://home.uchicago.edu/~rmyerson/research/ww1_notes.pdf
**WW1 and the value of rationalist explanations**

Some recent books on WW1 and economic theory:


Wolford is right: Game theory offers valuable insights into the enigmas of WW1; and WW1 is an important case for probing what is valuable in game theory. Rational-choice analysis can humanize our image of historical actors, as we look for the goals & beliefs motivating them (*Schelling & US view of Soviet leaders*).

Useful insights can be gained by considering causes of war in game-theoretic terms: equilibria, commitment problems, informational incentive constraints (see Fearon 1995 and Powell 2006, both in *International Organization*).

But standard game-theoretic assumptions of rationality and consistency may reach their limits in some aspects of international conflict:

- Independent critical review is vital to helping decision-makers avoid mistakes.
- Leaders help maintain consistent common conjectures within groups, but not between groups in conflict (see Myerson 2006 *JTP*, on the American Revolution).
Ransom:  *Explain war by behavioral evidence of loss risk-seeking, biased inference?*  
*Loss risk-seeking* looks more rational for national leaders than college lab subjects.  
(Once the outcome is bad enough for leader to fall, further losses don't harm him!)

Groups with common interests may reason better than individuals separately.  
*Discussing ideas with others* can help people to think more clearly  
(as in academia).  
By this standard, we should expect rational inference among European *diplomats*,  
who benefitted from broad discussions in a decentralized network.  
Diplomats' biases that exacerbated the crisis (F's Paleologue in R, G's Tschirschky in A-H) may illustrate national rationality: sending hardliners to reassure allies.

But *military plans are formulated in secret* by small tightly-controlled teams.
They may be experts in their profession; but in novel or non-routine tasks, basic mistakes can go uncorrected without independent review (Frayn's *Copenhagen*).

1 Aug 1914: von Moltke revealed to Germany's leaders that their *only plan* for responding to Russian mobilization required *attacking France through Belgium.*  
Maybe this was a mistake?
The younger Moltke's mistake?

Game theorists try not to doubt the optimality of any player's decision, but von Moltke's fixation on the Schlieffen plan surprised everybody in 1914.

His uncle (with same name) had won the Franco-Prussian War in 1870 by superior ability to plan and manage military operations on a vast scale, using railroads. The younger Moltke saw the Schlieffen plan as uniquely optimal for maintaining his family's reputation for excellence in military planning.

Why couldn't Germany mobilize defensively against Russia, with a portion of its forces defending strong positions gained in 1871 against the threat from France? Surely that is what the Russian leaders expected when they mobilized their forces in order to have some leverage for encouraging Austrian moderation against Serbia. Military technology in 1914 (after machine guns & barbed wire, before offensive air power) turned out to greatly favor defense, as was proven in trench warfare.

Since 1914, military planners have accepted that civilian leaders should expect them to prepare several alternative plans for responding to any anticipated crisis. But in 1914, complex plans for using railroads to move and supply hundreds of thousands of troops were still a relatively new innovation.

Did the disaster of 1914 protect us from a greater disaster later, after development of offensive air power & nuclear weapons increased offensive advantages?
Explaining war as a Pareto-dominated equilibrium

Minimal requirements for a game model to explain war: **War is an equilibrium**, but **some other feasible outcome is Pareto-superior.** *(Students take note!)*

The Prisoners' Dilemma game is a basic example. Even if other equilibria are better (Stag Hunt, Repeated PD), a bad equilibrium shows how people can be in a conflict that all want to avoid but no one will.

Multiplicity of equilibria can explain how a shock *(assassination of an Archduke)* can move us from peace to war without changing structural parameters.

But the literature emphasizes **models where all equilibria involve costly conflict**, perhaps because referees may question any selection among multiple equilibria. Impossibility of peaceful equilibria can be derived from **commitment problems** or **incentives to misrepresent private information** (moral hazard, adverse selection). That is, **strategic & informational incentive constraints** may exclude peace.

Informational incentive constraints can explain why Russia ignored Germany's warning that Russian mobilization would cause Germany to declare war.

The 2x2 PD game is our simplest example of strategic commitment problems, which fits Germany's justification for its **pre-emptive** invasion of Belgium in Aug 1914. **Preventative** war may be unavoidable if no agreement can deter both the declining power's current threat & the rising power's future threat *(Germany & Russia)*.
Commitment, leadership, and coordination among multiple equilibria

How would a preventative war in 1914 change Russia's threat point in future years? Not by destroying resources, but by moving borders to change leadership structures, so that local power in Poland would not derive from favor of Russian leaders, and local authority in more of Balkans would depend on approval in Vienna.

Wars are contests for power, caused by limits on commitment, so a theory of war should start with a theory of how leaders exercise power and make commitments. **Multiple equilibria** are of the essence here (Schelling's *focal-point effect*). In the folk theorem of repeated games, opportunistic deviations are deterred by threats of switching to another equilibrium that would be worse for the deviator. Leaders can be deterred from violating norms & commitments by fear of losing their privileged status (moral-hazard rents) as a result of such violation.

Coordination among multiple equilibria in a repeated game requires shared views about **which actions are provocations** and **which are justified retaliations**. **Leaders** can help to focus people on preferred equilibria, but selecting a leader for a group is itself a coordination problem (to solve all coordination problems). *To live together in a society, people need consensus about justice and leadership.* Seeing our nation's norms & leadership as **universal justice** reduces conflict in our nation but makes it harder to believe that foreigners may see justice differently.
A development of inconsistent beliefs in the War

Under informational theories of war, the costs of conflict must be sufficient to credibly signal a combatant's hidden type, so as to reduce others' uncertainty. In WW1, the most intense (belief-changing) surprise is at the start in August 1914. But did the shocking news of Germany's invasion of Belgium reduce or increase Europeans' asymmetry of information about Germany's type?

After 4 Aug 1914, Europeans were deeply divided about the (in)justice of Russia's mobilization, and Germany's declaration of war & invasion of Belgium. Before the war, the great powers of Europe maintained a broad consensus about diplomatic norms for managing a wide range of international issues, but Germany's invasion of Belgium took Europeans outside that familiar range.

National leaders offered different interpretations of how Europe's old equilibrium should apply after the invasion, and each nation generally followed its leaders' expressed beliefs, but with a sincerity others could not credit (mutual optimism). The other side's candor about beliefs seemed less likely than their malicious nature. An imperative for consensus in each nation created inconsistency across Europe.

So the war itself could create new national types, about which others were uncertain. Perhaps Germans were changed by invading Belgium (like taking addictive drugs). Pre-Aug14, Germans did not demand anything like their Septemberprogramm: expanding into Belgium, separating Poland+ from R, forcing F to customs-union.
Conclusions: a final perspective on the First World War

In game-theoretic terms, power is derived from the ability to designate focal equilibria that coordinate people's behavior in games with multiple equilibria. So accepted leaders provide common strategic conjectures for people in a society.

*How societies in conflict can create inconsistent world-views deserves more study.*

Europe's concert of great powers provided focal leadership for international relations before WW1, but this club was ruptured in the summer of 1914. The Entente and Central powers were then in a struggle for leadership of Europe. In such a struggle, where accepting the others' view of justice and retribution would mean defeat, an assumption of common strategic conjectures is problematic. The war was itself *a contest to define a new focal equilibrium* for Europe.

*Peace required a new international consensus, forged by negotiation or conquest.*

The final failure of WW1 was the exclusion of German representatives from the peace negotiations at Versailles. *(France was represented at Vienna in 1815.)* It was understood that some nations had joined the Entente's Alliance in the war so as to get a more influential seat at the winners' table in the peace settlement. But allowing so many months for the Allies' negotiations effectively excluded the new German leadership from any role in defining Europe's new order.

The resulting treaty, with the *War-Guilt clause* and *Reparations*, perpetuated Germans' inability to accept the Allies' concept of a just order in Europe, which poisoned politics in Germany and set the path to a second world war.
References
Appendix: payoffs to players 1 and 2 in two games mentioned above

"Stag Hunt"

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"Prisoners' dilemma"

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