HELMUT SCHMIDT UNIVERSITÄT
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Wargaming Strategic Decisions in the Laboratory – The Example of Extended Blotto –

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The White Elephant:
WAR – ART OR SCIENCE?

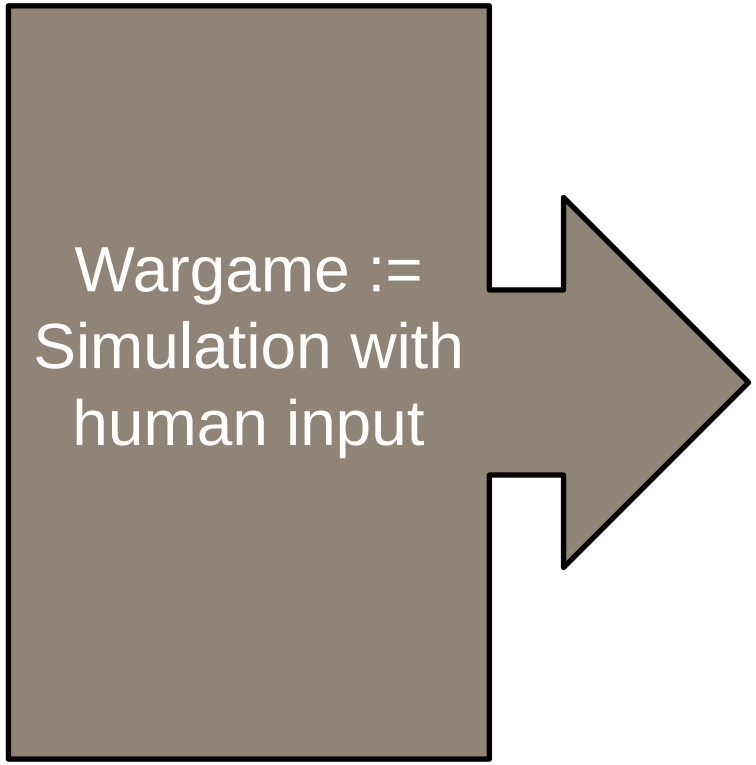
“So wird der Krieg zur Kunst, einer solchen freilich, der viele Wissenschaften dienen.”

“Der Krieg ist also […] ein wahres Chamäleon, weil er in jedem konkreten Falle seine Natur etwas ändert, […]”

Agenda

- Overemphasis on training in current wargaming
- Laboratory wargames: “Extended Blotto” as an example
- Preliminary empirical results

What is a wargame? And what can it be used for?



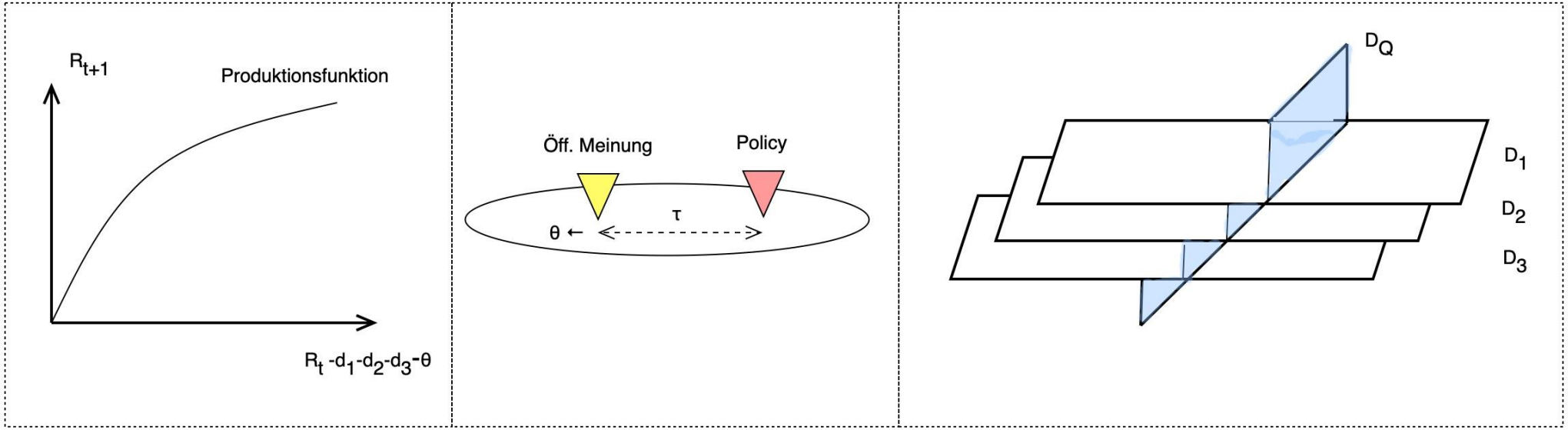
Semantics		Doctrinal development	Development of wargaming as a science
Rules		Sensitivity analysis	Historical / political analysis
COAs	Drill → inculcation of methods	Support of decision making	***Laboratory experiments***
	Training	Analysis	Research

The Basic Blotto Game

Two players secretly write down triplets of integers in ascending order, the sum of which must equal some number *R*. The triplets are then revealed, and a player who has a higher number than his opponent in two places wins. All other results are a draw.

***R* = 6**	
{ 1 , 1 , 4 }	Loses against 3
{ 1 , 2 , 3 }	
{ 2 , 2 , 2 }	Never loses

Extended Blotto



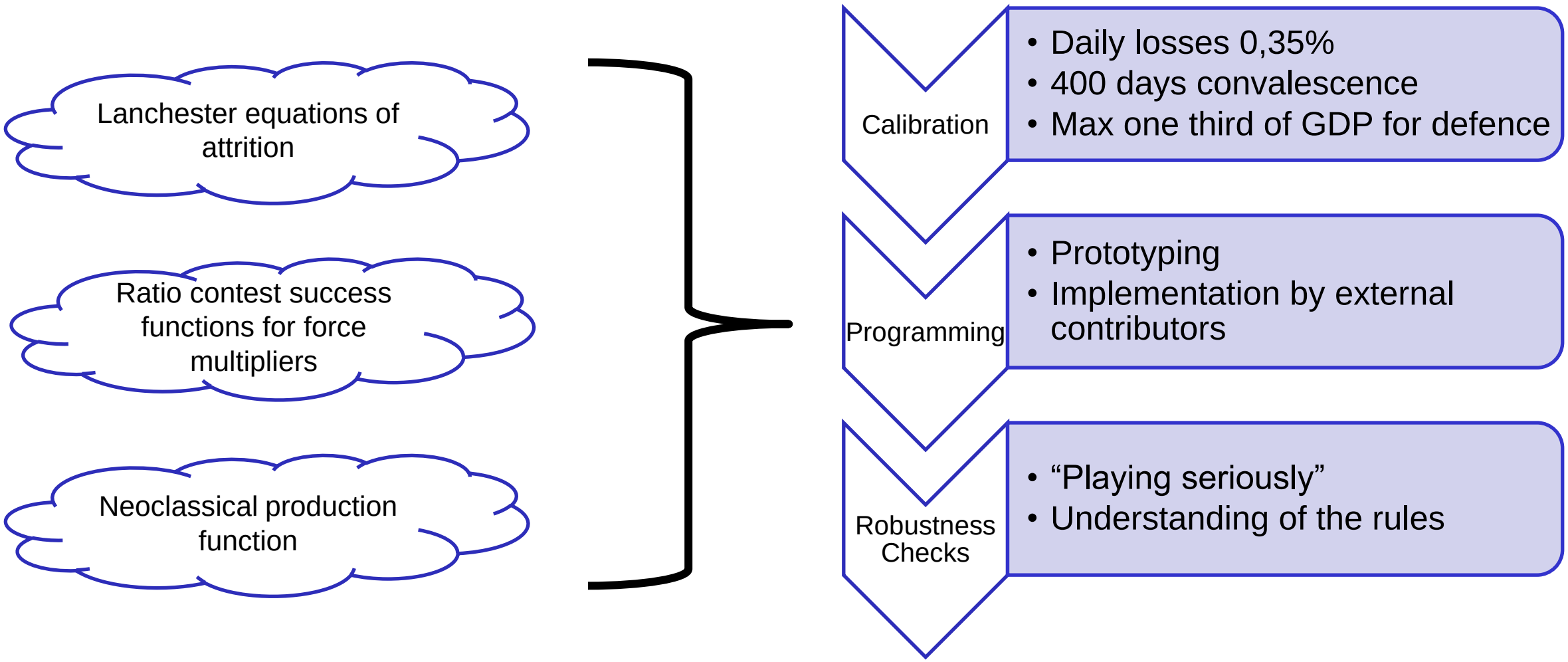
Wirtschaftliche Sphäre
(Produktivität, Dynamik)

Politische Sphäre
(Mehrheiten)

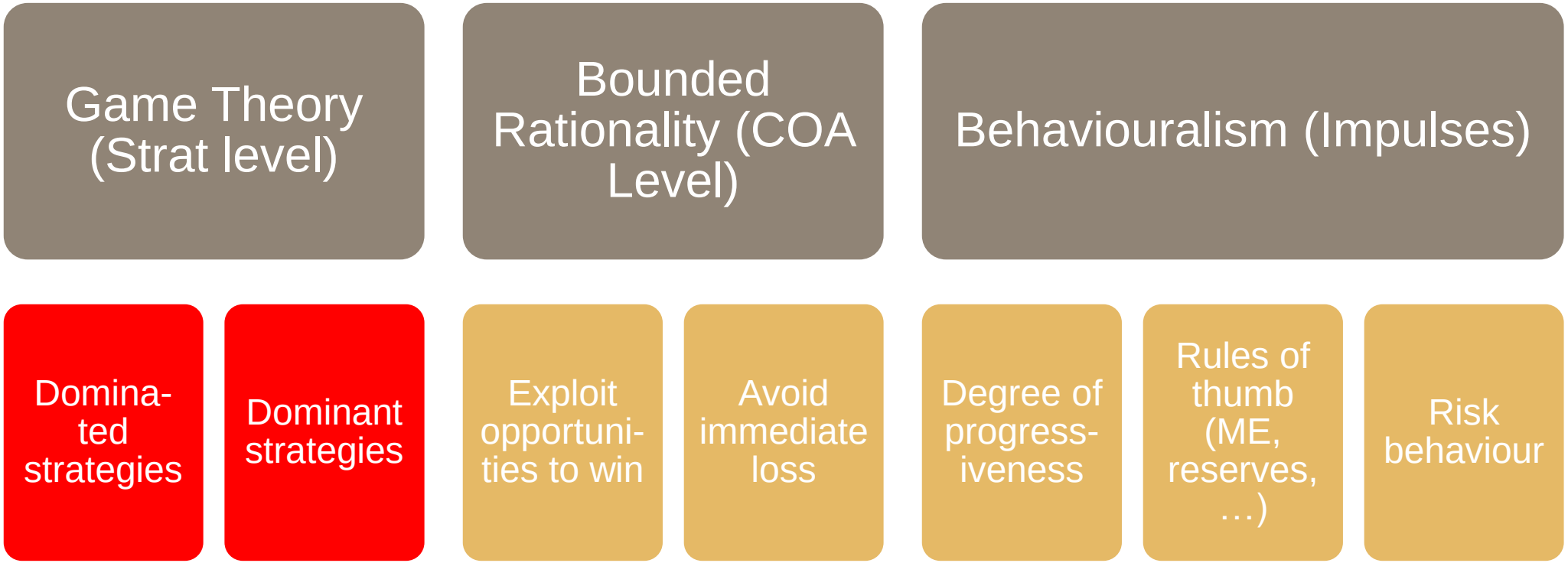
Militärische Sphäre
(Multi-Domain, Abnutzung)

Extended Blotto is a simple game of **military strategy** in which two players allocate **resources to competing military, political and civilian** uses. Victory is achieved either by defeating the adversary in a **war of attrition** or by conserving economic resources.

Inputs from Game Theory



Hypothesis generation



Notabene: At this point, EB is an observational study (no parameter changes yet).

Our dataset at present

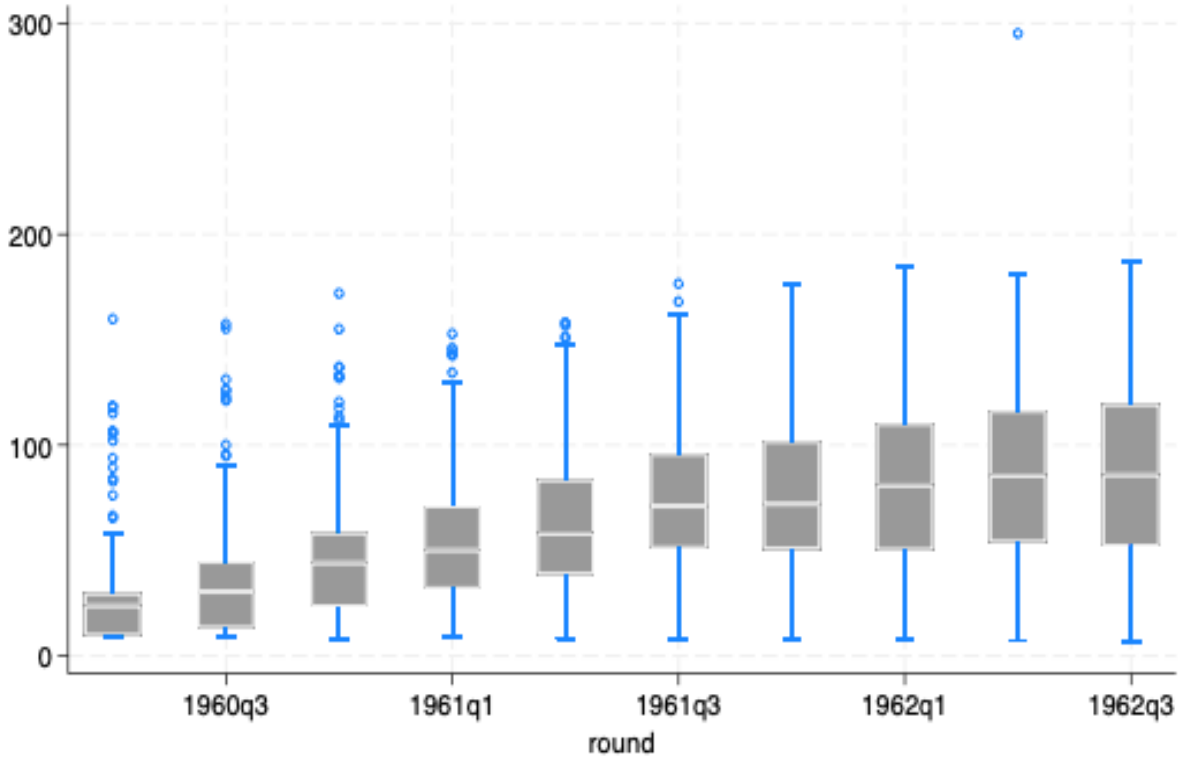
- Data generated during #WIN24 is useless due to two bugs in the game software.
- Data available is by courtesy of #LogSBw and #FüAkBw, whose commanders had the new version gamed when it went online on Sep 24th
- Cutoff at 031900Boct24 to give time for analysis
- The game goes on …

Unbalanced panel

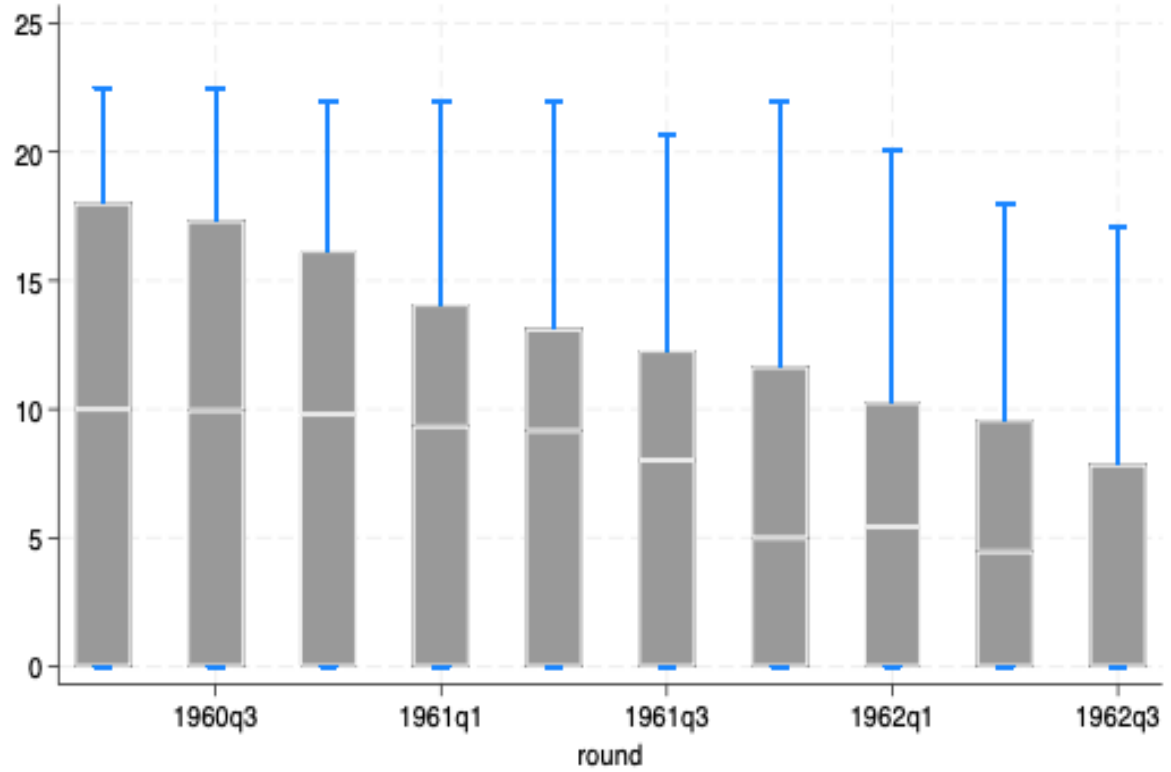
- All incomplete sessions are discarded
- Sessions in the dataset: 372
- War begins on Jan !st, 1960

Victory type	Share of sessions	Avg # of rounds
Military	67 %	9,89
Economic	33 %	2,48

“Allocated” vs. “deployed”

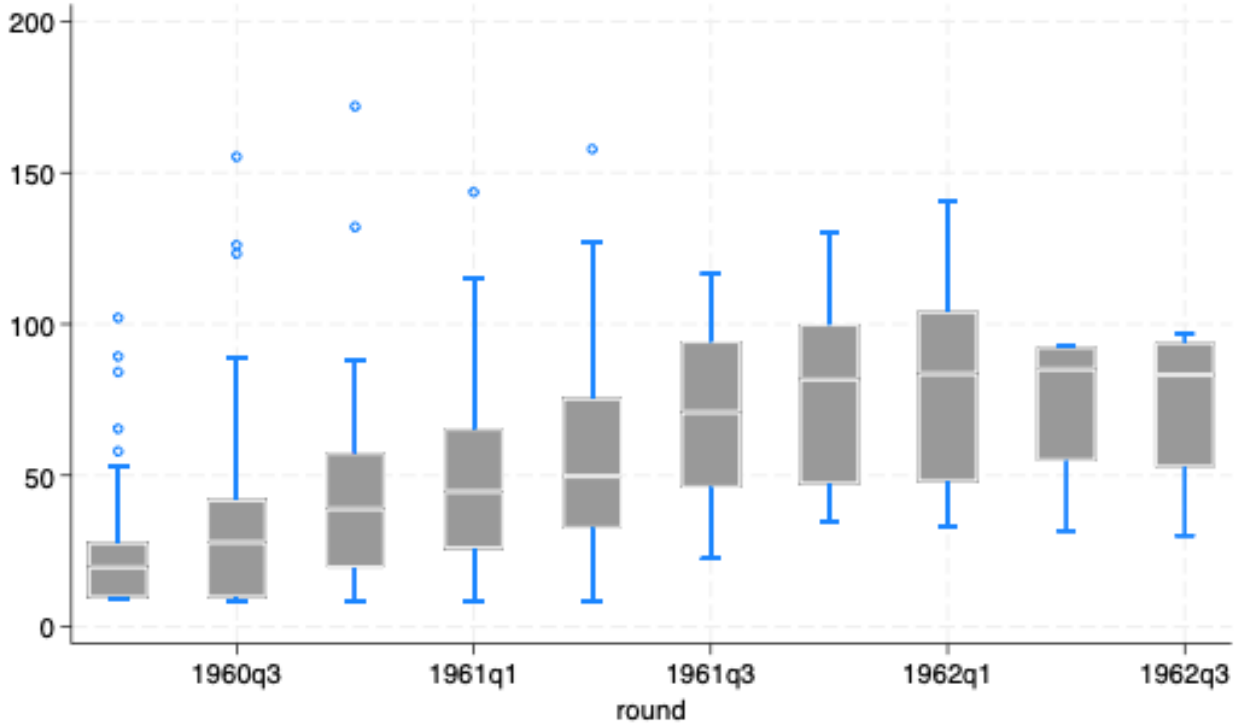


Announced reinforcements dimension 1

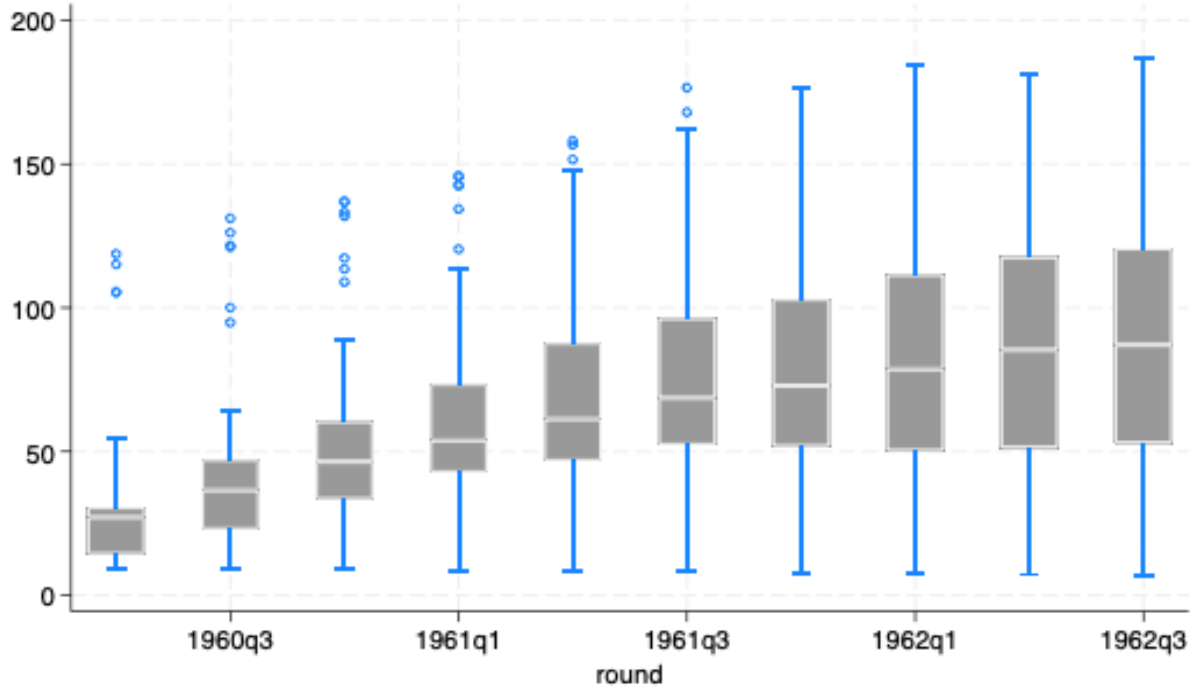


Deployments dimension 1

Military aggressiveness vs. economic thrift ?

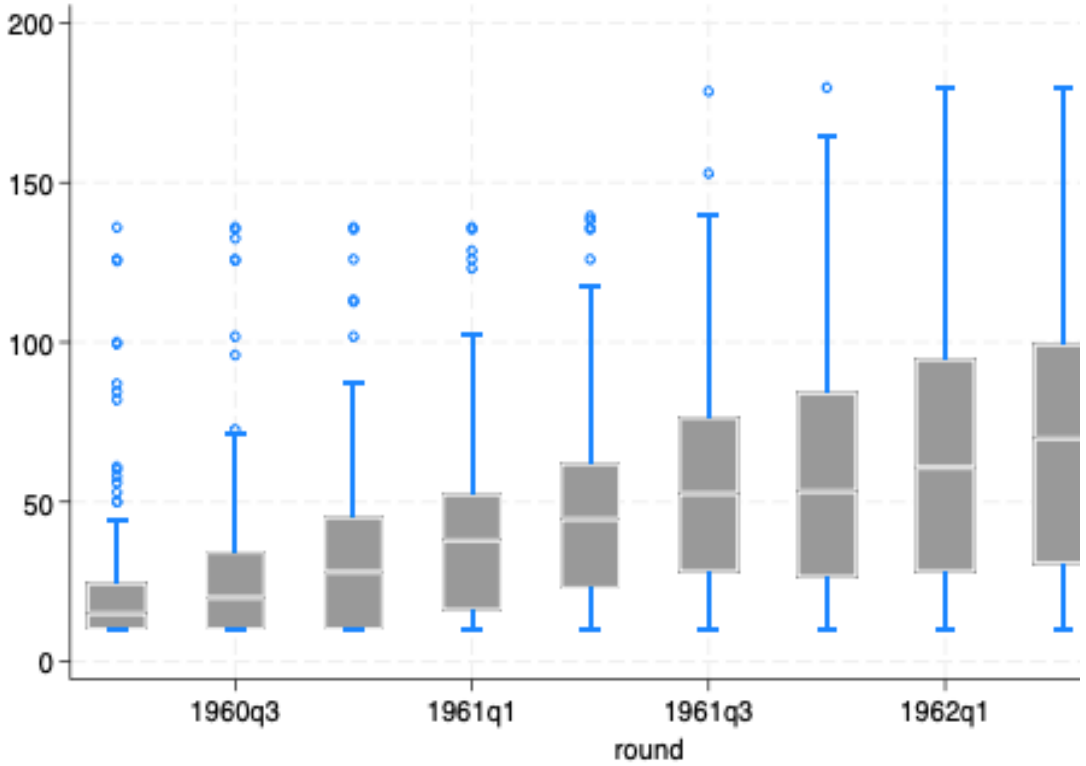


Announced reinforcements dimension 1 – military victories

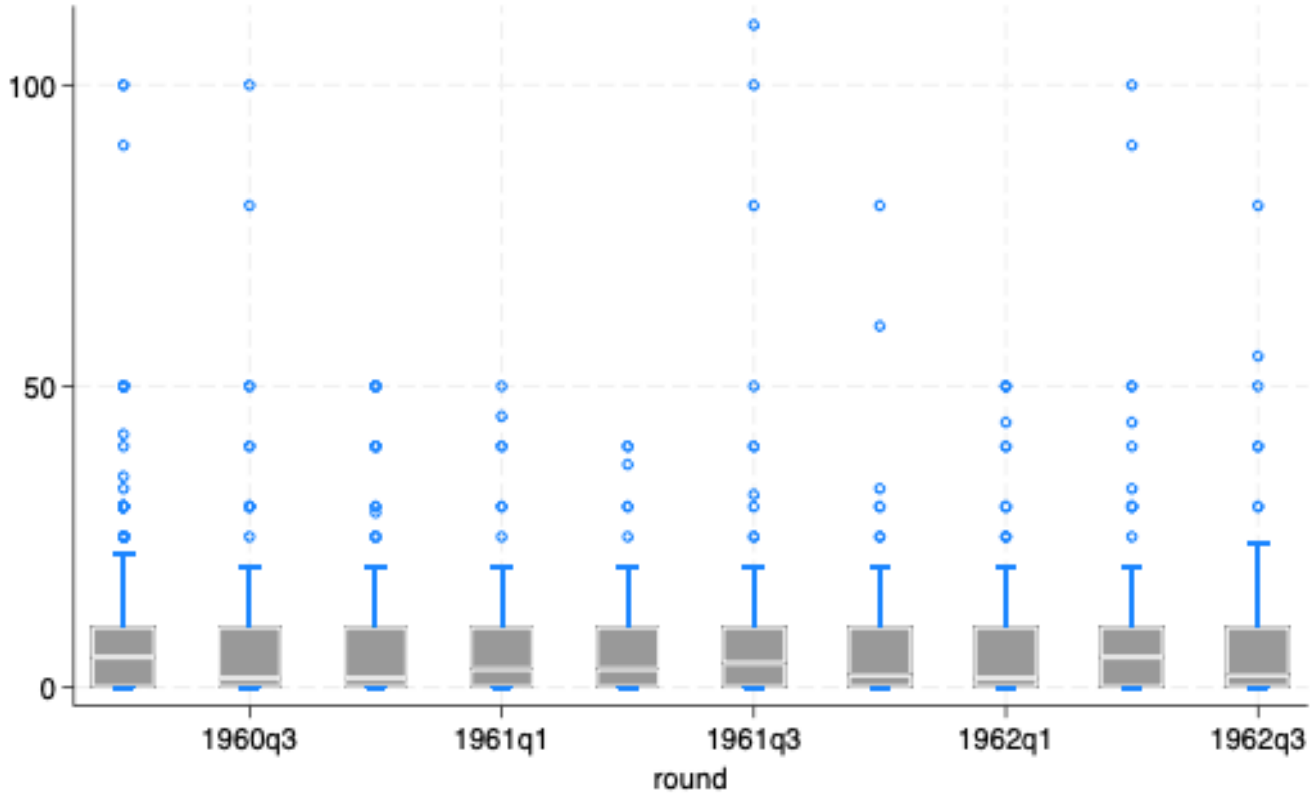


Allocations dimension 1 – economic victories

Force multipliers and hybrid efforts



Allocations dimension Q



Political effort

Panel regression analysis, FE model, unit: session

	deployed_dim_q	deployed_dim_3
deployed_dim_1	0.261	0.271
	(9.96)**	(13.30)**
deployed_dim_2	0.124	0.442
	(4.38)**	(21.53)**
deployed_dim_3	-0.001	–
	(0.04)	–
deployed_dim_q	–	-0.004
	–	(0.23)
hybrid_effort	0.051	0.271
	(4.83)**	(13.30)**
_cons	1.745	0.442
	(6.84)**	(21.53)**
N	2,386	0.271

* $p<0.05$; ** $p<0.01$

At this level of analysis, no sign of MEs (counteraction?)

At this level of analysis, tradition and hybrid are complements

Down to the individual level → degrees of freedom ?

Summary / road ahead

- Example for the many efforts at HSU/UniBw H to gain traction in Simulation & Wargaming
- Strategic-level wargame based on accepted (game) theory the rules of which fit on one A4 page → suited for the behavioural laboratory
- First evaluation of trial runs shows little evidence of standard maxims of strategy being applied by participants.

Sources and Links

- Ruleset for playing Extended Blotto: https://laws-love-b8q.craft.me/Bji9V1gnUA8yGr
- Description of Extended Blotto: Beckmann, Klaus. 2004. “A Dynamic ``Blotto''-Type Wargame”, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4737467

Link to the Extended Blotto game server