

**Panel 3: Conceptual Approaches for Evaluation, Wargaming,  
and Demonstration of Autonomous Systems in a Relevant Operational Environment**

*Reasoning as an Opponent*

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[The Gaming Frog](#)

**Panel 3: Conceptual Approaches for Evaluation, Wargaming,  
and Demonstration of Autonomous Systems in a Relevant Operational Environment**

*Reasoning as an Opponent*

**Autonomy in constantly changing environments:  
Low-tech examples from tabletop wargames**

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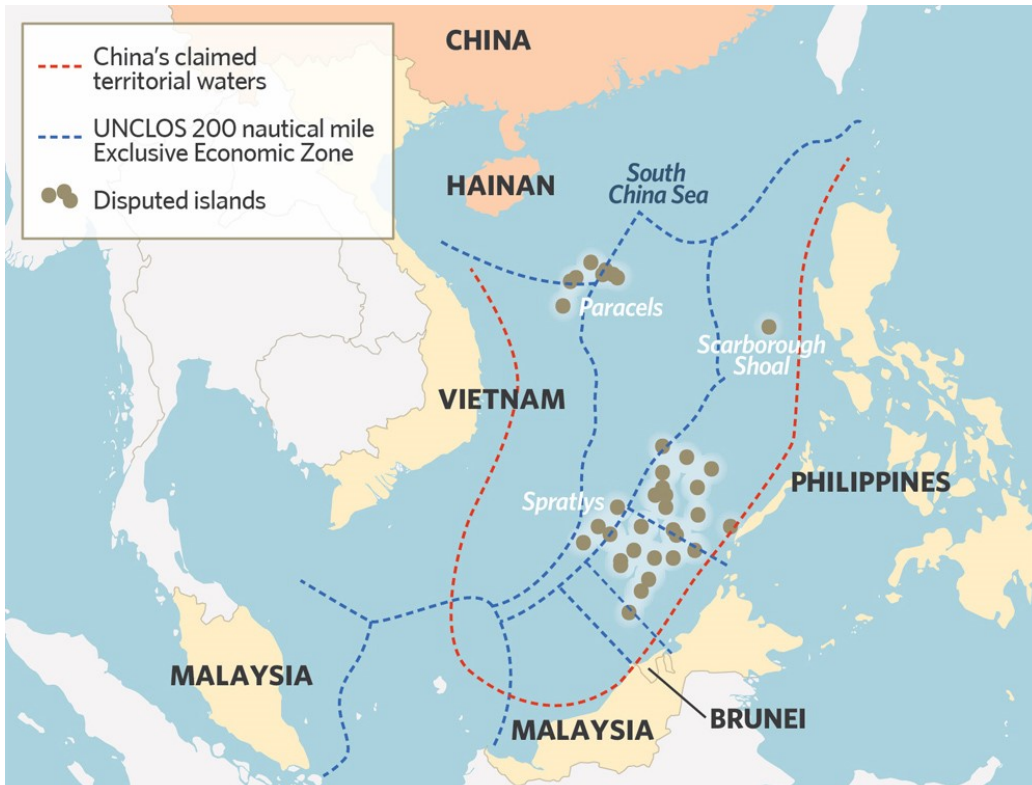
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# Have they anything in common?

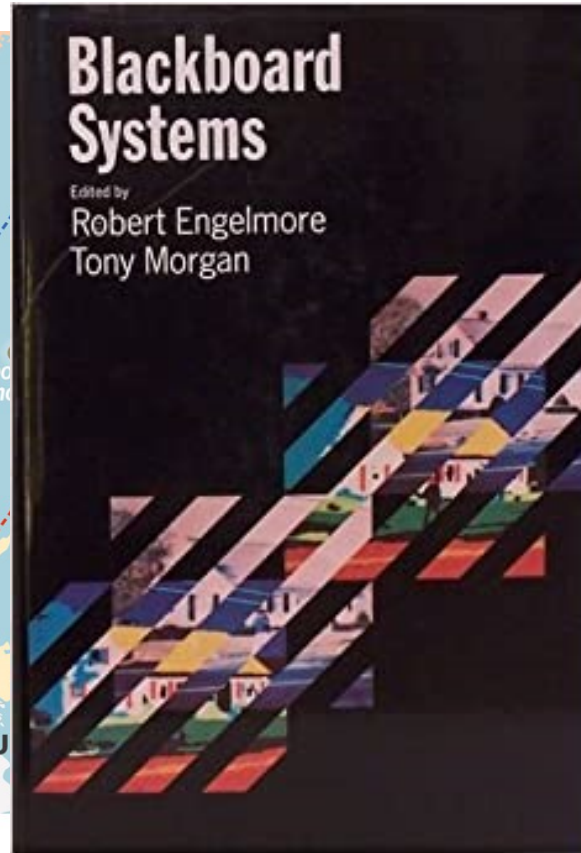


graphic by Lindsey Burrows



(1988)

# Have they anything in common?



(1988)



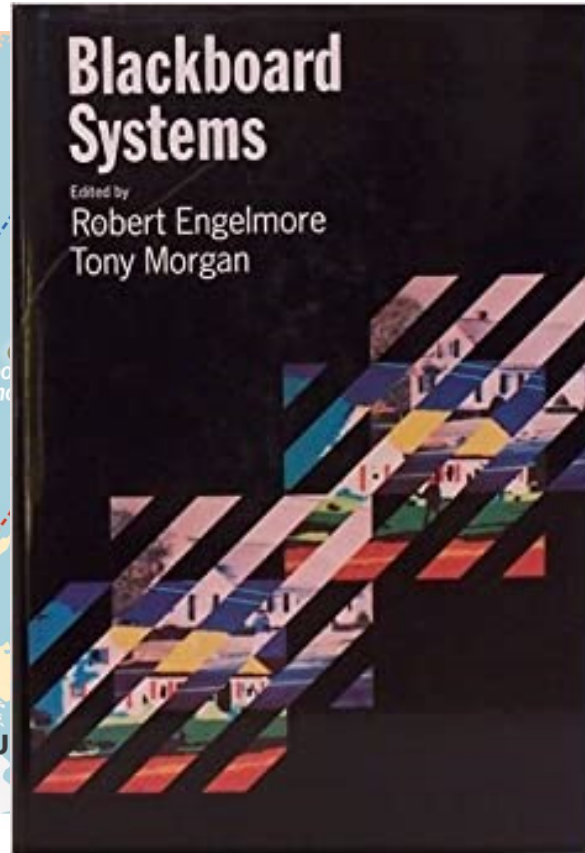
[Damian Isla]



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[Damian Isla]



(1988)



# ARTIFICIAL INTELLIGENCE FOR GAMES

SECOND EDITION



IAN MILLINGTON • JOHN FUNGE



(2<sup>nd</sup> Edition, 2009)

## CHAPTER

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- 5.2 DECISION TREES
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  - 5.11.1 Types of Action
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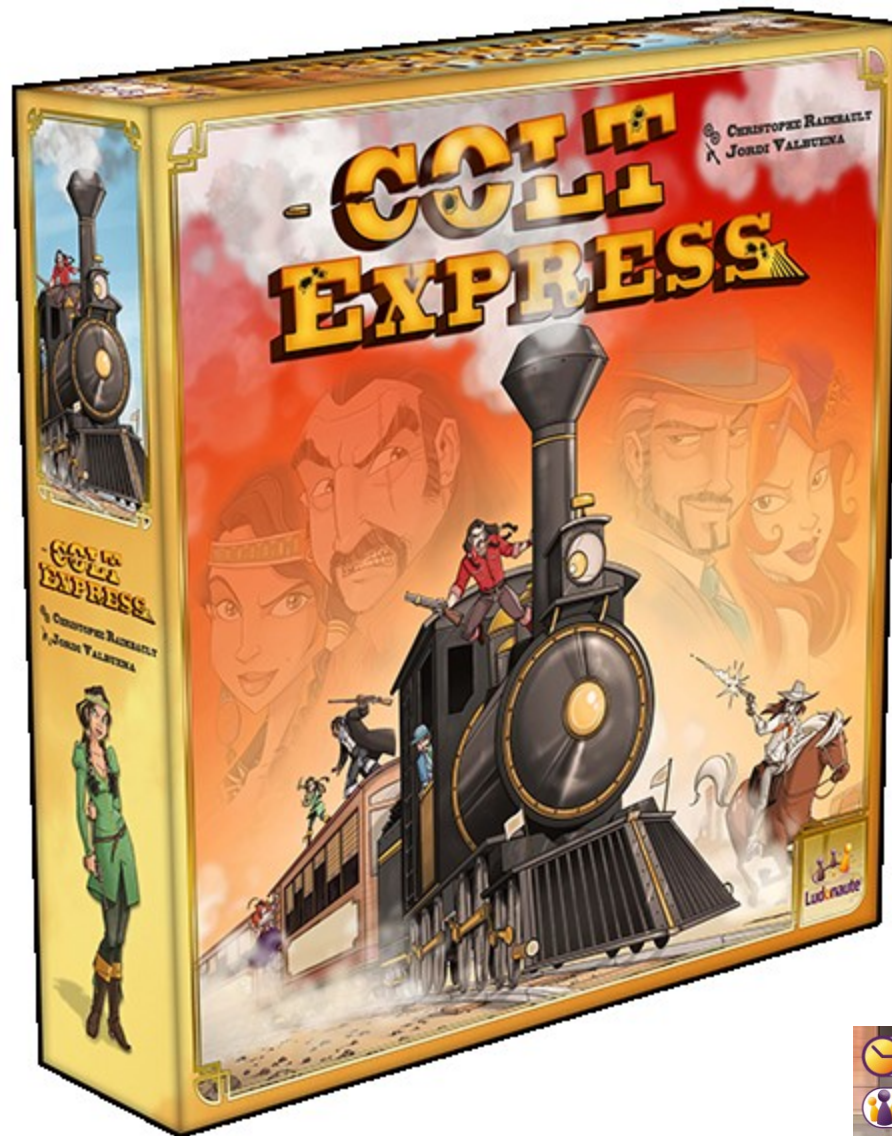
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**WHAT CAN WE LEARN FROM GAMES ?**

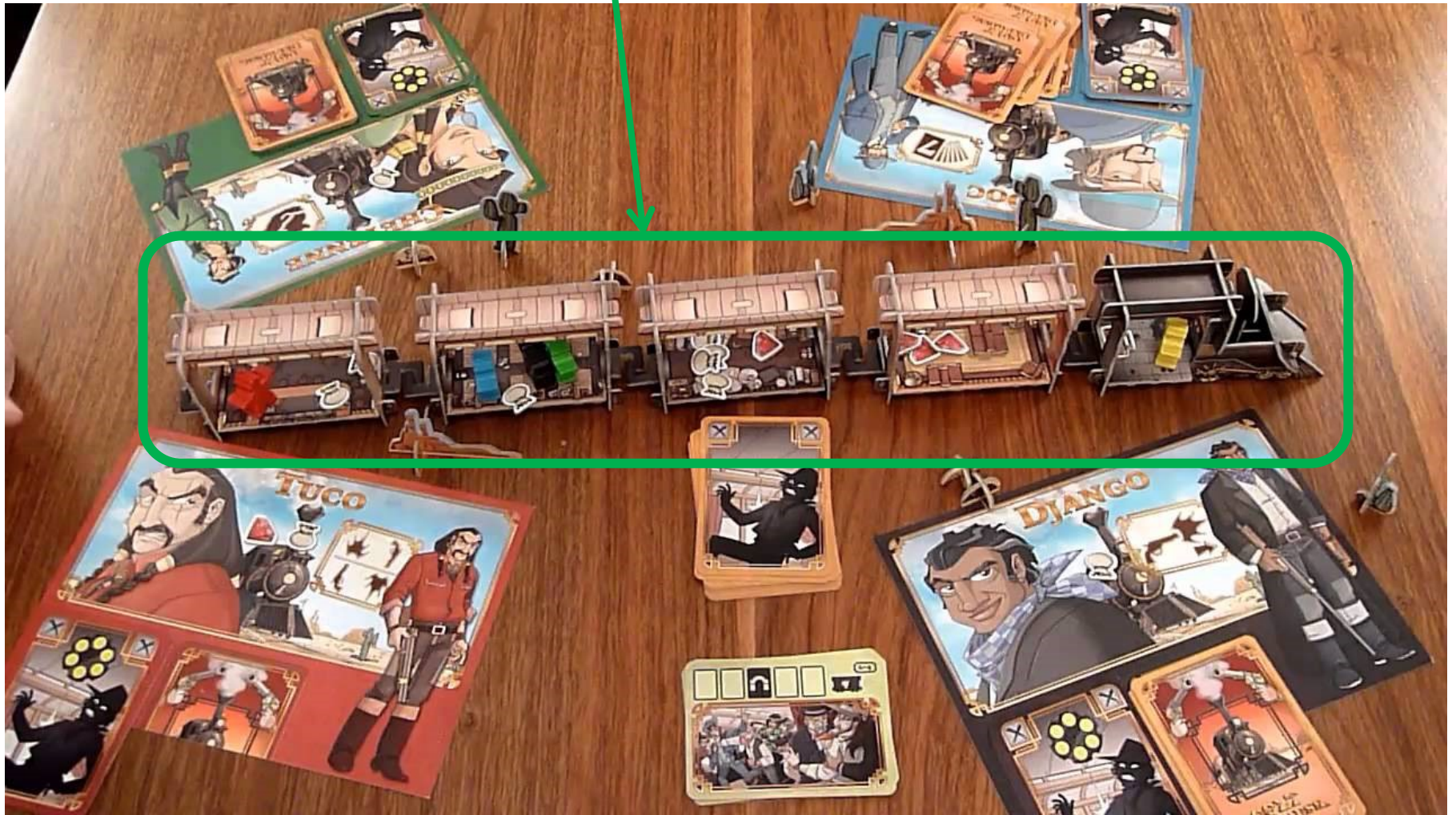
**WHAT CAN WE LEARN FROM TABLETOP GAMES ?**



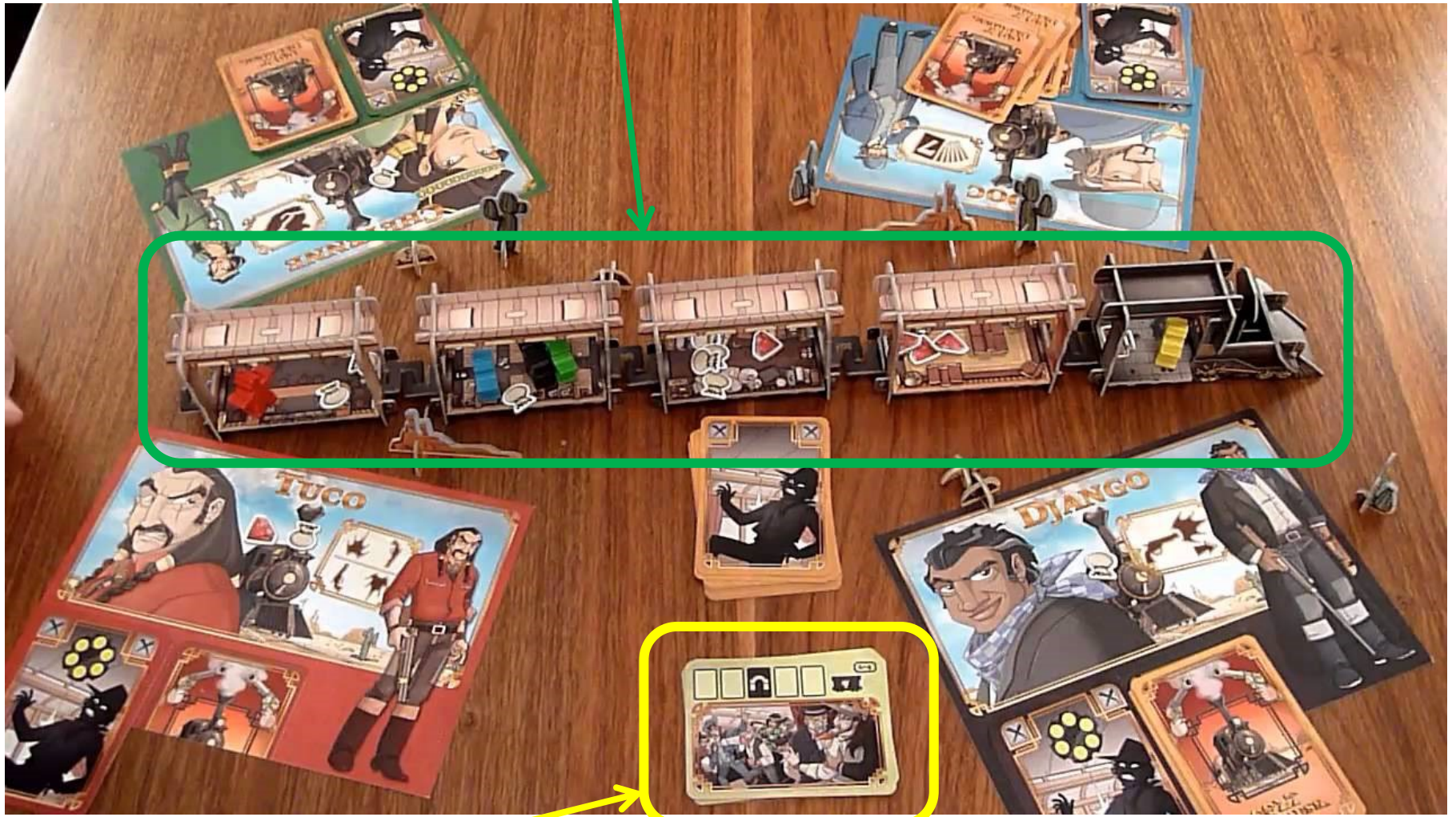
 40'	 <a href="http://www.coltexpress.ludonaute.fr">http://www.coltexpress.ludonaute.fr</a>  CHRISTOPHE RAIMBAULT  JORDI VALBUENA
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# Blackboard



**Blackboard**



**Planning**

## TYPES OF TURNS



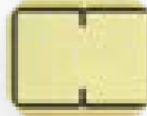
*Note – These cards can also show a round's effect (see "Advanced Rules," page 9).*



*Standard Turn* - Players play Action cards face-up.



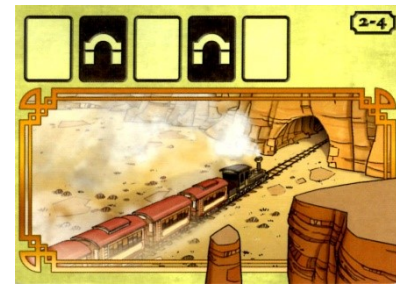
*Tunnel* - Players play Action cards face-down.



*Speeding-Up* - Players take 2 turns in a row (players can choose to either play or draw cards on each turn).



*Switching* - Players take their turns in counter-clockwise order, starting with the First Player.



## TYPES OF TURNS



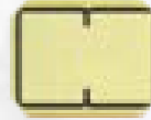
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The Round card shows that there will be 4 turns.



Example of the **first turn**

- 1 **Cheyenne** is the First Player for this round. She plays a Move card from her hand.
- 2 **Belle**, on her left, plays a Shoot card on top of **Cheyenne's** card.
- 3 **Tuco**, on **Belle's** left, decides to draw cards instead of playing a card. He draws 3 cards from his deck and adds them to his hand.
- 4 Finally, **Doc** plays a Change Floor card on top of **Belle's** card.

Then the second turn begins. The cards will be played onto the same pile.

# PLANNING & EXECUTION



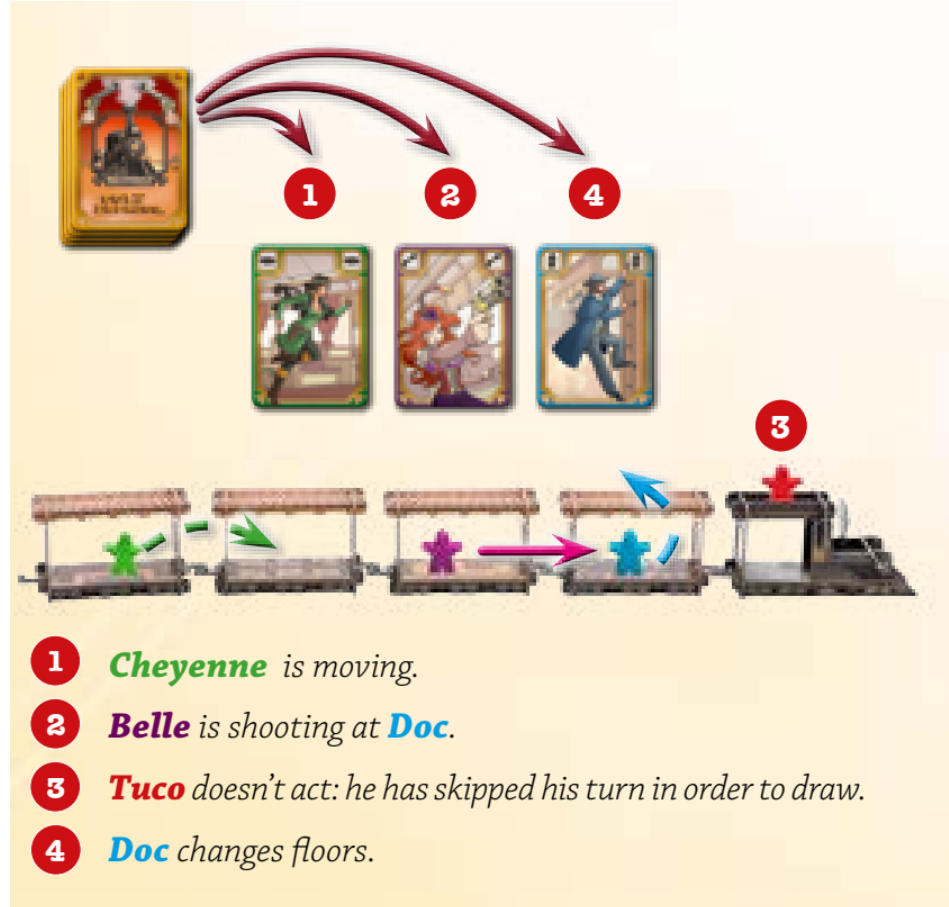
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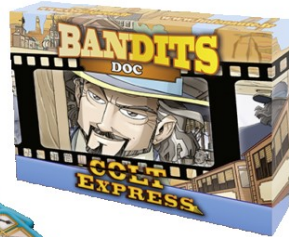
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- 1 **Cheyenne** is moving.
- 2 **Belle** is shooting at **Doc**.
- 3 **Tuco** doesn't act: he has skipped his turn in order to draw.
- 4 **Doc** changes floors.

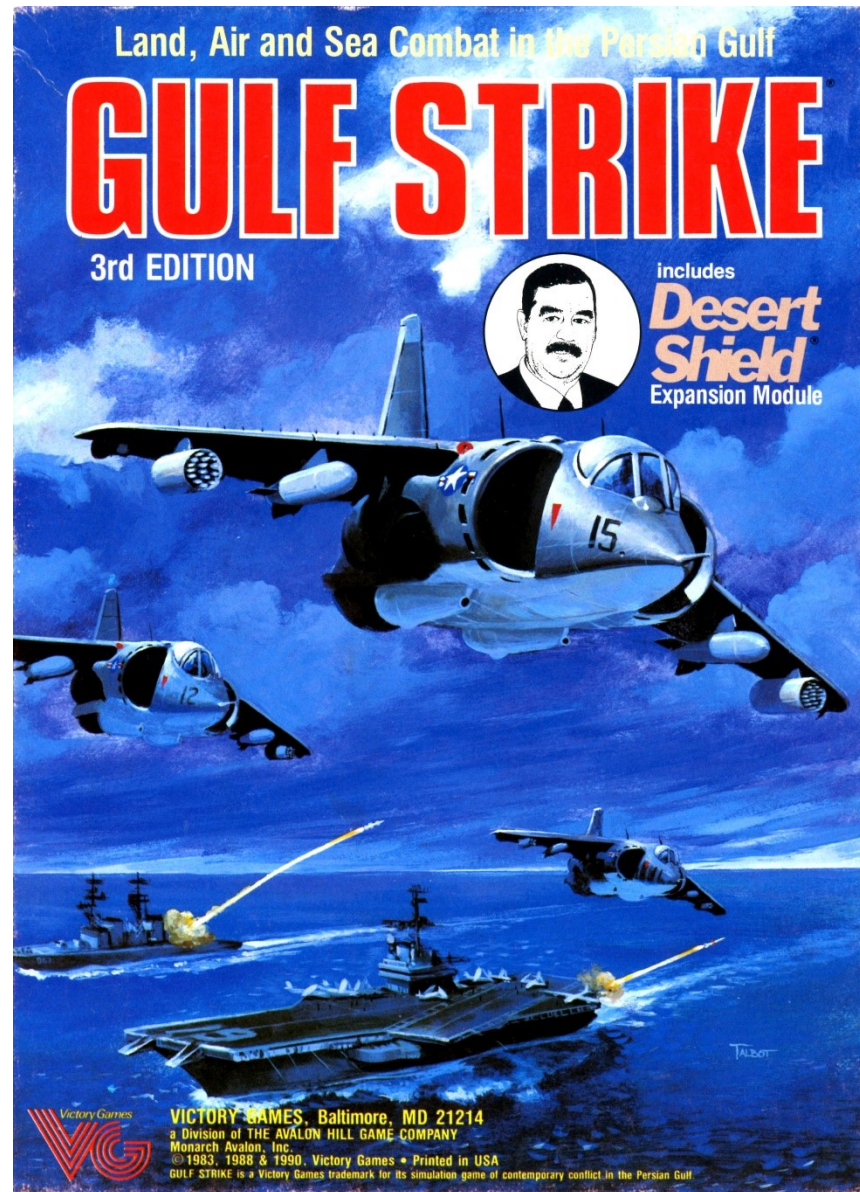
# EXECUTION FAILURES

(each one == 6€)



Finite State Machines  
for  
Autonomous Plan Execution!



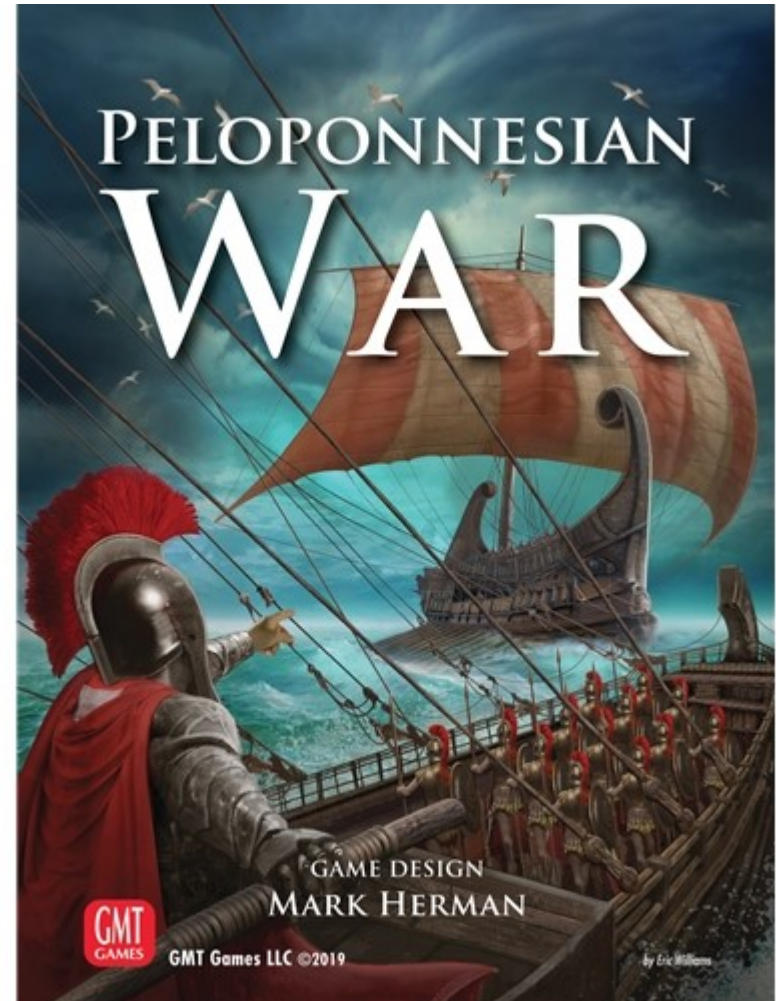


[Mark Herman]

(2<sup>nd</sup> hand for 20€ - 1983, 1988, 1990)

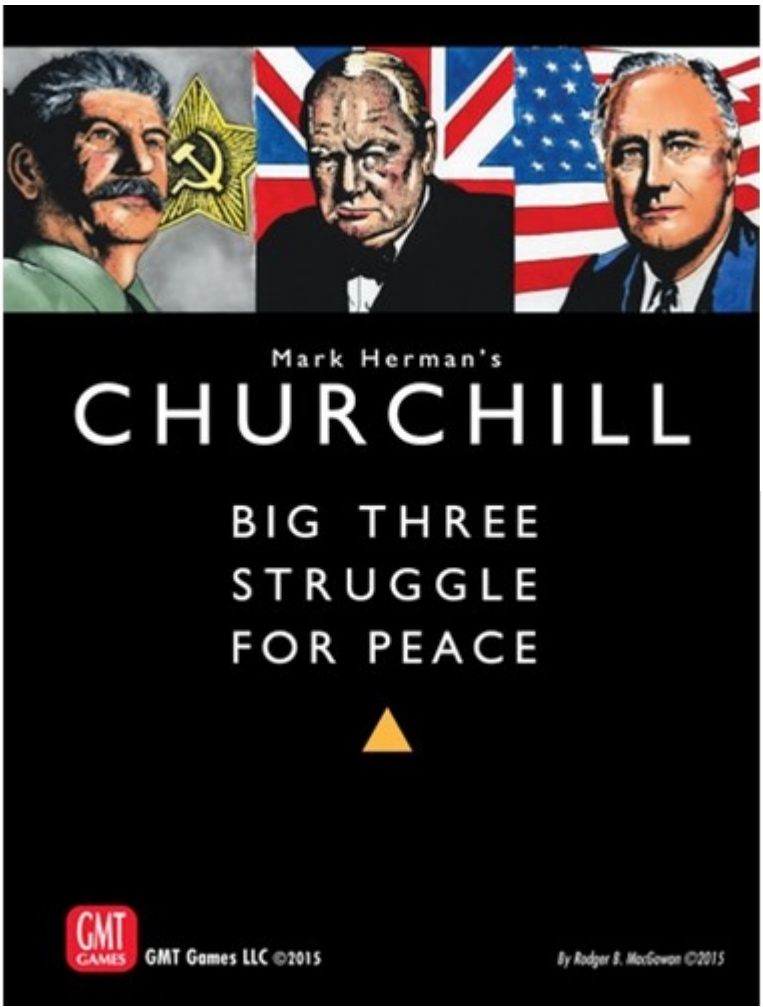
## COMPLEX (GOAL SETTING + SITUATION ASSESSMENT)

Most current solitaire systems today have the player take one side for the entire game. This pits the player against a random Solitaire system, even the best of which have some difficulty giving you the same challenge as playing against a human opponent. In **Peloponnesian War**, you get to play **both sides**, pitting yourself against the best that YOU can offer. If the game system is winning, the player is forced to continue with the losing side. Success, on the other hand, will eventually force the player to change sides and recover the losing side's fortunes. The duration of the war and the player's performance determine victory. In this manner the player competes against himself in the classic tradition of a Greek tragedy.



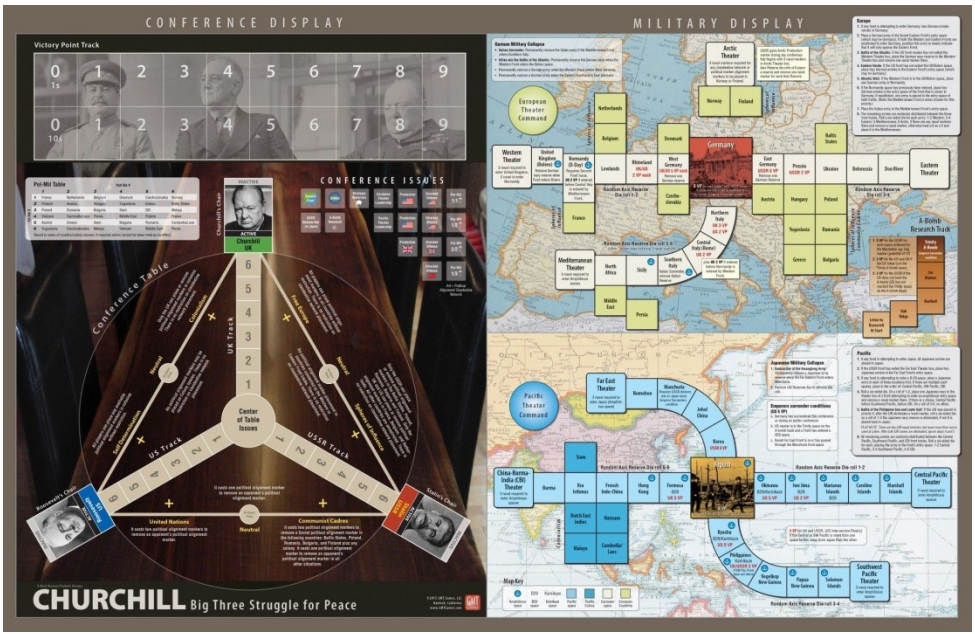
(75€ - 1 player)

# AUTONOMOUS GOAL SETTING FOR STRATEGIC PLANNING



(90€ - ≥ 0 player)

Each conference has you and your Allies nominate issues that will be discussed and debated. Through a *new* game mechanic you play staff cards to **control the issues that shape Allied strategy**. This is all done using a novel game display of a circular conference table based on the one used at Potsdam. You sit in your *chair* at the conference table and use your staff cards of named personages, such as Secretary Stimson and Anthony Eden, to nominate and debate conference issues.



## **Low-tech table top games & wargames brings**

- **Finite State Machines**
- **(Strategic & Tactical) Planning and Execution Control**
- **Blackboards**
- **Complex (Goal Setting + Situation Assessment)**
- **Autonomous Goal Setting**
- **(Serious gaming can be) Fun !**

**to your table.**

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to your table.

 No electricity is needed (no recharge :-)

 Find someone who can teach you these and you'll play **immediately**

 Good Old (War)Gaming Rule : **W**in or **L**earn.