Executed Deception Wargaming using Deterrence Gaming as a Model

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The opinions expressed in this document are those of the author and maybe some of the thousands of practitioners and scholars who have studied deception for millennia. I do not know if they represent policy of your organization.

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Introduction

Deception is deeply embedded in all human interaction, its use and benefits at all levels of war for millennia has been documented, and it is clearly successfully used in contemporary warfare. Therefore it seems not only reasonable but a requirement that serious professional wargaming incorporates deception. In my opinion there are two primary objectives to wargaming deception. First is to develop wargaming as a tool to research deception. Second is to learn how to use wargaming to craft, test and implement deception plans.

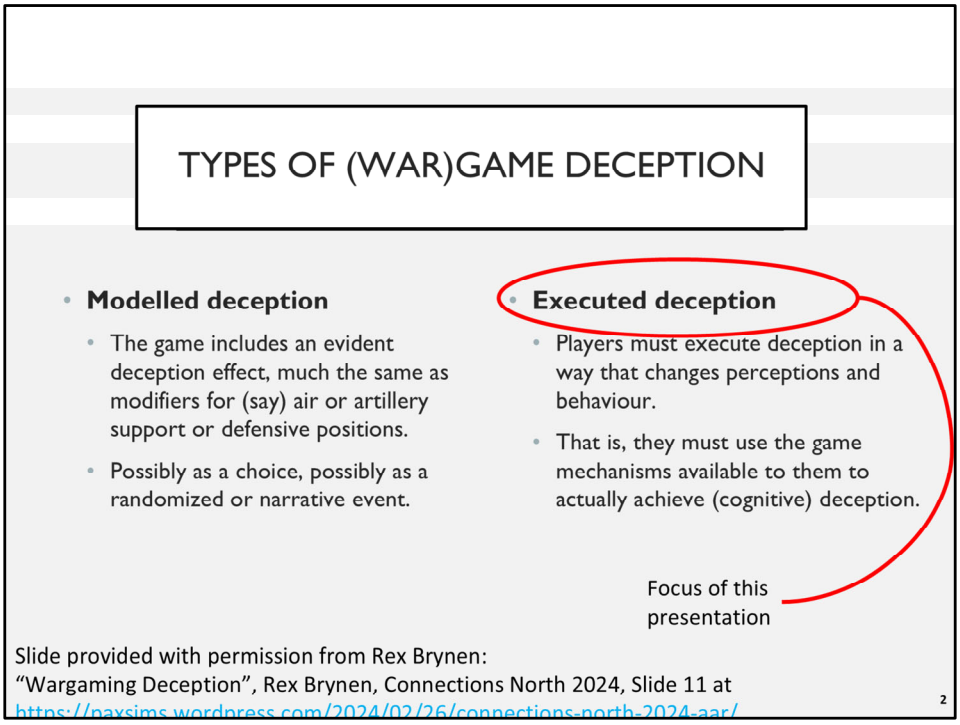
This presentation is not a tutorial about deception, nor does it cover every possible issue with wargaming deception. This presentation focuses on three of the many problems faced by the real-world deception planners that make life difficult for the wargame designer:

1. It takes time to shift beliefs, and there is not enough time in a game to do so

2. Deception requires feedback to determine progress, so the intelligence apparatus of all sides must be simulated

3. Players know “it is a game”, so the designer must encourage the players to pay attention to deception without them becoming over-focused on deception to the exclusion of other game objectives.

Experience with wargaming deterrence, inductive wargame adjudication and construction of the Data Collection and Analysis (DCAP) plan are proposed as sources of insights into addressing these problems.



Types of (War)Game Deception
(Slide and following quoted text With permission from Rex Brynen:
"Wargaming Deception", Rex Brynen, Connections North 2024, Slide 11 at
https://paxsims.wordpress.com/2024/02/26/connections-north-2024-aar/
"Modelled and Executed Deception in Wargames", Rex Brynen, in *Wargaming Deception Working Group Report*, 2024 (to be published on PAXsims and other fine wargaming sites Fall/Winter 2024)

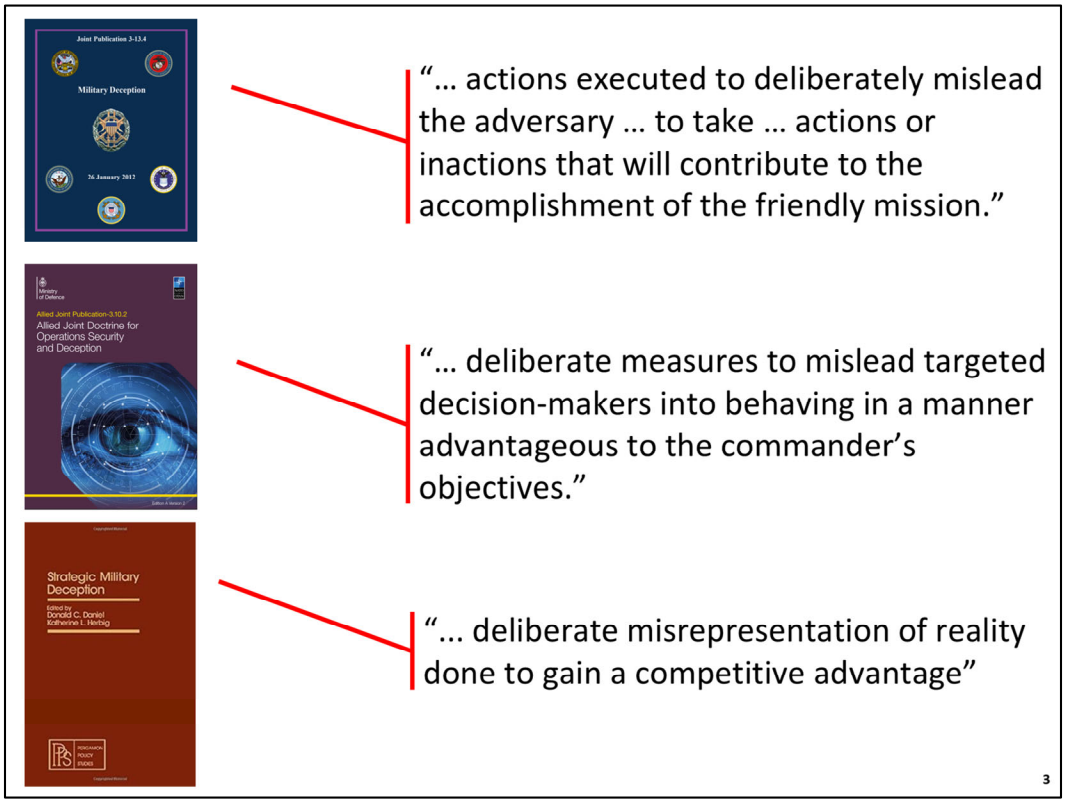
As Rex Brynen points out:

> "There are two main approaches to incorporating deception in wargames. The first is what I term modelled deception, where the game represents deception effects without the players themselves being fooled. This can be done through event cards, in-game combat modifiers (much the same way many games treat artillery or air support or the bonuses from terrain or fortifications), or narrative events. It does not require imperfect information—indeed, learning may be enhanced if it is evident to players so they can appreciate its utility. Nor does it have to be a player choice, since it may be enough for them to be observing its role and effects.
>
> The second approach is executed deception, where players actively try to deceive their opponents, changing their perceptions and behavior. This requires game mechanisms that allow for such actions. This usually also requires imperfect information. It is also enhanced by understanding and leveraging narrative and psychological effects (cognitive biases, emotional responses) as well as the decision-making processes of players."

Note that these two approaches can be mixed within a game.

Hobby games often use dice roll modifiers for bolting concepts such as deception, C3I capacity, morale etc. onto kinetic outcomes. This kind of game mechanic dealing with adjudicating the effect of modelled deception on the entities represented in the game is important. However we must be careful when we craft those mechanics that we are not assuming we know all about deception. Claiming that we can represent the effects of deception on kinetics by adding a dice roll modifier or column shift to the combat results table of a kinetic focused wargame is equivalent to claiming we fully understand the effects of deception to the same level as we do the the casualty effects of firepower on forces. That might be true of historical conflicts, but to assume it is true of current and future conflicts is unwise.

Executed deception, where players deceive each other, is the type of wargaming deception that I focus on in this document. I believe this is both important and hard to do for operational and strategic level games, especially those addressing future situations or the exploration of novel concepts. This session explores professional wargames in which the design explicitly allows the human players to gain advantage by deceiving their human opponent players (including any allies, neutrals and friends cells if they are distinct players in the game). To simplify matters I examine wargaming deception using seminar style games that run for several days to a week at the operational and higher levels of war. Such games are common at places like the US Naval War College Wargaming Department, with Flag Officer and General Officer sponsors throughout the DoD. After addressing this simplified structure we will be in a better position to examine designing such games for a wider range of wargame designs.



What is Deception?

If we are going to "wargame deception" we should know what "deception" is. Our focus is warfare, so we turn to definitions produced by our warfighters. Note the similarity between NATO and US doctrine, and between doctrine and the academic and practitioner literature. "Advantageous to the deceiver" includes luring the enemy into a trap.

The doctrinal definitions have three components of interest.

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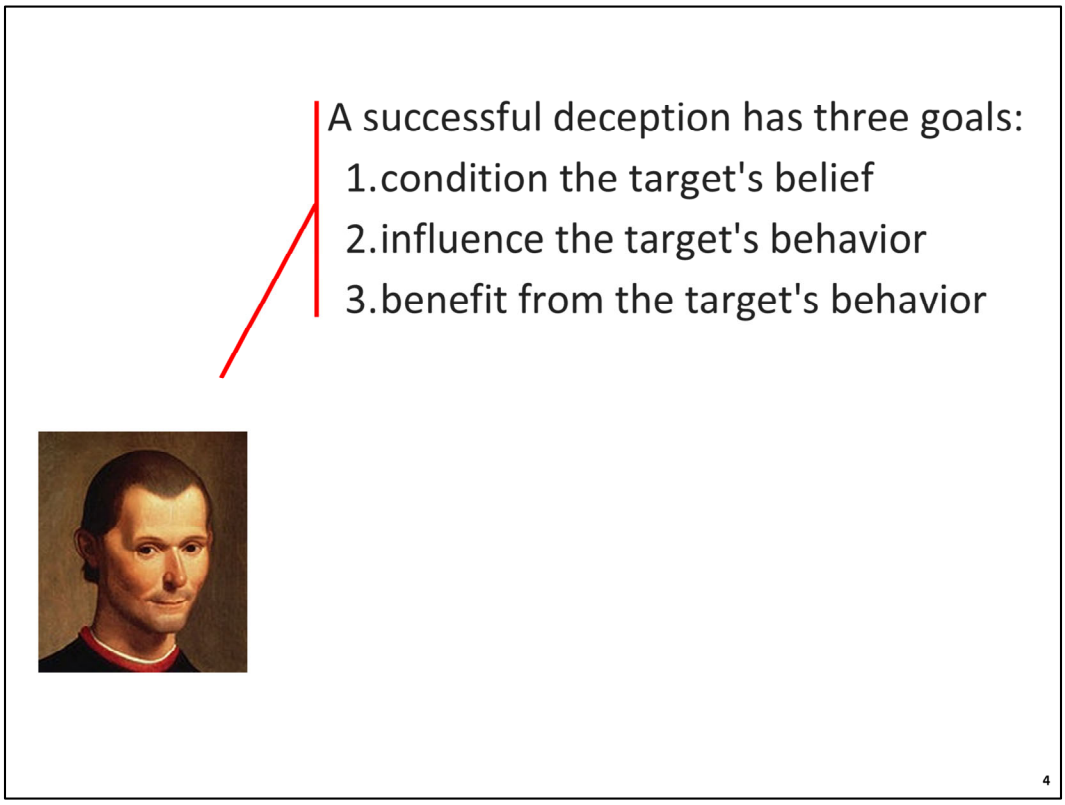


A successful deception has three goals

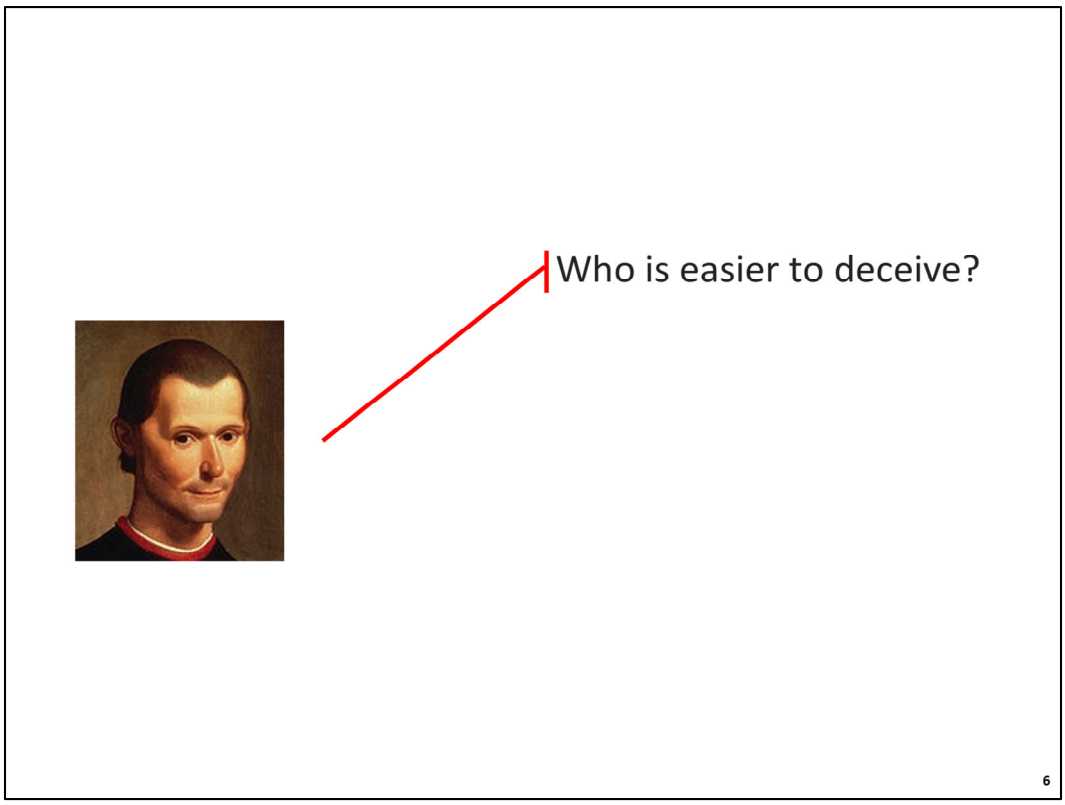
A deception that fools a target who nevertheless for whatever reason does not change their decision to the deceiver's advantage has failed. A deception that fools the target into changing its behavior to the deceiver's advantage, but the deceiver does not take advantage, has failed. Deception is only successful when all three goals are achieved.

In order to be a successful deception, it must be deliberate. The enemy may very well fool themselves or make mistakes, but that is luck for us and we should be in a position to take advantage of that. However, to be a deception, we must have deliberately acted to deceive. Someone else being stupid does not make us smart.

You have at least three problems trying to wargame this stuff

1. It takes time to shift beliefs
2. Deception requires feedback
3. Players know it is a game

Your designer must explicitly take these into account.



According to the literature some targets are easier to deceive than others. Relaxed targets with no decision required and no disadvantage to giving way to their own predispositions are extremely hard to deceive. So are rigid targets, ones in a high state of tension who are required to make a decision and without enough time to analyze information, these tend to actively search for and prefer information that supports predispositions and avoid discrepant information. Oddly enough, it is vigilant targets that are easiest to deceive. They are under tension because a decision is required but have enough time to deal with information, so it becomes possible to change beliefs by inserting deceptive information. But changing beliefs is hard and takes time. Time that might be available during a months long operation but is not available during a days long wargame.

So an executed deception game must be designed to stress the players intellectually and emotionally enough that they are kept working hard, but not so stressed that they just focus on their own plans without thinking about what the enemy is up to.

Furthermore, historical research indicates that “examples of deceptions which successfully played on a target's predispositions are much more numerous than those which reversed a target's expectations.”

If you believe the target believes something, then consider adapting your plans if possible to take advantage of the target acting on that knowledge. If what the target believes is untrue, then consider acting to strengthen belief and use M-type deception. On the other hand if the target knows the truth, then consider A-type deception or consider encouraging the target to over-commit if ambiguity does not work.

References

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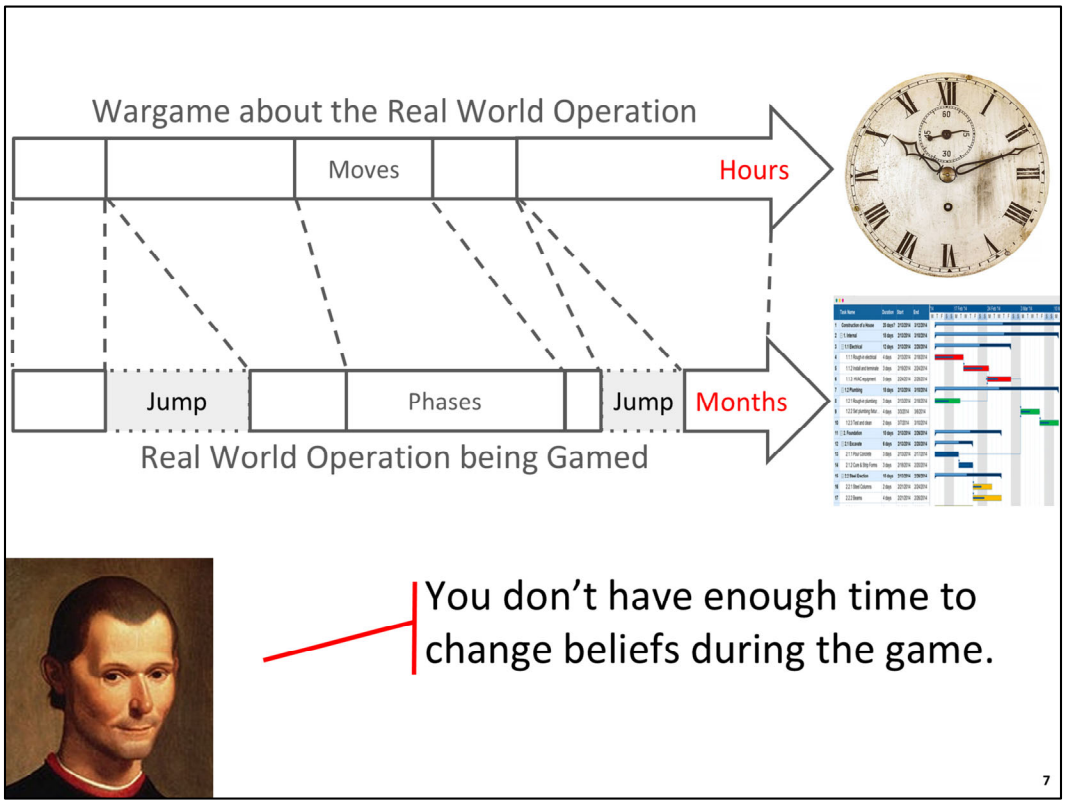

Beliefs are hard to shift ⇒ There's a Game Clock Problem

Research indicates that "beliefs can survive potent logical or empirical challenges. They can survive and even be bolstered by evidence that most uncommitted observers would agree logically demands some weakening of such beliefs. They can even survive the total destruction of their original evidential bases." This is a tendency, that people hang onto preconceived beliefs long after the evidence for them has diminished and the evidence against them has grown.

The Central Intelligence Agency analyst community suggests four reasons for the persistence of (even discredited) beliefs; "We tend to perceive what we expect to perceive; mind sets tend to be quick to form but resistant to change; new information is assimilated to existing images; and initial exposure to blurred or ambiguous stimuli interferes with accurate perception even after more and better information becomes available."

This tendency can and should be exploited by the deception planner. It is easier to exploit a belief than to change it. If the target believes something that is untrue then bolster that belief. If the target believes something that is true and to your detriment, then perhaps encourage the target to overcommit and over extend and take advantage of that over-commitment while changing your own plan.

Deception requires the creation of an erroneous belief, or the shift from a correct belief to one (M-type) or more (A-type) beliefs. Followed by a shift in behavior advantageous to the deceiver. But research indicates that beliefs, once formed are hard to shift and furthermore are robust in the face of contradictory evidence that even the believer admits is valid.

So changing beliefs takes time, but wargames are usually designed with a game clock that runs "faster than real time" (a spatial analogy tells us that a map is never 1:1 scale!) and in addition there are often time jumps between moves. This is especially true of operational and strategic level games. More time passes in the minds of the real world decision makers that the game is simulating than passes in the minds of the players who are making decisions within the simulation of the real world operation.

So there is a game clock problem when trying to deceive the players (as opposed to a modelled deception wargame). In the real world that the game is simulating the decision makers will have time to shift their own and others' beliefs and to incorporate new information into their beliefs, but in the game itself that time is not available.

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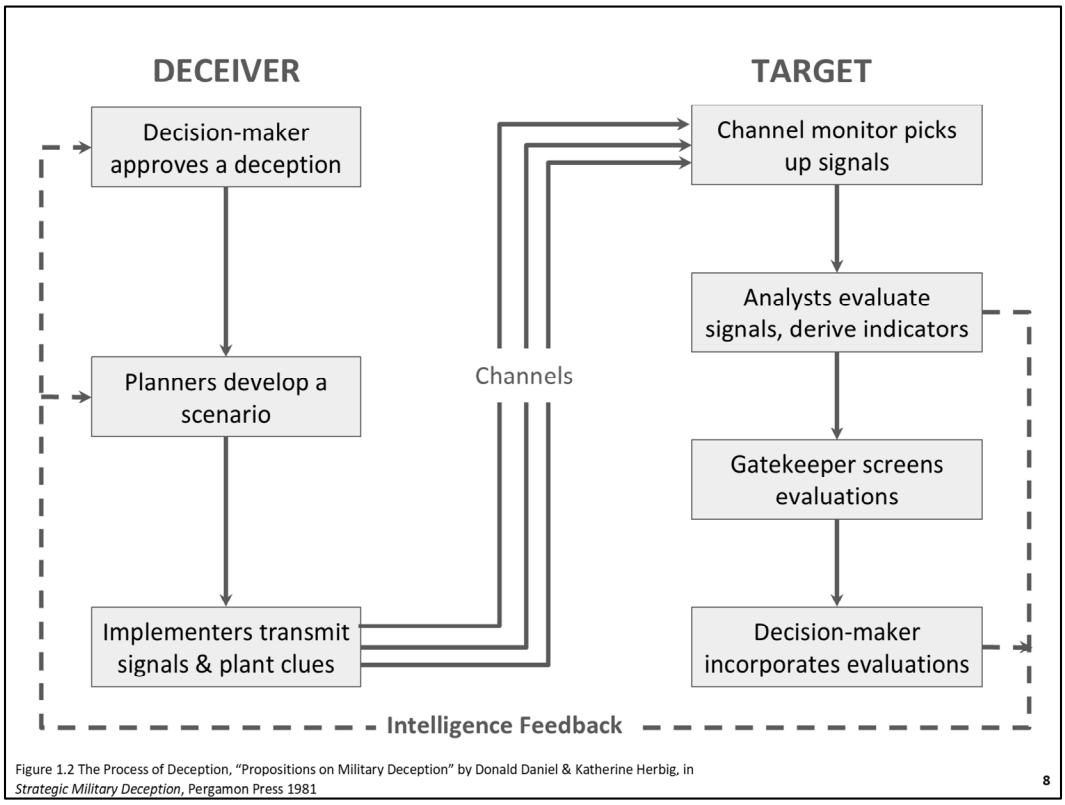

Figure 1.2 The Process of Deception, "Propositions on Military Deception" by Donald Daniel & Katherine Herbig, in *Strategic Military Deception*, Pergamon Press 1981

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Deception Process

The two key point I want to stress here are:

1. The deception signals are filtered and analysed by the target's intelligence organizations before reaching the ultimate deception target. The target's intelligence organization(s) have the task not only of determining the truth, but also of persuading their leadership that they have successfully done so.
2. The target might not accurately receive the deceptive signals as intended, might receive a garbled version, might interpret them differently to what the deceiver intends, might dismiss the signal, or might never received it. The success of a deception requires the deceiver have some insight into these alternatives, which means penetrating the target's intelligence and decision making apparatus in order to adapt the deception to the target's decisions.

Knowing whether your deception plan is working or whether and how to shift it requires penetration of the adversary intelligence apparatus and decision making. There is an espionage requirement for wargame design -- so players must be given espionage resources they can deploy.

Three further important points

1. All actors are both deceiver and target. This diagram is from the point of view of an actor's deception plan.
2. A deception may involve pretending not to have detected a deception against oneself.
3. A Signals is any activity detectable by the target.

Reference

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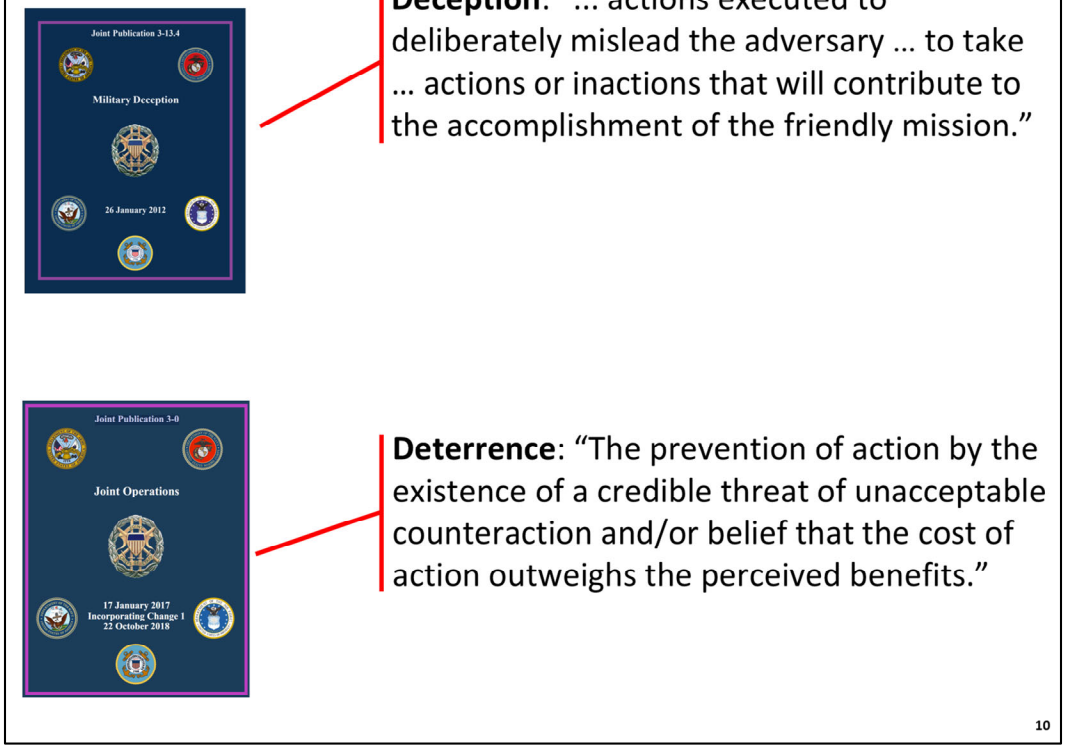
So, how do you wargame executed deception?

Where have we seen something similar?

Where else do we try to change an opponent's beliefs and behavior to our advantage?

And where have we wargamed this?

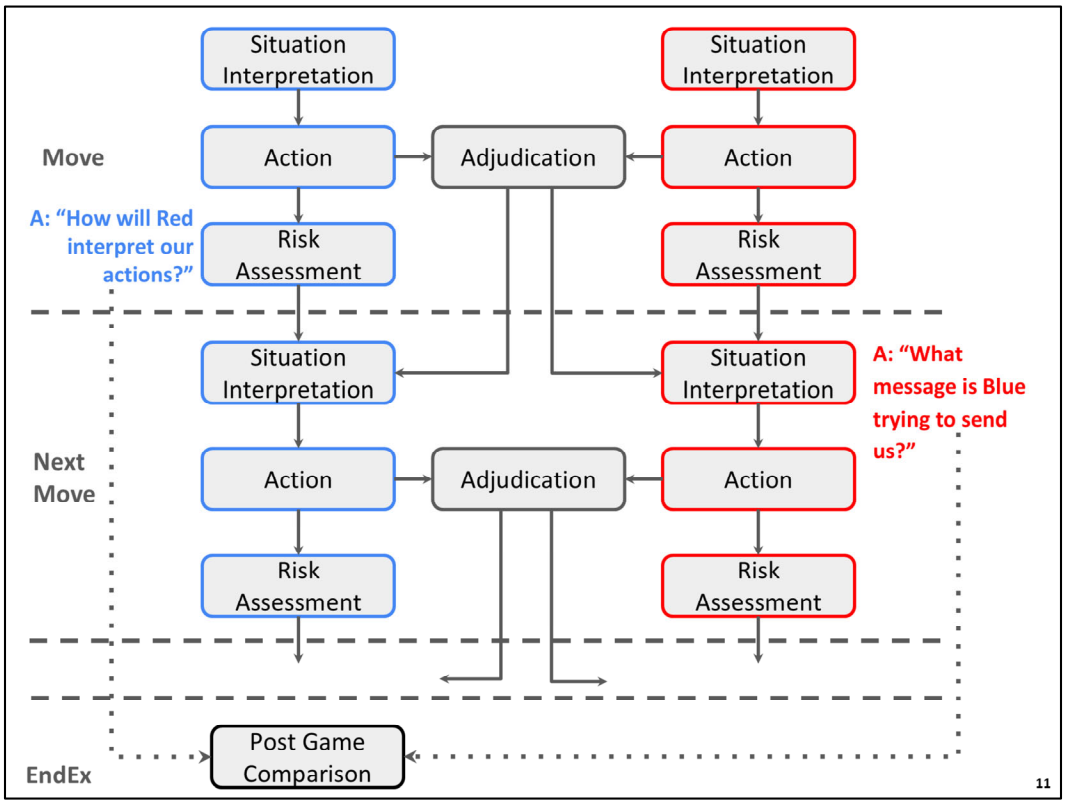


Compare deception with deterrence

Both deterrence and deception are concerned with changing a target's decision making; the former by manipulating the target's perception of the value to itself of the alternative decisions the target might make, and the latter by manipulating the target's perception of the truth.

Wargaming deception and wargaming deterrence are signalling games. In deception, the deceiver is trying to make the target believe something that is not true or doubt what is true by a combination of transmission of information and physical activity -- the signals. In deterrence, one is trying to make the threat of the punishment credible before the target has engaged in the action being deterred. The signals are filtered through the intelligence apparatus of the target before reaching, and hopefully influencing, the decisions made by the target leadership.

The DoD routinely wargames deterrence at the operational and strategic level. Although deterrence and deception are not identical they have sufficient similarities and overlap that examining how we wargame deterrence can be a useful start to exploring how we might design executed deception wargames.



Example Signalling Game Structure

This is a real example of some of the components of the Data Collection and Analysis Plan (DCAP) that were additional to each player's actions for a strategic deterrence game. Similar data, tailored to each game's objectives, is routinely collected for each phase of each move in operational and strategic level deterrence wargames.

In this example Blue addressed the question "How do we expect Red to interpret our actions?" during the risk assessment phase to inform their planning for the next move. During the situation interpretation phase of the next move Red addressed the question "What message is Blue sending us?" to inform their planning for that move. Similarly (but not shown in this diagram) Red asks "How do we expect Blue to interpret our actions?" during the risk assessment phase to inform their planning for the next move and Blue asks "What message is Red sending us?" during the situation interpretation phase to inform their planning for that move.

For this specific example, there were ten different and paired questions each player was asked (about themselves and about the other player) as part of the DCAP that addressed perceptions about their own and their opponent's intent and ability. Analysing combinations of the answers to many carefully designed questions, paired across moves and within the same move, and chained together, provided insight into the several game objectives and their research questions about signalling, interpretation and misinterpretation, deterrence and whether deterrence had worked. We were able during post game analysis to distinguish misperception, deception, and misinterpretation.

From experience players do not oppose discussing, answering and documenting their answers questions like these when they are clearly related to the objective being gamed or the problems the players are trying to solve. Although this example shows simultaneous moves, it is easy to see how this structure can be adapted to continuous move games.

This structure provides a possible starting point for executed deception games to examine whether deception has occurred and if so its success or otherwise.

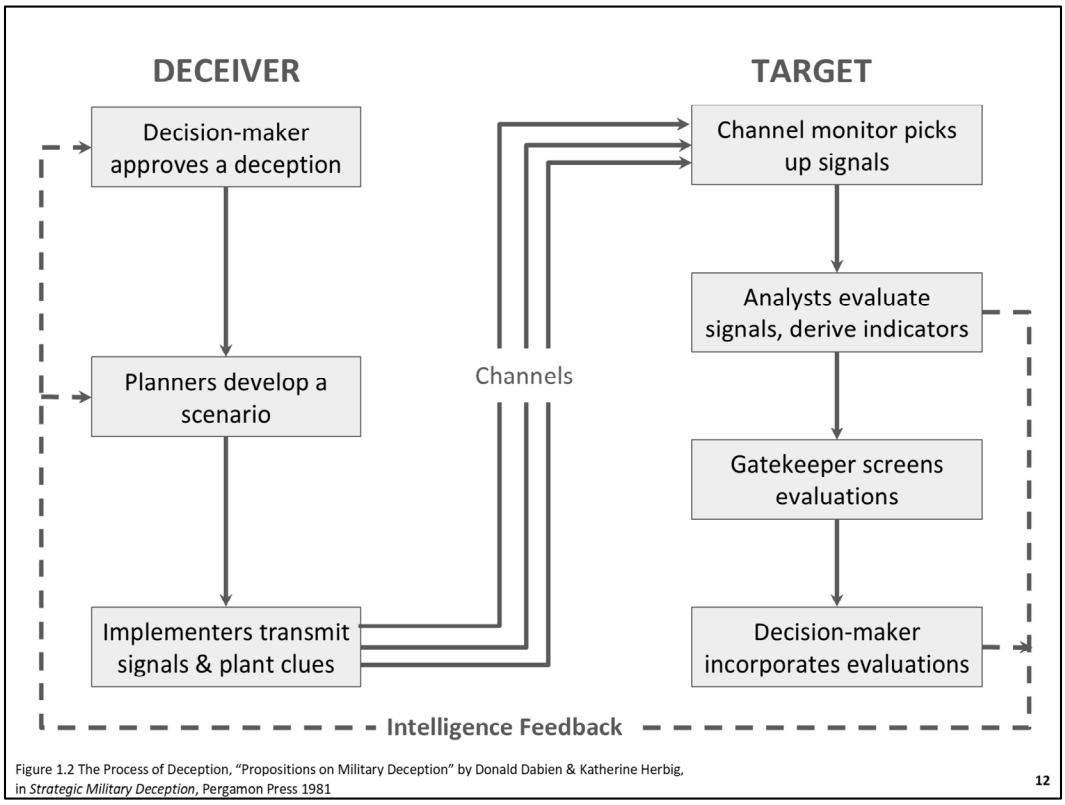


Figure 1.2 The Process of Deception, "Propositions on Military Deception" by Donald Dabien & Katherine Herbig, in *Strategic Military Deception*, Pergamon Press 1981

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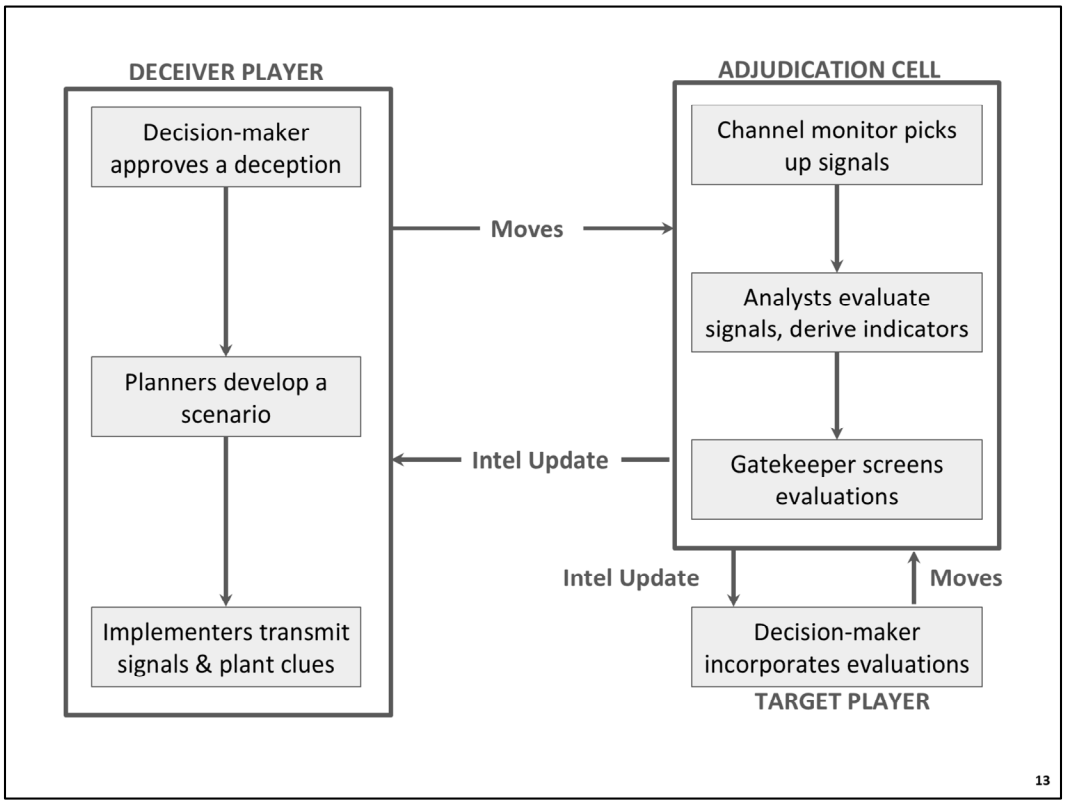
Remember the Deception Process

We will now map an inductive Wargame Process onto the Deception Process.



Map the Wargame Process onto the Deception Process

Consider seminar based games with Red and Blue cells in separate rooms. It is usual during these types of professional games that on each move the player cells report their interpretation on what their opponent is trying to achieve, discuss and propose their moves, including the intent of their moves (kinetic, what they want the enemy to do, and what they want the enemy to believe). One could then compare a player intent to the stated belief about that intent held by the opponent.

So far so good. If there was enough time and the game clock problem did not exist, and if players are paying attention to the subtleties of action and signaling, we might have a mechanism for deceiving and knowing whether deception occurred.

To solve the game clock and penetration problem I propose that the players are allowed to deploy espionage and counter-espionage actions. The adjudicators -- again strictly during inductive games -- decide on the success or otherwise of these actions based partly on whether the players deployed their espionage and counter-espionage resources and on the objectives of the sponsor. Espionage resources can be turned, can report inaccurate information, the deceiver can be deceived, and so on. The adjudicators play this role. The counterintuitive role of adjudicators as active players during inductive wargames is explained in detail in the "Adjudication: The Diabolus in Machina of Wargaming" article.

There exists a commonly used game mechanic whereby players have to trade-off between certain actions -- for example they can spend the move engaging in C3I to coordinate units, or they can move specific units and have them engage the enemy, or some combination but they cannot do it all. There's a limit to how much capacity a staff has. A similar mechanic might work for espionage activity versus kinetic activity.

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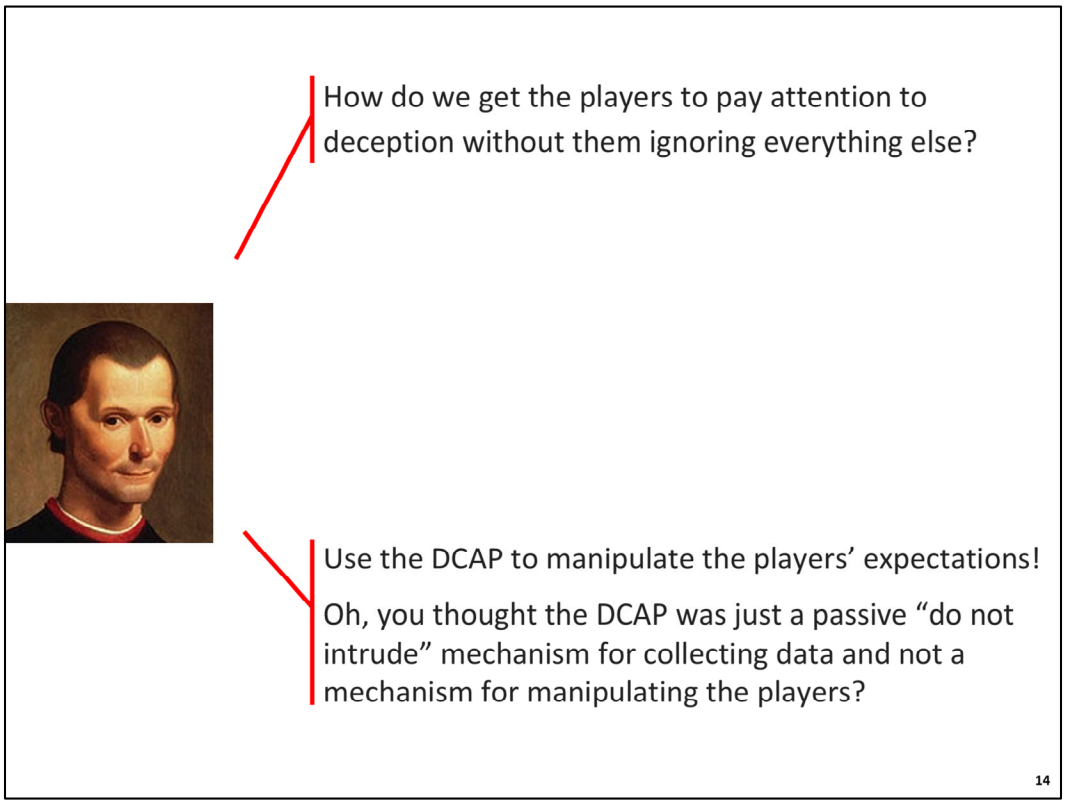

Manipulating Player Expectations

I have been asked "how can we get the players to pay attention to deception without them becoming so focused on deception that they ignore everything else?"

This problem is not unique to deception. Certainly at the strategic and operational level planners should be creating a deception plan along with the the CONOP and plan, but during the compressed time of a wargame such subtleties, while vital, are often ignored.

The Data Collection and Analysis Plan lays out the information to be collected from players throughout the game, often as part of the "move sheet". Since in the real world a commander provides intent along with orders, it is not unreasonable to ask players to provide their intent for each "move", along with other information they would normally be expected to provide. The requirement that the DCAP should not intrude on or be burdensome to the players is flexible, it depends on the objectives of the game what is asked from them and the level of effort involved with data collection is imposed on them.

The design of the data collection from players during the game is a tool that can be used for malign gaming purposes as well as benign, the former to deceive the sponsor and the latter to set player expectations without explicitly telling them how to think or play.

Reference

"Exploit Group Dynamics to Corrupt a Professional Wargame", Stephen Downes-Martin, In the *Unethical Professional Wargaming Working Group Report*, pp 78-95, Sep 13, 2021. https://paxsims.wordpress.com/2021/09/13/unethical-professional-wargaming-final-report/

Conclusions

Five possible principles for executed deterrence Wargaming

- Understand military deception from practitioner, historical and scientific perspectives.
- Use experience with wargaming deterrence as a starting point.
- Design the Adjudication cell to simulate Red and Blue intel.
- Use Inductive Adjudication.
- Craft the DCAP to set player expectations.