
Course of Action Analysis How to Wargame

LIEUTENANT COLONEL RICHARD P. McEVOY

At the Joint Readiness Training Center (JRTC), unit staffs must produce clear, logical orders under harsh conditions and time constraints. The most misunderstood step of the estimate of the situation is course of action (COA) analysis. Current field manuals and the Command and General Staff College (CGSC) Special Text (ST) 101-5, *Command and Staff Decision Processes*, provide excellent guidance on how to conduct the COA analysis, but most commanders and staffs have not developed techniques for translating this doctrine into practice. The approach offered here may help.

Wargaming is defined in ST 101-5 as the disciplined process for visualizing how a battle might unfold. By the end of a wargaming session, the commander and staff should have a common clear mental picture of the flow of the battle. To achieve this end, the wargame must consider all battlefield operating systems (BOSs) and must *facilitate* the visualization of the battle.

The eight steps from ST 101-5 help describe some techniques for wargaming:

Gather the tools. The commander must first decide which enemy and friendly COAs to wargame. The S-2 should have developed one or more enemy scenarios during his mission analysis, and the staff should have developed corresponding friendly options during the COA development phase. Depending on the time available, the commander may choose to wargame each friendly COA against each of the enemy's; try to thoroughly wargame only one friendly COA against one enemy COA; or more if time permits.

To prepare for the wargame, the operations sergeant posts a map or sketch of the operational area in the planning sec-

tion of the tactical operations center. If possible, a blow-up map is used so the staff can easily see what is happening during the wargame. If a sketch is used, it must be to scale and must include terrain features. Otherwise, the wargaming could tend to disregard terrain. Highlighting various contours with different colors (light colors for low altitudes, dark for higher altitudes) helps depict the terrain.

Next, the operations sergeant posts the basic graphic control measures for the COA on the planning map. (The staff should have established some basic control measures during its COA development.) The S-2 NCO then posts the enemy situation template on this planning map using unit symbols two levels down. Small yellow stick-on notes work well, with the enemy units drawn in red. Finally, the operations sergeant hangs at least two large acetate-covered wargame worksheets next to the planning map.

List friendly forces. During this step, the operations sergeant makes unit symbols for every maneuver unit two levels down, along with other attached elements (Stinger teams, engineer squads, ground surveillance radar teams). Again, small stick-on notes with unit symbols drawn in blue can be used. This method of showing units provides an inventory of available assets and helps ensure that all forces are assigned appropriate tasks at the correct locations and times.

List assumptions. The staff members should have derived most assumptions when they conducted their estimates during the mission analysis. They must use their best judgement in making assumptions about terrain, enemy strength, availability of assets, availability of supplies, personnel replacements, maintenance sta-

tus of weapons and vehicles, and the success of other units.

The operations sergeant compiles and posts these assumptions in a conspicuous place in the planning area, where the staff can review the assumptions they used during COA development. The wargaming will identify opportunities to confirm or refute these assumptions. Additionally, the assumptions often identify the need for commander's critical information requirements (CCIRs).

List critical events. This step is crucial to efficient wargaming. The commander or S-3 must take some time to reflect on the COAs and determine the critical events in chronological order. Critical events are the tasks that are essential to the accomplishment of the overall mission, and these require detailed analysis.

The following are some examples of critical events that can take place during offensive operations:

- Conduct reconnaissance.
- Conduct forward passage of lines.
- Defeat enemy counter-reconnaissance.
- Conduct river crossing.
- Defeat enemy combat outposts.
- Breach the objective.
- Assault the objective.
- Defeat enemy counterattack.

In the defense, critical events might be the following:

- Defeat division reconnaissance.
- Defeat regimental reconnaissance.
- Defeat dismounted soldiers.
- Defeat main body.
- Pass friendly unit forward.

Selecting critical events is important because they serve as the focal points for wargaming.

List significant factors. Significant

CRITICAL EVENT DEFEAT MAIN BODY

START TIME	ACTION	REACTION	COUNTERACTION	END TIME	LOSSES (FRIENDLY/ENEMY)	DP#	REMARKS
H+10	9COUS SEE 10 T-82s AT NAI 1	ARTY PREP ON CO A	COUNTERBATTERY FIRES TGT AB0001 CALL INDIRECT TAI 1 TO SUPPRESS DETONATE MOPMs OBST 111	H+25	CO A - 20 PAX ENEMY - BUTTON UP AND LOSE SOME COMMO	1	PRIORITY CL IV TO CO A PRIORITY OF SEE TO CO A ATLs W/ CO A
H+40	10 T-82s HIT MINEFIELD AT VE123456	CALL FOR SMOKE AND INDIRECT SOUTH OF MINEFIELD ATTEMPT TO BYPASS NORTH	CALL INDIRECT TAI 2 TO SUPPRESS CO A ENGAGES W/ AT FIRES	H+1 HR	CO A - 20 PAX ENEMY - 3 T-82s	2	PRIORITY CL V MINES TO CO A EXTRA AT-4s TO CO A
H+1:15	7 T-82s HIT OBSTACLE AT VE234567	CALL FOR SMOKE AND INDIRECT AROUND OBSTACLE ATTEMPT TO BREACH WITH MINEFLOW	CO B ENGAGES W/ AT FIRES COLT ENGAGES W/ COPPERHEAD INDIRECT BEHIND TANKs TO SUPPRESS	H+1:30	CO B-20 PAX ENEMY-4 T-82s		CO B 2ND PRI CL V MINES EXTRA AT-4s TO CO B
H+1:45	3 T-82s HIT OBSTACLE AT VE345678	CALL FOR SMOKE + HE AROUND OBSTACLE ATTEMPT TO BYPASS TO SOUTH	TM D ENGAGES W/ TOWs AND DRAGONS INDIRECT ON TAI 3 TO NEUTRALIZE	H+2:10	TM D-3 TOWs -20 PAX ENEMY-3 T-82s	3	2ND PRI FOR SEE TO TM D

factors are the evaluation criteria used to determine advantages during the wargame. These same criteria are used to compare COAs during the COA comparison step of the estimate process. Evaluation criteria must be observable and measurable. Most of the significant factors listed in Field Manual (FM) 7-20, *The Infantry Battalion*, and CGSC ST 101-5 are not sufficiently detailed and are neither observable nor measurable. The commander must provide useful evaluation criteria when he gives his planning guidance at the end of the mission analysis.

The essential component of the commander's planning guidance is his initial intent statement. This statement should discuss desired end states in terms of friendly forces, enemy forces, terrain, and time. These categories of end states give the staff a clear vision of the way the commander wants the battlefield to look at the conclusion of the operation. When wargaming, the staff uses this guidance to determine the advantages and disadvantages of each COA. Reaching a desired end state within a category provides an advantage for that COA. Failure to do so is clearly a disadvantage.

An example of an evaluation criterion within the enemy forces category could be the remaining enemy combat power. In his guidance, the commander should tell the staff the amount of combat power he wants the enemy to have left at the conclusion of the operation. For example,

the commander might state that he wants the enemy to have no more than 40 percent of his original combat power remaining. During the wargame, the staff will determine enemy combat power. If the enemy has less than 40 percent of his combat power remaining at the end of the wargame, then the COA rates an advantage in that category. If the remaining enemy combat power is more than 40 percent, then it becomes a disadvantage for that COA, and the commander must examine another course of action.

Select the wargame method. Both FM 7-20 and CGSC ST 101-5 list three wargame techniques: belt, avenue-in-depth, and box. Both references also state that the belt technique is preferred because it ensures the simultaneous consideration of all forces that affect a particular event. Although this is true, the staff should not spend time trying to decide which technique to use. If the staff methodically wargames each critical event, it will probably use a combination of methods. For example, if the selected critical event is "defeat regimental reconnaissance," the wargamers will probably use the box technique as they analyze actions at a specific location, and the avenue-in-depth technique as the enemy reconnaissance element is defeated through a series of actions along a specific avenue.

Select a recording technique. The two references list several techniques for recording the results of wargaming. Most

staffs attempt to use the synchronization matrix to record wargaming. Although the matrix is a great tool for final synchronization, I do not believe it to be an efficient wargaming tool because it does not facilitate the action, reaction, counteraction methodology. Staffs tend to get bogged down trying to fill in all the blocks instead of concentrating on visualizing the battle. Most staffs lose focus and do not come up with a clear and common vision of the battle.

A better tool is the wargame worksheet, an example of which is shown here. Although some may argue that this is just one more chart, the wargame worksheet is designed to help the staff make the process clearer and simpler. Normally, the use of this worksheet will save time and give the staff a clearer understanding of the flow of the battle. Anything that brings clarity and simplicity to the process is worthwhile.

Wargame the battle, and assess the results. There are two critical components to this final step: the focus and involvement of the staff and the clear visualization of the way each critical event unfolds. The planners should be in an environment that is conducive to thinking. When conditions allow, the planning area should be separated from the main command post to reduce noise and interruptions.

The best technique to ensure clear visualization of the battle is for the S-2 and S-3 to move enemy and friendly forces

WARGAMING WHO DOES WHAT

PREPARING FOR THE WARGAME:

Operations Sergeant:

- Post planning map/sketch.
- Post basic graphic control measures (from COA development).
- Post wargame worksheets next to planning map.
- Prepare movable unit symbols for all assets available, (down to platoon level for maneuver units).
- Post list of assumptions.
- Post list of specified and implied tasks.

Intelligence Sergeant:

- Post enemy situational template (with movable symbols).

S-3:

- Choose critical events in chronological order.

EXECUTING THE WARGAME:

XO:

- Ensure that everyone stays focused. Be the honest broker. Ensure the execution is disciplined and methodical, and that it keeps moving.

S-3:

- Fight friendly forces. Be specific. Show movement of units and describe the who, what, where, when, and why for each friendly action and counteraction.

S-2:

- Fight enemy forces. Be specific and true to the enemy COA. Show the movement of enemy units and describe the who, what, where, when, and why for each enemy reaction.

S-3 Air:

- Record actions, time, losses, on the wargame worksheet.

Assistant S-3:

Note:

- Targeted areas of interest (TAIs).
- Locations and times for decision points.
- Lost friendly assets and capabilities.
- Refinements to task organization.
- Possible locations or events for commitment of reserves.
- Additional tasks to maneuver units.
- Estimated duration of events.
- Additional requirements for combat support.
- Commander's critical information requirements (CCIRs).
- Maneuver advantages and disadvantages.

Assistant S-2:

Note:

- High-payoff targets (HPTs).
- Named areas of interest (NAIs).
- Lost enemy capabilities and enemy forces defeated.
- Potential points for enemy use of nuclear, biological, chemical weapons.
- Time, location, tasks for collection assets.
- Additions or refinements to priority intelligence requirements/information requirements (PIRs/IRs).
- Intelligence advantages and disadvantages.

S-4:

Note:

- Critical weapon systems lost.
- Ammunition expenditure.
- Fuel requirements.
- Expected demands for supply and maintenance.
- Transportation requirements.
- Location for logistics release points.
- Supply routes.
- What soldiers should carry.
- Expected times and supplies in logistics packages.
- Logistic advantages and disadvantages.

S-1/Medical Platoon Leader:

Note:

- Location, time, and number of expected friendly casualties.
- Location and time that treatment and evacuation assets will be required.
- Location of casualty collection points.
- Evacuation routes.
- Personnel and medical advantages or disadvantages.

Fire Support Officer:

Note:

- Location, time, and desired effects for fire support assets.
- Assets to fire each mission.
- Who will control fires.
- Control measures required.
- Target selection standards.
- Fire support advantages and disadvantages.

Air Defense Officer:

Note:

- Priority of protection (based on criticality, vulnerability, recuperability, and threat).
- Potential locations for ADA assets.
- Primary target lines (based on air intelligence preparation of the battlefield).
- Air defense advantages and disadvantages.

Engineer Officer:

Note:

- Location, time, and tasks for engineer assets.
- Requirements for breaching assets, mines, Class IV supplies.
- Engineer advantages and disadvantages.

Signal Officer:

Note:

- Specific ways to best communicate through radio, pyrotechnics, markings, signals, wire, mobile subscriber equipment.
- Communications advantages and disadvantages.

(the stick-on notes) on the map as they fight each action, reaction, counteraction drill. This allows the entire staff to see the anticipated movement of friendly and enemy forces and gain an appreciation for time-distance factors. At the same time, a recorder captures the action and results on the wargame worksheet. Each critical event is fought through a series of friendly action, enemy reaction, and friendly counteraction drills, and these drills are repeated until the critical event is complete.

While the S-2 and S-3 fight the battle at the map, each officer must focus on the way the assets he controls can best contribute to the battle. After each drill, the executive officer asks each officer to describe how his BOS contributes to that piece of the fight. Staff officers must describe their contributions in enough detail to make them clear. For example, the fire support officer should quickly describe where he will put indirect fires, what weapon will fire the mission, the desired effects (suppress, neutralize, de-

stroy), and who will control the fires at each target. An example of what each staff officer's focus should be during wargaming is shown in the accompanying box.

In addition to the things the recorder writes on the wargame worksheet, each staff officer must keep detailed notes. The notes help the staff refine their estimates. Armed with a clear vision of anticipated events during the battle and a refined estimate, each staff officer now has the depth of understanding he needs to spell

out a logical recommendation to the commander. And if the commander questions the staff's recommendation during the COA decision brief, the staff officers have details readily available to support their recommendations.

After the staff has conducted wargaming and the commander has decided on a COA, a synchronization matrix can be used to fine-tune the selected COA. This synchronization becomes smooth and efficient after a disciplined wargame has been conducted, because the information is easily transferred from the worksheet and the staff officers' notes to the matrix. Additionally, the staff has "seen" the battle fought, and has already determined how, when, and where each BOS will contribute to it.

One of the most common problems is conducting the tactical decisionmaking process when time is limited; at such times, staffs routinely eliminate

wargaming from the process. But units can produce better plans even if the commander and staff develop only one friendly COA and then conduct detailed wargaming and synchronization of that COA. A second way to speed up the process is for the commander to stay with the staff and personally influence the planning.

Although the time required depends upon the nature of the operation and the level of staff training, a staff should be able to wargame one friendly COA against one enemy COA in about an hour. To accomplish this, however, the commander or XO must usually keep the process moving.

What can happen when the staff officers feel the pressure of a short planning timeline is that they sit around the map, toss out ideas, then produce an operations order. This process lacks focus and discipline and relies heavily on tactical ex-

pertise. Lengthy brainstorming and debate on COAs are fine when there is enough time, but when there is not, wargaming should become *more* focused and disciplined, not less.

COA analysis is a crucial step in the planning process, yet one with which many staffs struggle. Methodical, disciplined wargaming arms each staff officer with a clear vision of anticipated events on the battlefield. This enables the staff to make clear, knowledgeable, and logical recommendations to the commander and to craft specific plans that support what they have envisioned during the wargaming.

Lieutenant Colonel Richard P. McEvoy served as an observer-controller and command group XO at the JRTC and now commands 2d Battalion, 87th Infantry, 10th Mountain Division. He previously served in the U.S. Southern Command, the 9th Infantry Division, and the 7th Special Forces Group. He is a 1980 graduate of the United States Military Academy.

Built-Down Fighting Positions

**CAPTAIN ROGER F. CAVAZOS
CAPTAIN ROBERT M. SMITH**

Today's technology allows the enemy to engage targets as far away as he can see them. If we want to protect our soldiers in the defense, we should develop fighting positions that are much harder to detect.

The most important functions of a fighting position are to protect a soldier from the effects of fire and conceal him from observation. Normally a position should provide a soldier with 36 to 78 inches of frontal cover and at least 18 inches of overhead cover. It should allow the soldier to engage the enemy within his assigned sector of fire all the way to the maximum effective range of his weapons, and with minimum dead space. The position should also be diffi-

cult to detect. All of these give the soldier protection and concealment and enable him to engage enemy forces on his own terms.

The old infantry fighting position (Figure 1) meets most of the criteria for an effective fighting position, except that it rises 24 to 27 inches above ground, and is therefore easier to see and easier to destroy.

The built-down series of fighting positions dramatically reduces detection and increases survivability. This series of positions includes the following:

Built-Down (BD) Fighting Position. This position (Figure 2) is best used in flat, open terrain such as deserts or plains. It has no frontal, flank, or rear parapets

to cast shadows. It is dug down to chin level instead of the usual armpit level. This helps make up for frontal and flank positions.

The BD position is constructed in four stages:

- Measure and mark the outlines of the position; emplace the permanent sector stakes and grazing logs.
- Measure and mark the outlines of the overhead cover, and dig it out to a depth of 23 inches (18 inches plus the depth of the U-shaped pickets). Dig the shelf, which the soldier uses as an elbow rest and to store magazines and grenades. Finally, dig out the platform that will allow the soldier to cover his arms while firing to the front. Make sure the rifle