Graphic Control Measures in Multinational Operations

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Graphic control measures are an essential component of a ground tactical plan. They facilitate shared understanding by creating a common language used to depict time and space. They allow a commander to synchronize the effects of combat power while affording flexibility and provide a "common language clearly understood among all users," according to Allied Procedural Publication (APP) 6C, *NATO Joint Military Symbology* (May 2011). Graphic control measures are essential during multinational operations when different languages, doctrine, and terminology constrain communication and shared understanding. They allow a multinational force to communicate fluidly and synchronize all warfighting functions without misunderstandings due to culture and language. Despite the importance of graphic control measures during multinational operations, observer-coach-trainers (OCTs) at the Joint Multinational Readiness Center (JMRC) in Germany consistently observe limited or poor graphic control measures during multinational training exercises. Use of high-quality graphic control measures will dramatically affect the interoperability of multinational task forces by creating shared understanding despite cultural and linguistic differences.

During Exercise Combined Resolve V (22 September through 21 November 2015), OCTs deliberately tested a company team in a multinational task force by observing the production of orders and graphics during the execution of offensive and defensive operations to determine the extent to which graphic control measures improved the overall interoperability and tactical effectiveness of the company. The observed company was a motorized infantry company in a battalion task force composed of four infantry companies, each from different nations.

JMRC OCT Observations Prior to Combined Resolve V

OCT observations at both the company and battalion levels, spanning seven multinational exercises prior to Combined Resolve V, consistently reported graphic control measures as an area the rotational training unit (RTU) could improve.

Three distinct negative trends were evident:

1) Little to no use of graphic control measures at the company or battalion level;
2) No refinement of higher headquarters' graphics; and
3) Limited cultural understanding during the operations process.

One positive trend, however, was that when a task force made an effort to develop quality graphics that supported the maneuver plan, all members of the multinational task force tended to quickly understand and use the graphics, regardless of which nation's doctrine and techniques were used.

Little to no use of graphic control measures at the company or battalion level was the most frequently observed of the three negative trends listed above. Training units would often create graphics that didn't support the maneuver plan and were inadequate for direct and indirect fire synchronization. Other units failed to create graphic control measures entirely, relying instead on vague intent graphics or a blank map. In a multinational operation, a unit with poor or no graphics becomes easily overwhelmed by basic communication. Descriptive language becomes imprecise and lengthy, especially when communicated across a radio between Soldiers who are not speaking their native language. For example, a Soldier sending a report of "enemy 100 meters south of the dark green tree on top of the hill that has a building on it" expends far more valuable time than a similar report of "enemy 100 meters south of Checkpoint 1." The report can also cause confusion based on the sending or receiving Soldier's understanding of the common language used in the operation. The building could be described in a number of ways that the receiving Soldier does not understand [shack, shed, cabin, lodge, etc.] or may be mistranslated, necessitating a request for clarification. OCTs frequently observed this confusion at the moment in the battle when speed and precision were most necessary and when communications were most challenging.

Training units often failed to develop their own graphics and instead relied only on graphics produced by their higher headquarters. While OCTs observed this trend across militaries to varying degrees, OCT observations indicated a clear divide in mission command philosophies between Eastern European and Western European militaries. Trends amongst former Warsaw Pact militaries included limited development of brigade graphics into battalion graphics at the battalion level and no refinement of battalion graphics at the company level. Brigade- and battalion-level graphics frequently did not contain the detail required to facilitate operations at the company level and below. As a result, companies with no graphics of their own attempted to fight using battalion graphics or discarded the graphics entirely and instead relied only on descriptive language and the military grid reference system. That may work in some instances in a unilateral task force; however, the complexities of multicultural communication necessitate the abbreviated language of graphic control measures.

The third major trend was that training units failed to account for cultural differences during the operations process. These included language, background, and military training. Of the three negative trends observed, this one was the least prevalent, but it could be severely detrimental to a multinational task force. Within this trend, the most notable sub trend was failure to account for varying levels of language proficiency, a problem that could be mitigated through quality graphic control measures. Next, OCTs reported instances in which a headquarters used naming conventions that some members of the task force did not have a frame of reference for and thus were less likely to remember. For example, "Objective Jackson" is as foreign to an Italian soldier as "Objective Garibaldi" is to an American Soldier. Lastly, military culture and doctrinal differences created confusion within the multinational task force. Units strayed from doctrine, creating their own terms and symbols, using slang and unofficial terms as if they were in doctrine, or (more frequently) using a myriad of undefined acronyms. Without explanation, these cultural misunderstandings hindered interoperability and created organizational confusion.

OCTs frequently observed that a multinational task force that used detailed graphic control measures communicated with greater speed and accuracy than those that did not. The example depicted in Figure 1 was designed by a multinational airborne task force. The battalion staff designated zones with a simple naming convention and used road junctions as target reference points, named J1 through J8. Although this system did not match the doctrine of each member nation or North Atlantic Treaty Organization (NATO) doctrine, it was easy to understand and provided sufficient detail for fluid communication on the objective. All members of the task force, regardless of national affiliation, quickly learned the system and effectively used it to interoperate with each other during a nighttime attack. The lesson learned is that simple yet detailed graphics, understood by all, will enhance the interoperability of a multinational unit.

Combined Resolve V Test Methodology

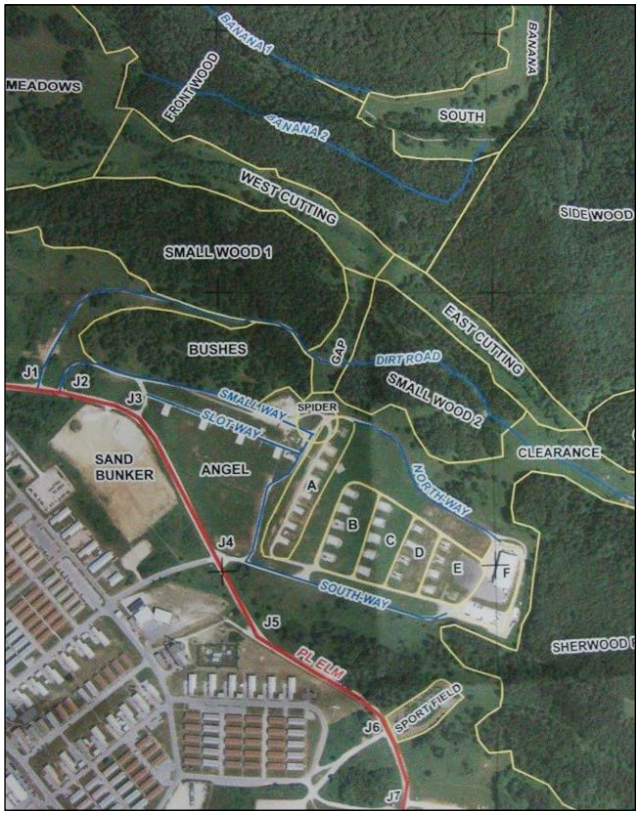
During Combined Resolve V, maneuver company OCTs tested the hypothesis that sound graphic control measures will enhance the interoperability of a multinational unit. The unit observed was a motorized infantry company equipped with variations of the BTR-60 armored personnel carrier; supported by anti-armor, mortar, and engineer platoons; and flanked by three other infantry companies, each from a different nation. OCTs trained the company leadership on offensive and defensive planning, with emphasis on developing graphic control measures that support the maneuver plan. The company then executed three company and one battalion situational training exercise (STX) lanes, followed by eight days of continuous unified land operations. OCTs assessed and evaluated the company's and battalion's use of graphic control measures and their effect on the results of the overall mission.

Combined Resolve V Results

Throughout Combined Resolve V, the company's performance remained largely consistent with previously observed trends. The company and platoon leadership were reluctant to develop graphic control measures beyond those issued by their higher headquarters. They relied predominantly on the battalion's graphics, which were completely inadequate for company- and platoon-level operations. OCT observations of the company's performance confirmed the effects of previously observed negative trends.

In its first offensive STX lane, an advance to contact, the tested company developed intent graphics that depicted the maneuver plan but did not develop named graphic control measures (see Figure 2). As a result, the company net became clogged with reports once they were in contact with the enemy. Already burdened by a limited communications architecture, the company commander began receiving inaccurate reports from his platoon leaders and lost all situational awareness. Reports sent from the company to the battalion were equally inaccurate. The confusion caused two instances of indirect fire fratricide because neither the company commander nor supporting artillery had accurate friendly and enemy positions.

Figure 1 — Example Zone Naming Convention Used by a Multinational Airborne Task Force



During defensive STX training, the company again failed to develop any direct fire graphic control measures but did develop targets for artillery and mortars. The company and the platoons built poor sector sketches that depicted battle positions and ambiguous sectors of fire but made no specific direct fire control measures. Two of the four platoons did not have a copy of the company fires overlay, and none of the platoon sector sketches included pre-planned indirect fire targets. The lack of graphic control measures constrained the platoon leaders

Figure 2 — Example Phase Lines Developed by the Battalion
(Note: Graphics depict maneuver but are not named control measures that facilitate mission command)

from accurately and rapidly depicting the enemy situation for the company commander as the opposing force (OPFOR) began its attack. Because indirect fires were not integrated into platoon plans, the company commander controlled all fires personally, and he fired on targets he could not observe based on inaccurate reports from the platoon leaders. The commander managed to rally by repositioning his command post throughout the battle, but clear graphic control measures that supported the defensive plan would facilitate a better common operating picture and fluid synchronization of direct and indirect fires across the engagement area.

During an "attack urban terrain" STX lane, the tested company blanketed its objective with a combination of phase lines, alphabetical blocks, and numerical buildings. The commander used the graphic control measures to brief the scheme of maneuver in the operation order (OPORD), and the company rehearsed on a large terrain model using the same graphics. These graphics were adequate to control the execution of the assault if disseminated down to lower levels, mainly team and squad leaders. However, the company did not disseminate graphics below the platoon leader level. Some platoon leaders became casualties during the attempt to gain a foothold on the objective, leaving no one in the succession of command with a copy of the graphics. Additionally, surviving platoon leaders and the company commander completely disregarded the graphics once the assault began. This drastically disrupted the organization and momentum of the attack, causing it to quickly devolve into chaos at the decisive point. The end result was five incidents of fratricide and mission failure.

When the company progressed into full spectrum operations, it continued to under develop graphic control measures, as did the multinational battalion headquarters, which caused a significant gap in interoperability within the task force.

During a defensive operation, the battalion developed limited graphics that depicted only company battle positions and tactical tasks. All graphic control measures used from the battalion down to platoon level were a direct copy of brigade graphic control measures. The tested company developed no graphic control measures beyond its indirect fires overlay. Company and platoon sector sketches incorporated neither obstacles nor adjacent units. They did not establish interlocking sectors of fire with companies on their flanks, even though the battalion's defensive plan necessitated a cross-fire technique between the companies. This created two problems for both the company and the battalion. First, a lack of direct fire control created gaps in the defense that the OPFOR rapidly exploited. Secondly, the lack of graphic control measures hindered the effective communication of enemy composition, disposition, and location between adjacent units. The tempo of the OPFOR's attack exceeded the speed with which companies could communicate, precluding any target handover as the enemy traversed between company engagement areas. Designated target reference points, engagement areas, named areas of interest, and other graphic control measures would have facilitated better interoperability among the companies.

After the defense, the company began a steady campaign of short offensive operations, punctuated by periods of defense for planning and preparation. The company continued to rely on graphics from the battalion, which mainly used graphics from the brigade. All companies used the brigade's graphics (a system of checkpoints that mark identifiable terrain features) to communicate when they were within the vicinity of one of the checkpoints. The observed effect was discernible; reports sent as a shift from the checkpoint were substantially more fluid than reports when no graphic was available. They also began using the checkpoints as ambulance exchange points (AXPs) and logistic release points (LRPs). However, neither the companies nor the battalion used the checkpoints to facilitate the maneuver plan and rarely added graphic control measures where none existed. They did not disseminate

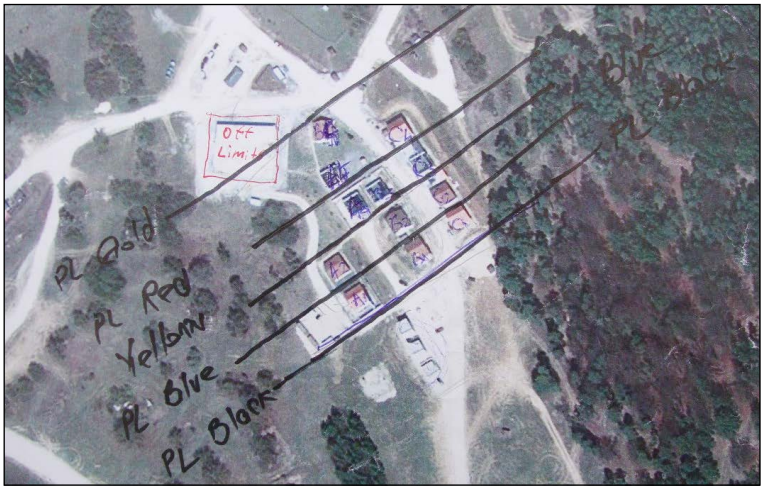


Figure 3 — Example Graphics for the Urban Attack
(Note: These graphics supported the maneuver plan. However, only officers carried copies of the graphics and they completely disregarded them once the assault began.)

graphics below the platoon-leader level, leaving NCOs and vehicle crews unable to synchronize direct fires within the confines of the company and battalion plan.

The marginal application of graphic control measures by both the tested company and battalion validated observations of negative trends made by OCTs prior to Combined Resolve V. OCTs observed improved performance when companies from different nations used a common control measure to communicate, such as checkpoints. This validates the hypothesis that graphic control measures are essential for multinational interoperability because the units were most synchronized when they used the checkpoints to communicate.

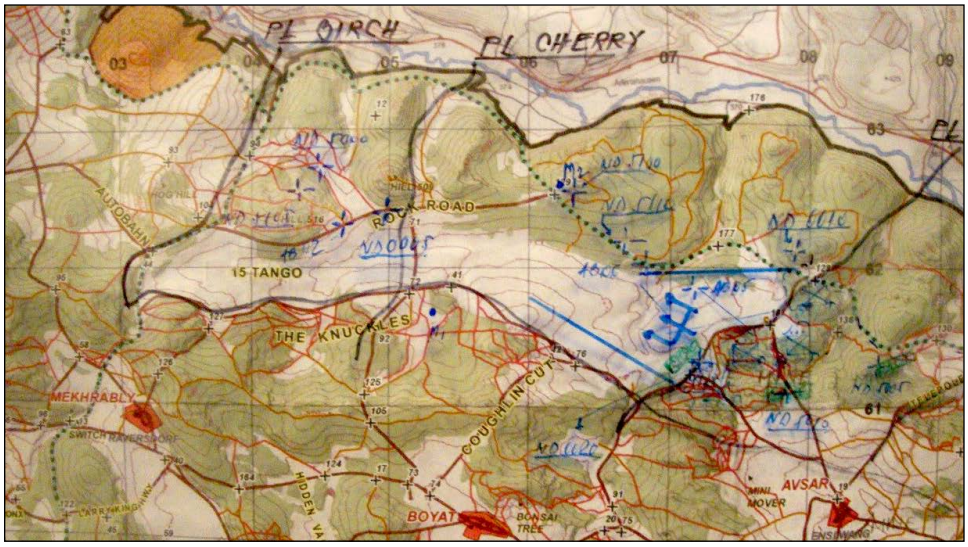


Figure 4 — Example Company Graphics Developed for the Defense
(Note: With the exception of indirect fire targets, all control measures were developed by brigade)

Recommendations/Best Practices for Tactical Leaders

Based on the performance of the tested company and past observations of JMRC OCTs, a number of interoperability lessons can be learned:

1) Graphic control measures are an essential component of multinational interoperability at the tactical level. They accelerate the pace of communications when Soldiers are not speaking their native language and allow everyone to visualize the fight.

2) Leaders must ensure everyone involved understands the graphics and knows the control measures. Inevitably, a multinational unit will use a blend of NATO and national doctrine, necessitating explanation of specific terms and symbols. Leaders should brief graphic control measures in the OPORD to ensure that subordinates understand the function of each.

3) All members of a multinational task force should avoid undefined acronyms. Military acronyms are a language of their own. Every military has its own unique lexicon of acronyms and abbreviations. Leaders must never assume that everyone understands what they are briefing.

4) Graphic control measures should include simple naming conventions. Soldiers who speak the operational language as a second language might not have a mental frame of reference for a name they just learned, making it challenging to pronounce or remember. Simple names include the phonetic alphabet, colors, basic animals, etc.

5) Leaders should understand and adhere to APP-6C, which contains a plethora of military symbols and graphic control measures that are standardized across NATO. OCTs have observed that few units training at JMRC are familiar with standardized NATO symbols. Study of this publication prior to conducting multinational operations will foster interoperability and provide useful examples of graphics that can be used to support a tactical plan. Symbols and graphics in APP-6C are closely consistent with Army Doctrine Reference Publication (ADRP) 1-02, *Terms and Military Symbols* (February 2015) with the addition of multiple joint symbols. Improved understanding of APP-6C by allied leaders will reduce the amount of time devoted to explaining graphics, allow all Soldiers to visualize an operation regardless of their native language, and facilitate communications.

6) Leaders should incorporate the best of each team member's national doctrine and techniques into operations. The advantage of a multinational task force is its diversity. This not only allows the commander to pick from the best available, but it also fosters mutual understanding, respect, and cooperation.

Final Thoughts

The results of Combined Resolve V validated previous OCT observations at JMRC. Though few positive examples of interoperability facilitated by graphic control measures emerged during the exercise, it remains evident that quality graphic control measures are essential for multinational units to interoperate at the tactical level. Fighting alongside our allies is mutually beneficial and essential today; it is also complex and challenging. Developing, disseminating, and implementing quality and mutually intelligible graphic control measures is critical for building interoperable multinational teams.

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