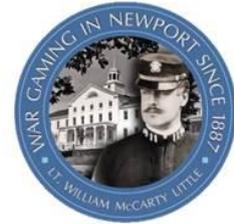




WAR GAMING

UNITED STATES NAVAL WAR COLLEGE



War Game Adjudication: Adjudication Styles

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*Adjudication is the process of creating the change of the state of nature, the outcomes of player activities. It embodies the action flowing from player decisions and the initial observation of the outcome of those actions.*¹

Flexible Concepts to Support Game Design

War games are designed to achieve one of two purposes; provide an educational experience to the participants and/or seek out information from a simulated environment for potential use in a real-world situation. According to William McCarty-Little, who introduced war gaming to the Naval War College in 1887, a war game's power "...lies in the existence of the enemy, a live, vigorous enemy in the next room waiting feverishly to take advantage of any of our mistakes, ever ready to puncture any visionary scheme, to haul us down to earth." Over time, the war game has proven itself, again and again as just such a valuable tool.

There are a number of different formats for conducting a war game; however, games really take just three basic styles. The first, the seminar style game, consists of players directly confronting the issue (or opponent) through a moderated discussion. Second is the one-sided game where the opponent of the player is the scenario itself. Players work and plan against a fixed intent or situation. The last is a two-sided (or multi-sided) war game where teams, with freedom of action, will plan and execute actions against their opponents.

In war gaming, that "enemy" either sitting across from or in the next room will be just one of the teams that have forces taking actions and someone must examine and evaluate those actions of the various player groupings to determine their outcome in order to provide feedback for the players. For the most part, "feedback" will present the players with crucial data to perform an assessment of how the player's plans are proceeding and to establish the conditions for the upcoming decision points participants must contend with during the following periods of play. Those individuals that pursue the role of determining these data sets of the gameplay are the members of the Adjudication Team. The team is comprised of individuals, supported by technology, that comprehend the art of war gaming, understand the objective(s) of the game, and have some subject matter expertise (SME) in an area that has significance to the scenario.

The adjudication team seems to be one of those key positions in a war game that participants prefer to avoid, if possible. The adjudication team works long hours and provides information to the player that is often not well received. It is an essential supporting area of the game that helps drive the

¹ Perla and Markowitz, War Gaming Strategic Linkage, CRM D0019256.A2/Final January 2009

mechanics of the game process. As a result, it is essential to consider the design of the adjudication process even though it is sometimes overlooked during the design of the war game. Without this feedback mechanism, the players have no intelligence updates; no situational awareness of the outcomes derived from their decisions throughout the game and would be uncertain of their starting position at the beginning of each war game “period” or “move”. These supporting adjudication actions directly impact the player’s ability to continue play and confront the stated objective(s) of the event. These adjudication procedures are also a key component to collection of data sets that inform the post-game analysis team. In simple terminology, the primary goal of war game design is to create a war game environment to get players to confront specific decision points in order to achieve the sponsor’s desired objective(s). Within the game design lies the adjudication process that provides the data sets necessary for the players to potentially reach the game decision points as they relate to the objective(s) and provide the analysis team with critical insights to the adjudication’s decision process. The quality, quantity and format of the data are dependent on the design of the overall event. As in the game itself, a variety of adjudication “designs” are also available to achieve the desired endstate.

WARNING - As this process begins, there may appear to be an unlimited amount of time to discuss the outcomes of the player actions; however, time can and will be your enemy. Plan accordingly. Adjudicators, as well as the players, will take all the time provided to them to create the desired end product.

Methodology

Historically, the participation in war gaming adjudication centers on receiving a proposed plan from the player teams for resolution that covers some specified period of time, e.g., 3-7 days. Each side would brief their intended intentions, force maneuvers and desired outcomes. The teams would also include (based on their best ability to read their respective crystal balls) a game plan of tripwire/reactions to potential opponent actions that were believed to fit into the bag of the opponent’s available courses of action (if/then statements). The rest of the adjudication team’s effort is consumed with drawing out the respective timelines for each force, determining the intersection of forces and their potential actions that might result in an engagement, determine the outcomes through maneuver and/or attrition, consider the implications to those players’ desires and then rebuild the force and battle space for the next day’s play. For the purpose of clarity, let’s assign the term “move” to any submitted action or decision by the war game participant to achieve a desired goal required to achieve the event objective(s).

Current versions of war gaming design have evolved to allow move submission via computer media for quicker access by the adjudication team. This alleviates the tedious sorting of papers and forms submitted by the players as moves and enables the adjudicators to link actions that occur simultaneously in time and space. By designing the adjudication during the early stages of the game’s development, it is possible to configure the adjudication plan to focus on the specific player decisions desired. In this way, the adjudication process will best support the objective(s) of the war game and will provide the players with valuable information to continue play while offering the analysis team the significant data necessary for their postgame efforts.

As discussed earlier, adjudication has a two-fold responsibility; the first is to supply feedback to the players based on their decisions, actions, and intentions in a format that supports the players, at the appropriate level of the war game and supporting the game’s objective(s). Secondly, adjudication supports the efforts of the analysis team, collecting the results (and the reasoning behind those results) to provide substantiating data sets for post event scrutiny. The design for adjudication will vary depending on the level of warfare and required detail of the data sought by both the player and the analyst. The following adjudication styles are utilized most often but hardly occur in a pure

application. Each war game is designed specifically to meet the objective(s) –cookie-cutter solutions do not normally meet war game requirements - the process and design must be tailored to the style of play and the objective(s) of the event. The adjudication process must follow the same formula for success. There are four basic styles of adjudication that may be employed.

Rigid Adjudication

The rigid style refers to the reliance on strict rules or guidelines for game play. The results of player decisions are based on the products from a system created to provide results ascertained by player inputs such as a model that has been running in support of the game. Rigid adjudication can be facilitated through fixed rule sets established for the players in advance of play. To simplify the process, think about board games. A fixed set of rules were provided by the manufacturer and the game could be quickly assembled and played. Player capabilities were predetermined and outcomes of “engagements” were developed through a fixed set of criteria; for example – results predicated on the roll of dice. As the avid player continued to play the game, rules could be altered or substituted to reach the personnel effects that the players desired.

If models or simulators are used to assist in determining the outcome of player moves, the output will be centered on predictable circumstances and engagements. These outputs are often considered accurate depictions of interactions between forces by the novice observer in the war game environment. Models function as “designed” to achieve by the data processes supplied by the system programmers. This is not to say the results of engagements are predetermined; however, models normally produce what is considered most probable. These results are extremely valuable for determining attrition levels when examining the present-day opposing forces operating tactically in an Area of Operations (AO).

If using a model to provide the results of tactical interactions, time may become an impediment. The system, depending on the desired product, may require multiple runs to create an area of probability from which to select the feedback solution. If other actions are waiting for a resolution on an initial interaction to determine resource availability for later interactions, there may be insufficient time to calculate all the necessary results to build the “picture” for the next period of play. There are some models available that will examine the battle space at a specific domain’s operational level. These will require an even greater amount of time to complete the runs necessary for adjudication. This does not mean that the models should be avoided; it simply indicates that their use must either cover a shorter period of player engagement than most game designers prefer or be modified to support the intent/direction of the war game design in another manner, such as, pre-running predictable engagements to reach engagement decisions in a more expeditious way.

Some difficulties may be apparent when attempting to utilize the system to examine forces in the future with postulated capabilities, capacities, and characteristics. Parameters of future “platforms” are developed based on the educated assessments of Subject Matter Experts (SME) and are provided to the system operators to forecast the potential outcomes of these futuristic engagements. The results will only be as good as the information programed into the system. The evaluation of war game outcomes based on the hypothesized capabilities/physical dimensions of a future asset must be weighed against the intended objective(s) of the game itself.

Adjudicators must also take into consideration the limitations of a modeling system and its ability and accuracy when it is applied to the operational and strategic levels of war. A system designed to evaluate the engagement of tactical assets will provide input to the operational leaders but only when combined with the other tactical engagements/maneuvers to determine whether the combined tactical operational outcomes support the desired higher level end-state. Again this aggregate determination of multiple actions to a single outcome will require time to complete.

All in all, the increased accuracy gained through the utilization of a fixed set of rules and procedures will reduce the flexibility that may be required to achieve the game's objective(s). As an example, if an event is to determine the operational performance of a potential weapons system, it would be hazardous to the event if the platform were to be destroyed early in the game's schedule due to a player's chosen actions. The adjudication must evaluate the survivability of the weapons system, saving it for potential availability further into the war game or "stop" the progress of the game and have the players re-evaluate their intent for the associated platform.

To sum up, the strengths of rigid adjudication provide semi-predictable outcomes, minimize disputes over the results and due to the structure of the game will minimize the manpower requirements. On the other hand, adjudication time will potentially increase and sometimes the results are counterproductive to reaching the objective(s).

Free Adjudication

This style of adjudication rests predominantly on the experience of the adjudicators themselves. The rule sets to which the players and adjudicators rely are derived from familiarity, experience and historical data. This approach emphasizes the importance of having the right participants on the adjudication team. Adjudicators should be organized into teams to concentrate on the various areas of focus that support the game objective(s). Familiarity with the tactical requirements and operational theater within the player's area of operations is essential in the assembly of the adjudication team. Adjudication fails if the team is guessing.

Knowledgeable adjudicators, understanding the objective(s) of the war game, will resolve strategic/operational decisions while keeping the event moving forward for the players and analysts. This capability allows the game to move along relatively smoothly and in the direction of the game objective(s). Free adjudication works best in a time constrained environment. If the game designed has presented the adjudication team with the unfortunate situation of minimal time to turn around player decisions for the next player move, free adjudication allows for a quicker decision-making process (influenced by the war game's objective(s)). As in any endeavor, to gain speed, accuracy often suffers. Be aware that some leeway must be absorbed due to the increased speed of adjudication. A dedicated process to capture adjudication decisions and the reasoning behind them will assist the analysis team to processing the war game results.

The personnel required to fill the constructed adjudication teams that will support the game process will be considerably larger than in the rigid adjudication technique. The key to success in this style will be the collaborative effort of multiple personalities discussing and resolving the issues presented by the players. A well-coordinated group of different backgrounds within a specific community will be able to cover almost every possibility thrown at them by the players. As an example, an air-to-air engagement would be well served by a team composed of a cross section of naval aviators (Hornet, Growler, Hawkeye) and US Air Force pilots (Eagle, Raptor, Falcon, Sentry). Don't overlook the requirement of enemy aircraft and capabilities. These are also an essential piece in determining the results.

Additional complications with the free adjudication style exist. Due to the fact that it depends heavily on individual participation, the potential for "bias" exists. Prejudice can be created unintentionally or by design. Players often believe the analytical results of a war game may verify a specific agenda, be it concept or platform. This predisposition creates misleading data sets for analysis. At NWC, games are developed and designed by honest brokers in the pursuit of impartial responses to the research questions derived from the game's objective(s). If the adjudication was conducted with honesty and used supporting, accurate data, then a change that may distort the results are threatening the analytical process of the game and will allow bias to create an alternate outcome.

Beware of parochialism. Due to the process dependence on personnel, there exists a danger that individual personalities can allow the honest assessment of the situation to become skewed. To keep the process moving at a reasonable speed, criteria and guidelines are established by the teams. Be careful of an adjudicator's bias does not become an unintentional goal of the adjudication process. The teams could be working to meet a goal based on their perspective of the engagement and not that of the player's intentions. The conduct of forces becomes those of the adjudicators and not the decision makers (players) in the game. The decisions are based on their slice of the battle space and no longer a portion of the overall operational picture. The teaming concept within adjudication minimizes this issue and establishes a "checks and balances" process to ensure team products are not confined or limited in scope. Participating in events based in future years should be open to potentially different tactics, techniques and procedures.

At all times, be aware of the potential for higher authority influence affecting the output of the adjudication process. Participants in the game may wish to exert their influence over the adjudication outcomes to meet their preconceived notion of how the event is or should be progressing. Influence is power in action and the more senior the participant, the greater their ability to change outcomes. Adjudicators might comply with a request because of the requester's legitimate hierarchical power as well as the target person's role expectations. We often refer to this condition as deference to authority. The same condition may occur within the adjudication team, as well. Always keep in mind that the objective(s) of the event is inviolable and it drives the design of the game and the adjudication process. Both are crafted to get to the end state agreed upon between sponsor and the War Gaming Department.

Players may also disagree with reported outcomes of play and attempt to alter the adjudication product to suit their theories. The humans making the decisions for the adjudication team are often questioned, regardless of the quality and quantity of experience of their credentials. Explaining the adjudication process to the participants before the war game begins and having thick skin when presenting the results to the players is the best method for successful adjudication.

Semi-Rigid Adjudication

Semi-rigid adjudication was created as a process to combine the strengths of rigid and free adjudication while minimizing their respective weaknesses. The combination of rule sets or models with the wisdom and experience of the adjudication personnel provides the most agile and professional results. The process will take longer than the free style but will have computer simulations for corroboration of outcomes. The fact that a computer system at some level is providing data to the adjudication team for consideration minimizes the inevitable push-back from players. Players will be more willing to accept the output from computer systems than from a group of SMEs with extensive experience.

Management of the various capabilities will be the driving factor in semi-rigid adjudication. A balance between the two styles is required and the delicate coordination will keep the leader of the adjudication team very busy. Through evaluation, a process for computer simulation and models can be constructed to support the team's efforts. How the computer models provide their input must be decided far before the war game begins. Some systems will provide results in a timely fashion and can be utilized during the adjudication process. If the system in question requires time to run evaluations that are longer than the available adjudication time provided by game's design, than the "model runs" must occur prior to the game or be eliminated. This stresses, again, the importance of adjudication and design working together from the start of the development of the war game. There is often a general understanding for the quantity and types of engagements that may occur during the game and these could be conducted prior to the game play. By pre-running these events, adjudication will be able to approximate interactions and outcomes by types of engagements prior to game play and be collected and compiled for use during the adjudication periods. These data sets are

references for adjudicators during the game. These preplayed events will not be an exact representation of game play; however, the engagements will approximate outcomes that can be adjusted to represent the player's decisions. And for those events that were unforeseen, additional time and personnel will be available to consider their outcomes because of the quicker resolution available on forecasted events.

Open Adjudication

This adjudication process utilizes the expertise of the players to examine, discuss and determine outcomes of their engagements. This adjudication process has two roles in the war gaming community; direct adjudication at the strategic and high operational level of warfare or to facilitate the tactical results necessary to "feed" the operational/strategic player's decision-making process.

At the strategic/high operational level of gaming, the open process allows spokespersons from each "side" of the conflict to present and evaluate each other's plan that are presented to the each other and the adjudication team. The open forum discussion that takes place will be moderated to keep the discussions moving toward an end-state. Through this process, an agreed-upon result will be reached by each side; if no agreement exists, the decision falls into the hands of the head adjudicator, in coordination with the rest of the Control Team. Think of this process as a facilitated self-adjudication process performed by the players.

The tactical application of open adjudication is conducted most often within the adjudication team. As the players at the operational level direct forces to achieve mission goals through developed lines of operation, the tactical play will be determined and played-out by the adjudication team. As a result, the adjudication team will be forced to adjudicate their actions. The open format allows the multiple sides of the problem to discuss and determine the resulting end product of the engagements and construct the feedback to the players in a format that supports the appropriate level of play. The open forum also allows all sides to consider the possible implications of each player decision and permits the results of the decision to remain aligned with the overall objective(s) of the game.

Conclusion

Adjudication is such an essential piece to the multisided war game that it must be included early in the process to ensure that the players are provided the necessary elements of the game to evolve. There is not a fixed procedure to enact adjudication; however, a developed plan based on the fundamental ingredients that are common to adjudication methodologies and an understanding of the war game's objective(s) will provide the greatest support.

Future articles will discuss the stages of adjudication plans and the tactics for their application.