Adjudication in Game Design: An Introduction[1]

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There are multiple reasons for the use of war games; discovery, examination of concepts, and even learning. The value of the war game is to create an enabling environment to achieve the desired objective(s). The benefits of a war game are numerous; however, for the most part *they provide new ways of conceptualizing the problem, new courses of action, new elements of information needed for decisions, previously unknown relationships between aspects of a problem, understanding of the problem's dynamics.*[2]

Why is adjudication important to war games? The adjudication of war games is not to gauge the game player's ability to understand and learn. Its purpose is to create a feedback-loop to the participants in as realistic an environment as possible for the players to consider war fighting concepts, doctrine and strategy. In so doing, adjudication forces the players to live with their decisions and deliberate on the subsequent steps necessary to achieve their goal.

Adjudication is an art. Described in the Oxford Dictionary, art is "…the expression or application of human creative skill and imagination." To develop an understanding of the adjudication concept for war games, it is paramount to recognize that the results of adjudication at the operational/strategic level is a creative endeavor that will not always match the mathematical parameters that many would apply to the situation. As described by Admiral Raoul Castex in his Strategic Theories, *"A scientific law asserts the same scientific observation will always give rise to the same result, just as a mathematical formula generates the same result whenever the same numbers are used. War is not at all like this, and strategy less so than tactics"*.

So A + B does not always equal C. Adjudication must consider a multitude of variables to arrive at a conclusion that both support the player and the analyst. In addition, due to these applied variances by the adjudication process, it is extremely difficult to establish a "set" procedure for the conduct of adjudication. Each situation must be analyzed and evaluated to determine the methodology and application of the correct tool sets that are to be applied during the war game.

Regardless of the adjudication methods, it will rest on the adjudication team to provide the judgment and expertise needed to apply these tools at the right time in the right place. Attempting

[1] The opinions, conclusions, and recommendations expressed or implied are those of the authors and do not necessarily reflect the views of the U.S. Naval War College, the Department of the Navy, or the Department of Defense.
[2] John Hanley, Strategic Studies Group Dissertation, 1991

to describe adjudication is similar to an artist attempting to write an instruction manual on how to paint a landscape. This will only work if the project is a paint-by-numbers project. True art is a combination of the types of brushes and their styles, the categories of paints, the nature of the canvas and the painter's knowledge of the color palette. In addition, consideration of the artist's experience level, exposure to the topic of the creation and the intended appearance desired for the painting will also the outcome of the project.

These essentials are mirrored in the process of creating adjudication in support of a war game. The adjudication team must not only utilize the war game developer's templates and move sheets but they must also possess an understanding of the analyst's collection plan to create a credible product that is plausible to the players. This understanding comes from experience developed from a war game background, an inventive spirit necessary to develop the storylines for adjudication, and a detailed grasp of the game's objective(s).

BACKGROUND

Essential to understanding the requirement and process of adjudication is an understanding of what really is a war game. A war game is "*Any type of warfare model or simulation, not involving actual military forces, in which the flow of events is affected by decisions made during the course of those events by "players" representing opposing sides. It is not real or duplicable—but it is an exercise in human interaction and the interplay of human decisions and the outcomes of those decisions*"[3].

So how are games adjudicated? Many approach this problem thinking along the lines of "keeping score" to determine a winner in the interaction. This simple tactic may provide the opportunity to calculate values placed on decisions or actions; however, it doesn't ensure that the calculations are actually specific to the objective of the event that is being assessed. It is necessary to understand why a game is being conducted and to what end. As has been described earlier, there isn't a mathematical algorithm that will determine if the decisions by the leaders participating in the war game have been made accurately in an attempt to achieve the overall desired end state.

OBJECTIVE CENTRICITY

We could invest multiple pages discussing the planning and design of war games; however, these details will be addressed briefly as the key issues of importance for the adjudicator. As a review, the war game is designed in such a way as to provide "insights" to the research questions developed by the war game team to address the game objective. There are those that would even describe the process as the refining or focusing of the research questions vice finding their answer. The level of the war game can be at the strategic, operational or tactical level; however, the Naval War College War Gaming Department concentrates on the strategic and operational aspects of warfare in its efforts to educate the leaders (decision makers) of the future.

The design of the game can take multiple formats; seminar style (not really a game but included here as a tool for research), one-sided game (no opponent for the players), one and one half-sided game (pre-planned opponent actions), and a two-sided game (which allows for the free play of the participants). Each has various limitations and strengths but they all have one essential

[3] Perla and Barnett, in an '85 War College Review article

important factor that controls the design and the conduct of the adjudication that supports the event – the game's objective. This is the key to any game conducted and where the majority of the war gamer's focus and effort should lie.

Now the vast majority of the uninitiated would assume that the objective of a *war game* would be to win. However, the objective of the game is to address whatever issue that has been raised by the sponsor. To focus on the specific issue requires a literature review and the development of research questions to guide the design of the game. The real intent is to approach a resolution to the research question constructed to support the objective that has been agreed to by the sponsor. One of the most interesting and difficult issues of conducting game design lies in the designer's understanding that the "answers" to research questions are largely determined by the precise way the research question is asked. Broad research questions result in broad (sometimes unusable) answers. The question must be formulated in such a way as to narrow the range of responses while still providing total freedom to the respondent. These questions must also be crafted to support the adjudication and analytical processes required to keep the player's focus on the objective of the war game.

GAME DESIGN AND ADJUDICATION

This article will only address the basics of game design so as to appreciate the impact it will have on the adjudication process. To have a game requires an issue that needs a decision to be made, someone to make that decision, a way to measure the results of the decision, and a method for providing feedback to the decision maker. The environment must be created to generate player immersion; therefore, making the player's decision matter (to the participant, to the game process and to the game objective). Games are driven by these decisions, and they are based upon goals. If the players are aware of what their goals are, and are able make decisions that they believe can and will effectively result in the successful accomplishment of those goals then the design of the war game will have been successful. Adjudication will provide the measures of effectiveness and performance that will show how the players are progressing towards their goals.

This seems like a self-evident, fundamental element of game play, but it can easily get lost in the mechanics of the game if the game design doesn't maintain the player's focus. To prevent games from losing pace, designers must focus on how players think and how they can utilize their knowledge and expertise. Decisions are the key and players should not be wasting their time working on a decision that will not relate in some way to the objective. Likewise, the adjudication results have to be relevant to the player's decision to ensure that their choices have an effect on the outcome of the game.

GAMES HAVE RULES

In gaming's attempts to consider player "decisions", rules for gaming must be considered. For a game to be successful and reach its objectives the players must play by the rules; therefore, they must know and understand them. While most of the rules are created by the game designer some are brought into the game by the players themselves. Preconceived notions of how things operate often interfere with the war game process and must be balanced with the internal planned processes of the event.

There are a multitude of rules that must be taken into account when building a game. There are the rules that are required for the conduct of the event and they may not be ignored (unit capabilities, P_k, etc.). There are the published rules that are the guidelines for the game (times to submit move sheets, briefing formats). And then, there are the rules that have been established (unwritten?) within the communities that are participating in the game. These are the unpublished concepts which direct player's behavior and impact performance. These can range from the simple format for reporting data to the collective personality/approach of a player team considering actions against an enemy.

ADJUDICATION ARCHITECTURE

As previously described, objectives must drive the decision points of the game players. If correctly crafted, the decision points are used to determine where to concentrate the analysts to collect the data and where to focus the adjudication effort to meet the game objective(s). Decision points will also provide the information necessary for the adjudicator to evaluate the player's situation and assist the process to keep the participants targeted at the objective.

While the objectives and the game design are being created, the adjudication process should also be considered to ensure precise game support as well as alignment with the data collection effort. In order to do this, construction of a process for adjudication is required. The design of the adjudication architecture is related to its function. Part of the determination of game design needs to consider the purpose and use of the collected data. Producing, collecting, evaluating, and measuring data sets that have no impact on player decisions or the post-game analysis will cause the players to recognize their efforts are not being utilized.

The adjudication architecture needs to mirror the design process and is made up of three parts:

> First, identify the specific issues that the war game needs to examine (capabilities, skills, assets, plans, procedures) that are the objectives of the event.
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> Second, describe the relevant aspects for game conduct, such as player decisions, player understanding of existing plans, problem solving approaches, command and control networks, kinetic/non-kinetic applications, and logistical considerations. This allows the adjudication team to build a representation of what game issues are of importance to the players and the analysts. The architecture helps define the game design and guides adjudication.
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> Third, estimate the expected player tasks based on what the game design is created to achieve (expected decisions that the player may consider). The adjudication architecture is constructed out of the environment with which the players interact, the game scenario, and the expected actions taken. These elements are intertwined to support the process of adjudication. This process allows for the adjudication team to start from an existing position vice start determining the process as the game is underway. It also permits the analysts to capture data associated with the subject matter experts, adjudicators, designers, as well as the players.

The adjudication effort is also closely tied to the analytical effort integral to the designer's desire to reach the game objectives. The game must be shaped in such a way as to garner information that is required to address the proposed research issue – again, gathered from carefully crafted research questions. Not only is the right research question important but the methodology to

address the question is essential to success. In the context of war gaming, the methodology of answering a question matters as much as asking the right question. The method of inquiry motivates knowledge and can determine what is discovered. In terms of military operational gaming, an accepted hypothesis dominates thinking and creates a kind of perceived truth. It creates a mental obstacle to creative thinking and ideas. By asking questions, it is possible to constantly test existing hypotheses and probe for potential alternate solutions. A methodology that probes hypotheses will inevitably lead to progress. The adjudication architecture must mirror this approach.

Following articles will discuss the generation of the adjudication plan, the conduct of the process and feedback mechanisms necessary to ensure player participation.