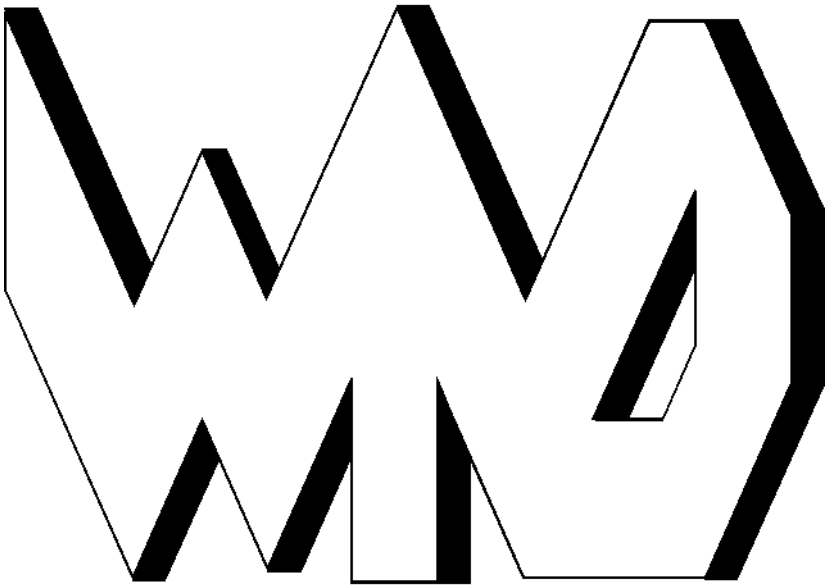
The Wargame Developments



Handbook

Third Edition

Editors John Armatys and John Bassett OBE

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First Edition, March 1984 - edited by Jim Wallman
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The Wargame Developments Handbook
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Introduction

It is over 25 years since the last edition of the Wargame Developments Handbook was published, paper copies have long been out of print, only part of the handbook was available on the Internet, and WD and wargaming have developed a lot in the ensuing years. So we are pleased to present this new edition, which retains the objectives of the first edition:

a) to provide an introduction for new members to some of the ever increasing jargon thrown about in WD-ish conversation; and

b) to act as a sort of 'quick reference' to existing members on subjects they may not yet have looked at seriously.

We have retained many of the original entries which are now obsolete for the benefit of scholars of the history of wargaming and in the hope that some of them might prevent people from reinventing the wheel and possibly inspire further development.

The handbook is intended to be a guide to WD and not an encyclopaedia of wargames terms. Those seeking a glossary of professional wargames terms should download William L. Simpson Jr.'s "A Compendium of Wargaming Terms" (Updated 8 July 2018) https://www.mors.org/Portals/87/Documents/Communities/Wargaming-CoP/2020-A-Compendium-of-Wargaming-Terms-8-July-2018.pdf.

We have tried to provide examples from Nuggets 193 onwards, which are available for members to download from http://www.wargamedevelopments.org/.

We are most grateful to Evan D'Alessandro, Michael D'Alessandro, David Burden, Nick Drage, Tim Gow, Russell King, Alex Kleanthous, Tom Mouat, Vishalji Odedra, Ian Robinson, Jim Wallman and Mike Young for their contributions and suggestions which have made the handbook more comprehensive than we could have managed on our own.

Finally Wargame Developments as an organisation has no collective opinion, the opinions expressed in this handbook are those of the authors, and do not represent opinions universally held by all of the organisation's members. WD is about debate, so if you have any comments, suggestions or complaints please contact The Nugget.

John Armatys and John Bassett.

What is Wargame Developments

Wargame Developments (WD) is a loose association of like-minded wargamers who are dedicated to developing wargames of any type whatsoever. Its aims are:

- to provide a forum for the exchange of new ideas and concepts.
- to develop both new and existing methods of recreating military conflicts.

We don't want to impose our ideas on anyone, or establish a rigid line on rules or game formats. Wargames are a recreation - we want to see people doing their own thing, and that means encouraging them to see that "do it yourself" wargames can be every bit as good as or even better than "ready made", and a lot more fun into the bargain.

WD as an organisation has no collective opinion, only the individual opinions of its members.

WD is a non-commercial, non-profit making organisation. This does not mean that members of WD do not play commercial games or sell the games that they have developed.

"In WD, we make our own rules"

You can find out more about Wargame Developments by visiting http://www.wargamedevelopments.org/.

The Origins of WD

by Paddy Griffith

Wargame Developments was the product of a conference held at Moor Park College, in Surrey, in the spring of 1980. The conference was called “New Directions in Wargaming” and it brought together a number of wargamers with the aim of looking around the hobby and making suggestions as to how it might be improved, or how new types of game might be created.

The Moor Park Conference was my brainchild, and it arose from a number of different trains of thought which were chuffing around in my head at that particular time:

- There had never been, apparently, a meeting of wargamers with the sort of aims envisaged here. The normal wargame convention was not designed to promote deep discussion on the hobby, but rather to show off physical artefacts and finished games. Maybe a residential weekend could be different.
- In a long and stimulating correspondence with Andy Callan and in debate within Don Featherstone’s “Wargamer’s Newsletter”, I had become aware of many unsatisfactory features of the hobby. Sensible military history did not seem to be played very much, and game mechanisms often seemed to be over-complex and unplayable to all but the obsessional zealot. In addition to this I was interested in clarifying my mind about the morality of wargaming, since it raised many important questions which wargamers seemed unable or unwilling to face. The Moor Park Conference was therefore intended to produce some solutions to problems of all these types, or if not solutions then guidance for future progress.
- I had previously run a number of small events (weekend wargames, evening classes on wargames etc.) which had convinced me that many intelligent wargamers existed who enjoyed discussing these problems. I had also found that the process of discussion could produce valuable and unexpectedly practical results. “Talking Wargames” was not only a pleasurable activity in its own right, but it could materially add to our practical activities. Many possible game structures could be imagined which had apparently never been tried out, but which a little thought might bring into fruitful bloom!
- I was aware that the recreational wargaming hobby was by no means the only set of people active in wargaming. Military professionals, schoolteachers, re-enactment societies were all in the same field and could all perhaps teach us useful lessons which we could adapt to our own ends.

The conference seemed to agree with most of these assumptions, and before it had finished we had established a society called “Wargame Developments” which should have two main functions - the production of a regular magazine to discuss the subjects of interest to us, the “Nugget”, and the organisation of regular residential conferences similar to Moor Park. We also recognised that local, partial or extraordinary meetings might be called to help keep members in touch with each other. A distinct need was felt to “stick together” in the face of the majority of people in the hobby whose aims we did not share.

Andy Callan’s keynote speech at the conference seemed to sum up much of our thinking on this when he drew a distinction between wargamers who come to our hobby from a genuine interest in military history and the culture of past ages, and those who are in it just for competitive gaming with colourful “chess pieces”. He

showed how the latter were in the majority in the hobby and how the needs of their type of game caused a great deal of violence to be done to history. The idea of "cross cultural games", for example, in which Ancient Greeks could happily fight Medieval Crusaders, was historical nonsense. What we in Wargame Developments had to do, he suggested, was to work towards games which were not historical nonsense and which satisfied people whose interests extended beyond merely competitive or competition gaming.

And that, I believe, is what "WD" has tried to do ever since.

Editors' Note

This article was originally published in the first edition of The Wargame Developments Handbook and was reprinted in the second edition. Dr. Paddy Griffith, the founding father of WD, sadly died in 2010. A brief biography can be found here https://en.wikipedia.org/wiki/Paddy_Griffith.

COW (The Conference of Wargamers)

COW is WD's annual weekend gathering. Each conference includes plenary/core, workshop, and practical wargaming sessions.

In terms of Wargame Developments as a "living" organisation, the annual summer conference is the focus of the year's activities. The objective of this event is to allow 50 or so members to meet together to discuss the ideas that have appeared in the Nugget, demonstrate new ones and generally swap ideas on wargaming over the course of a full weekend.

We felt the need to establish an event that would be different in character from the "traditional" wargame convention. The latter tend, with rare exceptions, to be overcrowded and high paced events, with the emphasis very much on selling commercial products and thrashing through assorted rounds of competitions, with the spectators having to crane their necks to get a glimpse of the games on offer let alone have the chance to discuss them with the players. In short, too many people trying to see too many things in too little time.

In contrast we have established a much more relaxed style for our conference. We hire a venue for a whole weekend (Friday evening to Sunday afternoon) and pay for full board and lodging so as to give us the maximum amount of time for the business in hand. We had established a regular booking in early July at Knuston Hall (an Adult Education College near Wellingborough, Northants) which hosted COW from 1981 to 2021.

Sadly Knuston suddenly closed in the spring 2022. We were fortunate to be able to relocate COW at short notice to the Defence Academy, Shrivenham. It is likely that COW will in the future be an itinerant event, the Conference Organizer would be pleased to receive suggestions for suitable venues.

The aim, then, is to spend a whole weekend playing and talking wargames, and we try hard to establish a good balance of these two functions. We usually open the conference with a plenary session involving all the attendees who wish to join in, first of all to enable everyone to meet each other and secondly to try and establish an overall mood for the conference. The rest of the Friday evening is usually taken up with what we style “after dinner games”, a series of short, enjoyable wargames with the emphasis very much on player participation rather than any radical innovations.

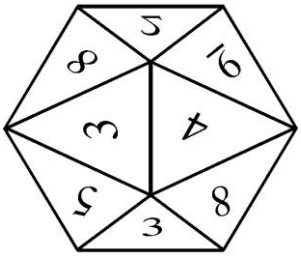
Saturday and Sunday are then devoted to the main business of the conference. We have a series of theoretical and practical sessions which we call, respectively “workshops” and “demonstration games”. The workshops can cover a range from the extremes of theorising (e.g. “the morality of wargaming”) to discussions of very practical wargames problems (e.g. how to wargame a particular period or variety of warfare). Overall the intention is to get a group of about a dozen or so people who are interested in the theme in question to swap ideas on the subject and generally try to achieve more in a couple of hours than would be possible in a whole series of “Nugget” articles. The demonstrations, by contrast, consist simply of someone showing off a new set of rules or game format with the aim of stimulating constructive criticism or merely giving ideas for the participants to take away and adapt to their own uses. With no great pressure of time or need to reach any definite conclusions, the mechanisms of a new set of rules can be played through, explained at length and discussed at leisure - a process that is invariably beneficial to all concerned.

By the Sunday afternoon we are all usually suffering from a mild form of “battle fatigue” caused by the barrage of games ideas and beer that has filled the weekend, but the conference weekend, although in a sense “hard work”, is above all a social event. If WD restricted itself merely to writing about wargames then accusations of an “ivory tower” outlook would be wholly justified.

The principle aim of the conference, therefore, is to give members a chance to meet the people who’ve had the ideas they’ve read about in the Nugget, see those ideas demonstrated and to give attendees a chance to try out their ideas, often in an imperfect or partially finished form, for an audience that will be forgiving of any imperfections and will provide valuable constructive comment.

The Nugget

The Nugget, the Journal of Wargame Developments, contains articles, comments, games and letters about every aspect of developments in wargaming, including reports on games played during the WD Conference of Wargamers and at VCOW. Separate volumes of reports were published for COW 1989 to 1992.



The Nugget (the name is from Paddy Griffith's nickname for a twenty sided dice), was first published in November 1980. Since then it has gone through several different formats:

- Nuggets 1 to 14 were published bi-monthly and were in an A4 format. The editor was Paddy Griffith.
- Nugget 15 to 50A were published bi-monthly and were in an A5 format. They were edited by Paddy Griffith (Nugget 15 and Nugget 50A), Arthur Harman (Nugget 16 to Nugget 34), Chris Kemp (Nugget 35 to Nugget 45), and Guy Farrish (Nugget 46 to Nugget 50).
- Nugget 51 to 68 were published nine times per year and reverted to an A4 format. They were edited by Bob Cordery.
- Nugget 69 onwards have been published nine times per year in an A5 format. They have been edited by Tim Price (Nugget 69 to Nugget 123) [with the assistance of Bob Cordery as co-editor during Tim's service as a staff officer with NATO's IFOR in Bosnia], John Armatys (Nugget 124 to Nugget 183), Jonathan Crowe (Nugget 184 to Nugget 210), Alex Kleanthous (Nugget 211 to Nugget 272, and Matthew Hartley (Nugget 273 to date).

Nuggets from 193 onwards are available to members as downloads from the WD website.

Game Design

Aims and Objectives

The most important element of any game design is setting your aims and objectives. These come from your initial decision to design a game, based perhaps on a book you have just read or a film you've just seen, whatever the inspiration, it creates your first aim. Most common problems in game design can be traced back to having woolly aims. If you don't know exactly what you want the game to be about - how can you hope to design it successfully? You must be clear about your aim. One of the best ways of establishing an aim, and sticking to it, is to write it down. Amazing though it may seem, writing down your objective can be harder than you think.

Let's take an example: "I want to do a game about the Battle of Buena Vista in 1847." As an aim this is pretty pathetic - and should be followed up with the question "why?". It may be that you are fascinated with the operation of the mobile artillery batteries that were a feature of this battle. You must, therefore, identify which aspects of this obscure battle interests you. If the aim is to play a game of the entire battle as a whole, then there are different game design considerations to those you will need for, say the actions of one regiment in the battle, or the general strategic problems of Gen. Santa Anna and Gen. Taylor in the Mexican War. All of these are legitimate start points for game designs, but will require different approaches from that concerning the operation of the mobile artillery. The answer to this initial question, therefore, determine the following design steps.

Design Considerations

When dealing with game design there are two main areas to be considered: Structures and Resources. These are not, however, to be taken as separate and independent stages, as the design process is iterative, with each area being revisited in turn several times before the design is finalised.

Structure

There are four main areas that need to be considered under structure:

a. Command Level

What are the players going to do? You must always be clear about what the players are going to do, and the sorts of decision being taken by them at the level they are supposed to be representing. This is an important element of the research on any game, since you have to get an idea of the decision making process in the real-world situation you are simulating. In the Buena Vista example - you might ask yourself:

i. In the case of say, the regimental commander, what decisions does he take?

ii. How often does he take decisions? (once per battle, once per hour, once per few minutes?).

iii. Do his decisions have any impact on the outcome? (He might be deciding whether to have red or white wine for dinner...).

Armed with the answers to these questions, then imagine yourself sitting down and playing. Would a player have enough interesting things to do at the level you have chosen? Do commanders at that level have freedom of decision-making or must they closely follow orders? You must have some idea of the real-life decisions taken at this level.

b. Resolution

The resolution of a game should normally be two organisational levels below the player level. Hence if the game is set at divisional level, resolution should normally be battalion, or if the game is battalion level, the smallest unit would be a platoon. This should not be slavishly followed, but it is the way real military commanders are taught to think when planning - “Two Down”. Resolution is important - a game set at brigade level with battalion resolution (One Down) would mean that the player only had 3 or 4 units to make decisions for, in such a case unless the game system had terrific time pressures, the players would be likely to be bored. On the other hand, a game set at brigade level with platoon resolution (Three Down) would give the player typically 27-36 sub units to consider, which is probably too much unless the player had several hours to complete each round.

Having made sure that the players’ roles are consistent with the command level and resolution of the game, it is also important to ensure that the players are all operating in the same time frame. One problem with introducing logistics at anything other than an abstract level to a game involving fighting is that the players are being asked to represent people who in real life operate in different time frames, for example the combat might be run in one hour turns, with the logistics calculated on a daily basis. This is likely to result in an unsatisfactory experience for the logistics players in a multi-player game, and in a two player game means that participants are representing different roles.

c. Game Type

In wargames there are a great number of game types. Each of which has advantages and disadvantages when considered against the Aim. A key decision to be taken at this stage is whether the game is to be Open or Closed. The degree of closure is vital when deciding on basic game type - for example it is very much harder to have a high degree of closure on a two-player board game. You need to be clear why you are selecting a particular game type; and at this stage you should not necessarily arrive at a single game type - but a short-list should be apparent early on. Be clear why you are excluding particular game types as well as why you’re including others. Few Aims can be met by all game types. Unfortunately, only experience can tell you what does and doesn’t work for a particular design.

c. Game Layout

In terms of pure game design, the layout of the venue should be of minor importance; but in the real world, we have to fit our games into the spaces available. If you are fortunate enough to be involved in a group that has access to a large hall or conference centre, then this is less of a problem than if you are running games in a friend’s dining room. Here again, the layout of the game is related to the game type and the degree of closure. Let’s look at how the game layout can be influenced by some of the game types we might consider.

Game Type	Layout Consideration
Figure Wargame	Needs space for table. One room, space for props etc.
Map Wargame	Can be done on one table with screens but usually multiple rooms required.
Committee Game	Normally single room with chairs as a minimum, table a help.
Megagame	Space for multiple teams, either at separate tables in a large hall, or a large number of separate rooms.

To recap; in defining your structure, you should have a number of potential game types, and a reasonably clear idea of the game layout, the command level of the players and the resolution of forces represented.

Resources
The main resources you will have are your audience, time, equipment and venue.

a. Audience
The first question to ask is: What will they put up with? The second factor is knowing how many you get to play. In practice you do need to be flexible. It is not a good plan to design a game for a precise number because you often need to accommodate an extra player or a few less. Finally, ask yourself what can they cope with? The abilities (or otherwise) or the players are important factors - it is no use designing a game that requires half the players to be able to speak French if none of them do. Related to the above point, you must also consider the audience's needs, in other words you should have some idea what they want from a game. It is not a bad thing to challenge their preconceptions occasionally - but you should avoid doing it too often, or you'll end up a solo gamer. For example in WD we expect a historical game to be reasonably realistic. Again the size, ability and expectations of the audience have an influence on the game type. In many cases the main expectation of the audience is merely the game type (i.e. figure game, board game, commercial RPG etc.)

b. Time
The most important question here is: How long have you got? This has an effect on the game type selected, since some game types take a lot of setting up (e.g. figure games), and the complexity of the design will affect whether there is enough time to see the game through to a satisfactory conclusion. The calculation of time is important as it is often ignored. Let us say that at the Battle of Buena Vista, the action we want to simulate took 6 hours. We plan to play it in 3 hours at a club meeting. So, the key questions are how long does it take to process a move and how many turns will be required to bring the game to a conclusion? Much of this will depend on the mechanisms chosen, but the mechanisms are themselves dependent on how long you have to resolve the battle. Let us say that you expect it to take 10 minutes to resolve a single game move. Simple maths from the assumptions above will tell you that each game move must represent 20 minutes of battle time. From this falls out how much detail you can afford to include in your rules in order to ensure that a game turn is resolved in the required 10 minutes. Understanding this is fundamental to good game design.

c. Equipment
This is determined by the game type you choose. It is not a particularly sensible idea to choose a game type just because you have the equipment to do it that way (figure games are a classic example). Similarly, if you cannot get the equipment together for your chosen game type, then you are forced to look at alternatives.

d. Venue

This is linked directly with the game layout. The availability of the possible venues may also affect other things such as the Audience if, for example, the large conference centre required by the game design is only available during a weekday, when most people are working.

Testing the Design

The final part of the design process is testing. Refer back to your aim. It may be that the game you have outlined to meet the aim is actually very dull, or not what you wanted. Perhaps you should have thought more about the aim? Go back and change it: Rewrite or Discard? You might find that after going through a design process, the game is not workable in the way you want. Be prepared to discard it! Pressing on regardless may be a measure of your determination but it will earn you no thanks from your audience. Even if you do not complete the design, or turn it into a game, write it up and send it into The Nugget, so that others can learn from your mistakes

Writing the Rules

I have left this to the last because it is the easiest and least important part. Often wargame rules are merely a collection of mechanisms only loosely held together by a central model or a game design if at all. Writing game mechanisms is simple, and everyone can do it with a little thought and practice. If you have the design structure right, the mechanisms usually fall into place. If they don't, this should set alarm bells ringing as to your design structure.

After Game Review

Finally, after you have put on your game you should critically examine it (however well or badly it went) as there are always lessons to be learned. You should be aiming to improve the QUALITY of your game by accepting CRITICISM and carrying out further DEVELOPMENT in the light of playing experience. If this means re-examining the whole project from the Aims onwards, then so be it - the design process is a continuous one.

Summary

1. Set Aims & Objectives.
2. Examine Design Considerations:
    a. Structure:
        i. Command Level
        ii. Resolution Level
        iii. Game Type
        iv. Game Layout.
    b. Resources:
        i. Audience
        ii. Time
        iii. Equipment
        iv. Venue.
3. Test the Design.
4. Write the Rules.
5. Play the Game.
6. Carry out After Game Review in the light of: Criticism, Development and Quality.

Umpired Games & Free Kriegsspiel

Umpired Games are games in which certain actions are performed by a neutral party. This can be limited to merely resolving the rule disputes in a “traditional” game, or can involve organising the entire structure of the game to properly model such things as Hidden Movement and limited intelligence. Most WD games involve an Umpire in some shape or form.

The Importance of Game Structure
The shape of any wargame is profoundly affected by its structure. This goes beyond the details or rules, or even rule mechanisms, but includes the really basic questions of how the players stand in relation to each other and to the rules.

In most wargames there are only two participants, both of them players; They both know and apply a set of rules, and can therefore verify that the rules are used correctly; The players can also see all the pieces laid out on the board before them, and can supervise everything that happens in the game. Open Games of this type are designed to maximise the possibilities for competitive play between the two participants whether or not the game is played as part of a competition, and regardless of the “competitive spirit” of the players. It is this game structure - which is so similar to that of Chess - which places two people in a competitive relationship with each other, and thereby tends to minimise any vagueness or “subjectivity” in the rules.

The Fog of War
In real war, however, there is a great deal which is vague or unknown to participants, and the conventional wargame can be seriously faulted for making everything seem too clear-cut and easy to see. In real war, no commander can know everything which happens “on the other side of the hill” - or even what happens in his own army once his back is turned. No wargame can truly be realistic unless it places some rather significant filters to knowledge between the players and the full “facts” of the battle they are purporting to fight.

Many attempts have been made to introduce hidden movement and other uncertainties into the conventional two-player game; but these have usually been clumsy or limited in their effects. To ensure a really effective fog of war it is necessary to introduce a third participant into the game - an active umpire.

An active umpire’s job is to note down the moves which each side wishes to make, and then find the results. The umpire will tell each of the players only those things which in real life they would be able to find out - e.g. troop movements within visual range of their own positions, and so forth. In this way the players are relieved of the task of running the game, at the same time as they play in it, and the intelligence available to them is realistically limited.

Advantages and Disadvantages of an Active Umpire
Active umpires are often suspect, in the wargaming community, because their function is to take the running of the game out of the hands of the players. This means that the players can no longer verify “whether or not the combat results were fair”, and the suspicion of umpire bias is quick to appear. In real war, however, the decisions of fate are scarcely noted for their fairness, and any wargame based upon

perfect equality and justice between the two sides will make a very peculiar simulation of reality.

On the other hand active umpires must know their business. They must listen carefully to precisely what it is that the players wish to do, and must weigh up the odds for each different type of outcome. If they are deciding the results of combat by the use of a set of rules, they must know the rules and be able to apply then quickly and accurately. Finally, and perhaps most important of all, they must relay the results back to the players in such a way that they understand what has happened, and are given all the information to which they are entitled (but no more). The umpire must "paint a picture" to the players in such a way that they will accept his or her rulings and the historical reality of their predicament.

Active umpiring is a skill which takes practice and a certain amount of study, but it is within the grasp of many wargamers who assume that it is not. Why don't you have a go at it and see? You will also find that it can be fun, for although it does not bring the excitement of a player manoeuvring an "army" against an opponent, it brings the subtler pleasure of controlling events and re-writing history from the outside.

One of the most powerful arguments in favour of the active umpire system is that it helps the players to concentrate upon playing their roles. They do not interrupt their action as army commander in order to process the rules, throw dice etc... the umpire does that all for them. Also they need no longer act as battalion commanders, manoeuvring individual units, at the same time as they are trying to run the army. Again, the active umpire can give decisions for each battalion, and allow the player to perform only those acts which in reality would be the province of the army commander.

Free-Kriegsspiel

In Free-Kriegsspiel two opposing courses of action are explained to an umpire who decides on which course will prevail, based on historical precedence, personal experience, reasoned debate and his or her own judgement. There are no rules to resolve battles, although there may be movement and deployment tables. So called because it was the method used in the later (post 1870) examples of the Kriegsspiel. (See Kriegsspiel).

The original 19th Century military wargame was played as an "active umpire" game, with the blue and red players each in different rooms, and the umpire making decisions in a third. At first umpires used complex sets of rules to reach a verdict on what had happened, but eventually it was found that this process was too laborious and time-consuming. The "free" wargame was preferred, whereby the outcome of actions was decided by the umpire, without rules, simply according to what he or she felt were the military probabilities of the situation.

The free wargame speeded up umpiring and at the same time eliminated the rigidities and clumsiness inherent in all sets of rules. Greater flexibility was given to the decision-making process, because each individual situation could be analysed fully according to its own specific merits. It did not have to be fitted into the sort of abstract formula which rigid rules demand. A greater sense of immediacy could be brought to the game.

In modern recreational wargaming the "free kriegsspiel" system is unpopular because it is more "subjective" than umpired games which use rules. A free

kriegsspiel unashamedly rests upon the whims and fancies of the umpire, unrestrained by any rules. To many people who need the crutches which rules provide, this is heresy. They believe that the whims and fancies of a remote rule writer are somehow more valid than the whims and fancies of a rule-giver who is present in person. They also demand the repeatability which written rules can give, and are horrified by the fact that every “free” wargame is unique and un-exportable to other groups of players.

The mature wargamer who takes history seriously, however, will realise that it is actually less realistic to write down probabilities for every conceivable situation, than to look at specific situations, in all their complexity, and give rulings upon them as unique events.

All it needs is an active umpire who is reasonably conversant with the historical period being played, and who is capable of assessing a wide range of factors in a short space of time. It takes a little practice: but in fact there are far more wargamers capable of developing these skills than many people imagine. The great advantage of a free wargame, apart from its elimination of long-winded rule books, lies in the fact that it brings an active consideration of historical changes and probabilities into play itself. When there is a set of rules, this consideration must take place before the game, during the process of rule-writing. Players who use rules written by someone else will not need to look at the history at all. But in a free kriegsspiel this is precisely what the umpire has to look at all the time.

The Muggergame is a method by which all the players, not just one umpire, can take part in this consideration of history. A Muggergame is a kind of Free-Kriegsspiel without an umpire.

Editors’ Note
This is an updated version of an article by Paddy Griffith which appeared in the first edition.

Muggergames

A Muggergame is a game where the overall result is decided over a number of intermediate steps, by the consensus of those playing, based on historical precedent and reasoned judgement. It usually takes the form of a Tabletop Game, but without any “rules”. An excellent research tool for finding out why things happen, as opposed to merely finding out what happened. Muggergames work best when considering elements outside the details of combat resolution. The disadvantage in recreational (as opposed to educational) Muggergames about battles is that the participants are little more than spectators on the battle unfolding, as there is deliberately no competitive element.

The Muggergame was invented by Paddy Griffith. Its curious name derives from Dr. Griffith’s mischievous opinion of those who dared play it as “mugs” and of his own umpiring role as a “mugger” - for, unlike most wargames, the Muggergame combines the roles of rule-maker, scenario-writer and player simultaneously into one, while relegating the umpire to one who, having set up the game, confines further participation to insisting that players do for themselves what umpires have always traditionally done. The baffled and horrified reaction of its first Napoleonic players on being refused this usual recourse to the umpire, aptly justified the game’s odd appellation, but also produced a thoroughly worthwhile exercise.

There have been a number of Muggergames at WD Conferences, and perhaps explaining two of them will help explain their unusual structure.

The first was played with 25mm figures using the whole floor of one room, with chairs all round on which players paused to discuss developments before kneeling to move battalions across a rudimentary terrain. The game was loosely structured, educational, and anti-competitive, and the players, ranging from the Napoleonic buff to the complete beginner, soon realised that discussion and evaluation were profitable substitutes for argument and arbitrary decision. Its merit lay in the number of players (more than a dozen) and the constant interchange of ideas. At a given point - for example, which of two suddenly-visible battalions one’s own unit should attack - it was possible to appeal to several nearby players, who, when not involved in their own move, could give more or less informed opinion on the matter. Thus one’s own ignorance was not at the arbitrary mercy of a rulebook, and one ended up knowing why such a move was the most likely.

The second was altogether broader in scope, and consisted of five groups simultaneously performing an allotted manoeuvre, while their own umpire provoked discussion and noted decisions. It was played with 5mm figures on a table-tennis table liberally scattered with assorted greenery; the groups acted independently of each other as they concluded how to represent a marching force, and overnight camp, and the preliminaries to a battle in the context of the invading Danish army of the ninth century. This provided food for thought and discussion while offering new perspectives on a little-known period.

The Muggergame, then, promises to reappear in various periods and with various objectives at WD Conferences. Whether you are an expert or a complete beginner, forget about beating your opponent for an afternoon and enjoy and contribute to this most relaxed and edifying of wargame exercises!

Map Games

A Map Game is a game based on a map. This may be a real map of the terrain, dating from the period; or could be a sketch map representing only the important elements in the conflict to be examined. Some kriegsspiels were played using lead counters sized to represent unit formations, on an enlarged terrain map. Map Games are often played in a Back-to-Back game format.

The map game offers a number of attractive features for the wargamer. One, not inconsiderable, point in its favour is that of cost: for the price of two or three copies of a map (plus clear acetate covering and marker pens) it is possible to experiment with large scale operations without the expense of assembling costly model armies. Indeed, for the larger game set at corps or army level, figures are a definite drawback. The relative ease with which these games can be set up greatly facilitates experimentation with other periods, allowing players to get the “feel” of operations without using toy soldiers.

As the design of scenarios is limited (within historical constraints) only by the umpire’s imagination, games can be run covering the most obscure or specialised conflict, perhaps on a one-off basis, for which figures might not even be available. Nor is it necessary to use commercially produced maps. Hand drawn designs, simple yet functional, will often suffice - in fact they can often add a touch of period flavour (one Viking raid game had a different hand drawn map for each captain, the amount of detail given being varied to represent his own personal knowledge of the coastline and inland areas). The use of blank maps, to be filled in by the players’ scouts, can be inserted into games as up to date as WW2 (the Eastern Front and North African theatres come particularly to mind). Finally, between the modern Ordnance Survey type map and the hand prepared version designed by players, there is a third option - that is to use copies of original maps dating from the period of the action which is being refought. Apart from the aesthetic appeal, reproduction period maps can show players geographical features which may have changed out of all recognition on modern maps. Old forests, town boundaries, road/track networks, even the size and course of rivers, are features which would have played a part in any historical commander’s planning. Suitable small scale reproduction maps are normally limited to the late 18th and 19th Centuries (the time that surveying was put on a professional footing). Those interested in earlier periods need not feel left out, however, as the Ordnance Survey produce a few maps of Celtic, Roman and Anglo Saxon/Conquest periods. For local maps ask the librarian of the area if their archives department can help. The map game can contribute towards a greater understanding of higher strategy and features such as logistics, route planning and communications, which are either inappropriate, fudged or forgotten on the tabletop.

Voice Games

In a Voice Game the players give verbal orders. This implies a hierarchy of players, short time intervals and small tactical elements, for example the operation of a tank squadron. Many Control Panel Megagames are Voice Games above the tactical level (within the player hierarchy) as, by definition, are all Telephone Games or Battles.

“With your Voice you can lead or not lead”. The Israeli officer who spoke these words obviously felt that effective leadership depended on more than devising a brilliant plan and ensuring that the troops reached the Start-Line on time. He felt that it was vital for troops in battle to hear the voice of their commander.

In the Army as in civilian life, the success of your activities will often depend upon how effectively you can communicate. Voice Gaming offers a chance to escape from the sometimes almost monastic atmosphere of many wargames and replace it with the atmosphere of COMMAND.

An attempt to capture this atmosphere has been made in a game of tank warfare at Squadron level. Players take the roles of tank commanders and receive, and issue, orders verbally to each other over an intercom if one is available. Each turn in the game lasts only 60 seconds and during this time up to six people may be trying to transmit their own very personal and urgent messages based on the view of the terrain model in front of each of them. It is a challenging task for the higher commander to build up a picture of the battle from the radio conversation and to issue orders of which his or her juniors will take notice. This game was designed specifically to highlight the problems of communication in battle, but it is also quite easy to introduce an element of Voice Gaming into more conventional games. Readers will know of the many occasions when troops on the ground had to “talk in” aircraft to attack targets close to them. The conversation between ground troops, Forward Air Controller and the pilots can actually be played through in the time which was available to the real life participants. The problems of rapidly identifying a point on the ground by a description relayed by a third party are demonstrated much more vividly with this method than, for example, by throwing a few dice.

Another method which has been used to simulate the babble of a radio net in combat is by means of a small cassette recorder. Each turn, players have an opportunity to speak into the microphone for a short time - when all have finished the commander issues instructions into the recorder and the whole lot is played back and each player listens out for the reply to his or her particular call.

A set of rules which uses dice to obtain results will probably not be any less realistic than one where results are produced by players talking to each other. The point about Voice Gaming is that it forces us to concentrate, for a few moments at any rate, on the difficulties facing real troops trying to make decisions under stress. This should remind us that in wartime soldiers are not able to view the battle as dispassionate outsiders but have to build up a picture formed of blurred and fleeting images, often in an extremely noisy environment. Having formed a plan based on this imperfect information, a commander then has to communicate it to the troops, who are themselves operating under similar constraints. In the same way, players in a Voice Game will be faced with at least some of the same restrictions.

Multi-Player Solo Games

A Multi-Player Solo Game (or Co-operative Game) is a game, usually with a tabletop format, in which all the players represent only one side of the conflict being examined. The opposition can be a Programmed Enemy or played by Plumpire or a small team of Plumpires. See Back to Back Game.

The Multi-Player Solo game structure is ideal for any game situation in which there is limited visibility, such as night actions or jungle warfare. The players are placed in a position where they have very limited information about the enemy or even none at all! The psychological effect of this on the players can be quite astonishing. No longer are figures moved carelessly about the table. They now advance cautiously, making use of every available cover, guarding each other's backs. In other words acting realistically in a situation where every bush or tree may hide an enemy sniper.

How then is the enemy controlled? The easiest way is by an umpire or team of umpires. This, of course, is the method used in the role-playing games. Such an approach is very flexible and the umpire can adapt quickly to a fast changing situation. The umpire is also able to introduce frustration factors, such as the unexpected appearance of a stray herd of animals in the middle of a firefight! The other way is for the enemy to be controlled by some kind of program, on a specified sequence of actions. This may be a rigid sequence with no provision for changing the course of the enemy's actions once initiated. Alternatively, the program may include any number of random factors which may change the course of events to a lesser or greater extent. These random factors (easily handled by rolling a die against a table of possible actions) may take into account the actions of the active force if desired, thus giving the programmed force some degree of artificial intelligence. Taken to the logical extreme, the programmed force could be controlled by a computer program.

There is no obvious reason why the Multi-Player Solo technique could not be applied to any period of wargaming. It can also be used for any level of game, although it is probably slightly better suited for the low- level skirmish or small unit action.

It is also quite possible to gain an interesting insight into game design and the different thought / planning processes of players, by having a game that is presented to the players as a Back-to-Back game, but is in fact a Multi-Player Solo game - with both players actually representing the same side against an umpire-controlled enemy.

Recent examples include *Boots on the Ground* (see Nugget 274) and *Cluedo Hostage Rescue Team* (see Nugget 341).

One Brain-Cell Rules

One Brain-Cell Rules are rules, usually taking up no more than two sides of an A4 piece of paper, which require only one brain-cell to understand. They are often specific to a single battle and are designed with playability as the first priority. See Game Design and Top Down Game Design.

The definition is simple - writing One Brain Cell rules is not so simple. The design of the rules starts with a series of assumptions. These are:

1. The Level Of Operations. This means asking the question “Who is the player supposed to be?”, and assumes that the player is only one person. The player should not be expected to be a divisional, brigade and battalion commander all rolled into one. The options open to a specific commander are generally few, and easily defined.
2. The Level of Detail. A corps commander’s One Brain Cell game would not separately identify battalions since corps commanders would not make decisions on the deployment of battalions within brigades. A rule of thumb for judging level of detail is to only represent two command levels below the player’s level of command. That is, a company level game represents units down to section level or a divisional game down to battalion and so on. Having arrived at the level of detail, matters such as scale and details of combat resolution tend to fall into place.

The precise details will be tempered by the sort of game you want - clearly a WW2 skirmish game will require different combat results mechanisms to a Napoleonic corps level game. In general, combat results calculations are the best area for simplification. Clearly, to analyse combat step by step in the conventional manner (i.e. movement, morale, firing, morale, close action, morale etc.) to arrive at a result is much more difficult to learn - and play.

No matter how well the period is researched by the rule writer, there always seems to come a point when you must guestimate the results. It is illogical therefore, to produce a combat results table that provides results to a high degree of detail. What is more desirable is to tailor your results to your previously defined period and level of detail, and reflect the tactics used in the combat results. It would also seem logical to assess which of the possible results had occurred as the first step in resolving a combat result. Once you know who has won, the rest, such as casualties, morale and so on, become much easier to assess. That briefly is the One Brain Cell ‘concept’. It is not just “rules on a postcard”, although brevity helps, neither is it simply a playsheet from a larger set of rules.

The essence is playability, simplicity and realism, Having decided upon level, and reduced combat to its essentials (i.e. what decisions could be made - and hence what difference to the combat result does that decision make?), it should be possible to provide a simple set of rules that satisfies the players with a knowledge of the period in which the rules are set, without knowing anything about the rules beforehand.

Tactical Exercise Without Troops (TEWT)

A TEWT is a game designed to be played over a real piece of terrain with the players representing only the commanders of the forces engaged, with the Umpire detailing what they can see and the results of engagements. From the real Army training exercise of the same name, used in the teaching of tactical principals.

The ‘TEWT’ or ‘Staff Ride’ has long been an accepted method of officer training in the armies of the world. By taking potential commanders to look at pieces of real terrain, one can accustom then to taking the sort of tactical decisions which the real terrain will demand in real war.

This technique has a lot to offer the wargamer, since indoor wargames always use highly stylised terrain which simplifies and generalises the intricacies of the real world. Players who are used to manoeuvring 20-figure battalions which are three inches long will get a severe shock when they see the sort of ground which a real battalion would have to occupy in the great outdoors. The TEWT can cast some profound doubts upon the whole activity of indoor wargaming, and all wargamers worth their salt should play at least one, simply for the revelations which it has to offer.

The TEWT is more than an educational aid, however, since it can be made into a full wargame in its own right. The same techniques can be used as are applied for indoor games, except that the “board” is the real landscape itself, and the pieces are imagined. Their strengths and locations can nevertheless be written down and explained to other players or to an active umpire. A further difference is that distances may have to be estimated rather than measured with a ruler, but this should pose no great difficulty to the enterprising gamer.

TEWT wargames are probably best played as Free Kriegsspiels with an active umpire, or as Muggergames. Someone should reconnoitre the terrain in advance and provide starting positions and orders of battle for the two sides. Each side then plans its operations, and commanders move to new vantage points as and when their supposed personality would reach them. The umpire moves from one team to the other reporting on how the battle is evolving, and comparing the actions of each side to determine the results of contact. If the area being “fought” over is extensive, the players (and especially the umpire or umpires) will need a means of transport. It may also be a great help for umpires to communicate with each other, and with team leaders, by mobile phone or radio. Where the battlefield is small, however, these aids can be dispensed with. A modern platoon action, or a Napoleonic brigade battle can be played out as a TEWT within an hour or two inside an area half a kilometre square.

It is often alleged that indoor wargames owe much of their charm to the high aesthetic standards of nicely-painted model soldiers. With a TEWT, by contrast, one has all the joys of a country ramble combined with the even more aesthetically satisfying spectacle of an imagined army. The TEWT, in truth, is one of the pleasantest ways to fight wargames that exist.

Simulators

A Simulator is a game, or element of a game, where the success of an action is dependent on the players using their physical skill to perform a task that is representative of the real action required. For example an 18th Century ship's gun crew was represented by six players and a park bench. The bench represented the gun, an elastic bungee the powder, a tennis ball the shot, some house bricks the elevation quoins, and a garden gate the hatch. To fire the gun; the bench (gun) was pulled back and the hatch opened, the rammer loaded the powder (stretched the bungee across the end of the bench), the shot was loaded (the ball placed on the bench), the elevation was selected (one brick, or two, under the feet at one end of the bench) and when the order to fire was given, the elastic was pulled back and the tennis ball fired at the target. Simulators are sometimes referred to as "Cardboard Simulators" because cardboard boxes are used in many games.

You will, no doubt, be familiar, with flight simulators used for training pilots or for home entertainment; the "pilot" sits in a life size "mock-up" of the flight deck or cockpit, manipulating controls in response to the "view" through the canopy and the instrument readings.

Wargame simulators have the same aim: to place the players in similar physical surroundings, where they will be subject to the same limitations as their real-life counterpart, receiving information in a manner that as far as practicable counterfeits that by which it would be transmitted in reality. This may involve the use of high technology computers and the like, or a satisfactory effect may be obtained from intercoms, walkie talkies, or even the notorious "cardboard technology" which is so often linked with WD. The simulator could be regarded as the logical development of wargaming as an illusion of reality.

A more elaborate game was *X-13*, by Paddy Griffith, in which a whole midget submarine was constructed - mainly from cardboard boxes. There was a working periscope, through which the captain observed model battleships whose scale increased as they got closer; duplicate controls enabled both players and umpires to see instrument readings, compass bearings etc., whilst a tape recorder supplied engine noise. Once enclosed in their "craft" the players had to navigate to their target using only their instruments and dead reckoning.

These simulators, and many others, have concentrated, like the training device, upon the crew of an individual vehicle / vessel / aircraft.

The simulator is perhaps the ultimate immersion in which the mental and physical situation is recreated to create an illusion of participating in the events. See *It's a Riot* (Nugget 196). Players in a simulator are often more totally involved in the game than is common in other wargames; the umpires are similarly amused and entertained by their antics!

Committee Games

Committee Games are games in which the players decide on a course of action within a committee format. Usually the players are equal in game terms, although there may well be a chairman, who might be the person running the game. Normally associated with Hidden Briefings to each of the players, some (or all) of which may be mutually incompatible.

This type of wargame has its origins in the management games used by various organisations and in educational role playing games. The players are assigned roles and will have personal objectives to fulfil, possibly at the expense of the overall objectives of their particular team or side. The organiser will prepare a general brief which outlines the background to the game with which all the participants will be familiar. Each player will also receive a personal brief. This will give information specific to the players which will give them something to bargain with in the game. This information may give details of forces or resources under their control. As a secret brief it will also outline their personal objectives (of which other players will be unaware) within the game and let them feel that they are different from the other players, and individuals with their own contribution to make.

It is likely that all the participants will be of equal standing but any hierarchy should be outlined. The overall briefing will have made clear the relationship of the players to each other and the ultimate aim of the group. Play will proceed, usually under the direction of the “chairman” of the committee (who may, for example, be the commander in chief of a council of war) until the required decisions are arrived at. If there is more than one dominant player then arguments may be lengthy and even heated as each player reacts to challenges for dominance by other players.

The organiser may, during the course of the game, present input in the form of events happening outside of the meeting (e.g. updates on the strength and location of the enemy) and at the end may assess the degree of success of the players in terms of their own objectives and the overall aim. If the aim was to plan a campaign it is, of course, not necessary to actually play this through; but equally it can form an interesting start to an otherwise conventional campaign.

Recent examples include:

- *Savage Wars of Peace* (a science fiction game, see Nugget 225).
- *Ahran* (a contemporary game set in a fictitious middle-eastern country - see Nugget 244).
- *Defence Cuts* (does what is says on the tin - see Nugget 245).
- *Sen Tuko* (planning a Japanese submarine attack in 1944 - see Nugget 248).
- *The True Glory* (defence against the Spanish Armada - see Nugget 262).

In summary the committee game is a perfect model of command friction, and as such can stand alone as a game or enhance a conventional game.

Megagames

A Megagame is not simply a very large scale game; but one in which the hierarchy of command appointments in a conflict are represented by a hierarchy of players in these roles. Megagames usually feature 50 to 150 players. There have been a number of tabletop games with similar numbers of players, but these very rarely have the hierarchy of appointments replicating the real chain of command, and are usually simply very large traditional games. The first true Megagame was Memphis Mangler by Paddy Griffith, played at the RMA Sandhurst. There are now many groups running Megagames in the UK and globally. Of these the longest running and best established is Megagame Makers.

Megagames cover a wide variety of subjects and playing styles, from LARP (Live Action Role Play) influenced techniques set in imaginative or fantastical scenarios, to detailed military simulations. For WD's purposes we will concentrate on the latter, which are often called "Operational Megagames".

The single feature which distinguishes the Operational Megagame is the imposition of a command structure on the players. Each player has to be fitted into a framework which models some sort of hierarchy. The actual mechanics of the game are relatively unimportant and could consist of anything from a conventional figure game, through a Map Game or a Free Kriegsspiel, to a mega-Committee game. All of these have been applied within the overall genre of "Megagames".

The main difficulties with the Megagame lie in organising large numbers of players (say around 60 or more on average, but rising to 120 or so on occasion). Full and detailed briefings have to be prepared for all players, numerous umpires (commonly referred to as "control") recruited and briefed on their tasks in the game, and the provision of refreshments must be considered. In a sense the game itself is more about man management than about the handling of armies in battle.

In a Megagame a corps commander would have three divisional commanders represented by actual players - all of whom would therefore present the full gamut of human responses to their orders (i.e. they will argue or put forward alternatives!). This is virtually impossible to fully duplicate using rule mechanisms, and therein lies the great strength and appeal of the Megagame. The players in such a game must react differently to the more common reactions they might have in a conventional game; the question they ask themselves is not "how do I manoeuvre my units?", but more realistically "how do I motivate the commanders under my control - and ensure that they carry out their orders?". Of course, at the bottom of this pyramid of command there may still be wargamers as the lowest commanders, playing what is, to all intents and purposes, a normal wargame of whatever type. In this case, however, they have an active superior, to whom they must account for their actions. They cannot make entirely independent decisions, and they will often be "chased up" by their superior to move faster, or slower etc.

The Megagame is therefore, by virtue of its size alone, a challenge for both players and organisers, but with the additional challenge of "player management" it is unique as a wargaming experience.

Matrix Games

by Major Tom Mouat MBE MSc PGCE

Matrix games were invented by Chris Engle, a psychologist, in the USA, in 1988. They were used recreationally by WD members and others, before being used professionally nearly 20 years later.

Matrix games are different to normal wargames. In a Matrix game there are few pre-set rules limiting what players can do. Instead, each is free to suggest any plausible action or event during their turn. The chances of success or failure, as well as the effects of the action/event, are largely determined through structured argument and discussion. This process allows for imaginative game dynamics that are lively and open-ended, and yet also grounded in reality.

Matrix games are particularly well-suited for complex conflicts and issues involving multiple actors and stake-holders, varying interests and agendas, and a broad range of diplomatic/political, military, social, and economic dimensions. The game system crowdsources ideas and insight from participants, thereby fostering greater analytical understanding.

In a Matrix Game, you use words to describe why something should happen, the facilitator or the players (or both) decide how likely it is, and you might roll a dice to see if it happens (but equally, in the face of a compelling argument, you might not need to).

If you can say “This happens, for the following reasons...” you can play a Matrix Game.

The games themselves are not intended to be fiercely competitive, with obvious winners and losers. Instead they operate with the players working to generate a credible narrative. It is from examination of this narrative after the game that the players gain insights and understanding of the situation being portrayed. The player roles have objectives that will probably place them in conflict with other players, but it is perfectly possible for all of the players to achieve at least some of their objectives by the end of the game.

Matrix Games have been used for recreation, and for professional purposes in several Government Departments, including the Ministry of Defence, in the UK and in several other nations.

Academic Underpinning

The academic research that Matrix Games seek to exploit, is in two main areas: crowd-sourcing and role-play & prediction.

Crowdsourcing: Robust evidence from research on intelligence analysis and prediction shows that crowds outperform individuals (Tetlock and Gardner 2015, Brynen 2017), especially when some framework for opinion aggregation is provided. The evidence shows that groups can be better at estimation than individuals, due to a diversity of opinion, decentralisation of expertise, independence of thought and aggregation of the result. The best predictions come from conflict or contest, but too much communication, too early on in the process, can make the group less intelligent.

Of course, there are “Stupid Crowds” with a homogeneity of opinion, centralisation of decisions in a formal hierarchy, internal divisions and compartmentalisation, imitation based on previous decisions, emotionality and peer pressure, and ultimately ‘Group Think’. Diversity of thought is required, rather than merely ensuring that ethnic and gender representation is diverse enough.

Role-Play and Prediction: There is considerable evidence that role-play can be a more effective basis for the prediction of decisions based on conflict resolution, than expert opinion or game theory (Green and Armstrong 2011, Green 2002, Armstrong 2001). The hypothesis being that experts will predict what should happen but that role play predicts what will happen. This is because when predicting outcomes in conflict, it is necessary to make predictions in a chain, and it is the “action, reaction, counter-action” cycle that generates insight and effective understanding.

In order to get the best out of role-play, players should be assigned their roles before they read the scenario. Players should, if possible, be typecast (there is no point casting a repressed introvert to play Vladimir Putin or Donald Trump). Players should act as if they were the subject, and briefings need to be accurate but succinct (one page). It should also be noted that environment and materials affect matrix games, smaller numbers of players (less than 20, with about six being the norm for recreational games) are better than large games, and matrix games are better when considering large changes or unusual events.

How to Play a Matrix Game

In a Matrix Game, actions are resolved by a structured sequence of logical “arguments”. Each player takes turns to make an argument, much like making a legal argument offered in court, with successful arguments advancing the game, and the player’s position. There are a number of ways you can do this, depending on the size of the game and the purpose (each has their own strengths and weaknesses), but the one I would recommend is the “Pros and Cons” System.

In this system, each argument is broken down into:

- The active Players states: **Something That Happens** and a number of **Reasons Why it Might Happen** (Pros).
- The other Players can then state: A number of Reasons **Why it Might NOT Happen** (if they can think of any) (Cons).

Note: The “Something That Happens” should be phrased as an Action or Event with a measurable Result - the argument is about actions that move the game forwards.

Early matrix games required players to produce three reasons in support of their argument, which could lead players into putting forward a weak (or sometimes pathetic) third reason. This became known as “the curse of the third argument”. Modern games allow the players to choose how many reasons they deploy.

The reasons are evaluated (both Pro and Con) and a judgement made as to the weight of the argument. If the argument and reasons are compelling, quite often the argument succeeds automatically. If there are, however, good reasons both Pro and Con, a decision needs to be made as to the success or failure of the argument.

In some recreational games two six-sided dice are rolled, needing a seven or more to succeed; with good Pros adding to the dice score and good Cons deducting from it. In professional Matrix Games, the appropriate adjudication method is used (usually estimative probabilities) as detailed, along with other methods, below.

The intention is to force the game to move on; generating a narrative and avoid getting too bogged down in detailed discussions about the merits of particular elements of the story.

The game needs a Facilitator to help adjudicate on the arguments, but if you have a limited number of players, you can take it in turns to be the facilitator - this works out much better than you might imagine and helps reinforce the idea that your role in the game might be in conflict with others, but you are all working together to generate a credible narrative.

The advantage of the “Pros and Cons” system is that you formalise the advantages and disadvantages of an argument and the role of the facilitator becomes that of ensuring that the Pros and Cons carry equal weight - perhaps making compelling reasons worth two Pros and two or three weaker reasons against only worth one Con. You will need to ensure you don’t end up with a laundry list of trivial reasons, or having the player re-stating a reason already accepted in a slightly different way in a desperate attempt to gain points (which happens quite often).

Of course, one very useful benefit of the “Pros and Cons” system is that it provides reasons for failure should the dice roll not succeed. You can also more easily run the game with very knowledgeable players.

Argument Assessment

The object of the game is to generate a credible narrative in the course of the game and from this we hope to gain insights into the situation. From this, it logically flows that arguments (sensible arguments!) should succeed automatically unless challenged by the other players. The fact that the player has decided that their argument is the most important thing they want to happen that turn, means that unless there is something wrong, it should succeed. It follows on from this that arguments which build on previous successful arguments should be given an automatic bonus because they are contributing to the unfolding narrative.

If two arguments are in direct opposition (“This happens” - “No it doesn’t”) they represent a logical inconsistency since they cannot both be true. The earlier argument has already happened, so it is impossible for it not to have happened. The later player may argue that the event is reversed, but this tends to make for a poor narrative in the game and should be discouraged.

However, if arguments are opposed (have a chance of failure), there are a number of ways of working out if the argument will succeed:

1. **Umpired** - Once PROs and CONs have been identified it might be left up to an umpire (or White Cell or Control group) to determine what happens. This has the advantage that the game outcomes can be aligned with research or doctrine, or nudged along a path that maximizes their educational value. It can also be useful when the players themselves have only limited knowledge of the game subject matter. However, having a third party determine success and failure can make the game seem rather scripted. If players attribute the

outcome of the game to umpiring rather than to their own decisions and interaction with their fellow participants much of its value may be lost.

2. **Consensus** - Of course, you may prefer to simply have a discussion until there is a general consensus as to whether the argument succeeds or fails. This is a nice idea, but even among professionals this can take a long time and there is no guarantee that everyone will agree. As an alternative, you can try to reach a consensus instead on the probability of the argument succeeding and afterwards throw the dice. This is often easier and faster.
3. **Ask the Expert** - In some technical fields, like Cyber or AI, it can be advantageous to have an expert panel to decide on the success of an argument or the success probability, providing that they can fully articulate the reasons why and generate reasons for failure. Please note that this should only be used for technical subjects - when considering responses to conflict between groups of people (as opposed to whether a type of hacking attack is actually possible) there is good evidence that role-play is a more accurate predictor of outcomes than asking an expert.
4. **Weighted Probabilities** - This system of adjudication places a great deal of emphasis on the arguments put forward by the players, while introducing the element of chance. It is slightly more complicated than the previous systems. There is also risk that some professional audiences may recoil at the sight of dice - associating these more with children's games than serious conflict simulation and gaming. In this system two six-sided dice are used, with a score of 7 or more being required to succeed, with each strong and credible PRO argument counting as a +1 dice roll modifier, and each strong and credible CON counting as a -1, with especially high or low results representing more extreme outcomes. This also provides a "narrative bias" to the game as a score of 7 is actually a 58.3% chance of success and helps contribute to the evolving story. If you don't like that idea, you can still roll two six-sided dice for a "true" 50% (on the basis that, without any Pros or Cons, an argument is equally likely to succeed as to fail) as noted on the "Result Determination Cheat Card" below. This method tends to be used in recreational games.
5. **Estimative Probability** - Alternatively, players or teams can each be asked to assess the chances of success, and these can be aggregated. In analytical games, this provides potentially valuable insight into how participants rate the chances of a particular course of action. There is a set of estimative probability cards which can be used for this purpose, below. Following discussion, players or teams simply select the card from their hand that, in their view, best represents the probability of an ACTION's success. These are then aggregated together (you can use the mathematical MEAN, but I prefer to use the MODE as this is faster), and percentage dice are used to determine success or failure. Of course, the players are supposed to "step back" from their roles and try to assess the probability objectively - which can be an issue if the players are immersed in the developing narrative or are just fiercely competitive.

I used to use the Weighted Probability method all the time. I would normally judge the players present and form my own opinion of the Pros and Cons, modified to reflect the general consensus in the room, and then roll the dice (if necessary - later in the game you should find a greater number of arguments succeeding automatically as people adjust to the developing narrative). If it is a technical argument and we needed advice, I would then ask an expert.

This use of Weighted Probabilities reflects the early widespread use of Matrix Games in the hobby community. As a method, it is inherently understood by anyone with any familiarity with games and is relatively easy to explain for those without. It is fast and provides the Adjudicator more licence in influencing the pace of the game to ensure it doesn't get bogged down in excessive debate.

The main concern I now have is that this, and all the alternatives above, failed to specifically address one of the academic underpinnings of Matrix Games, that of Crowd Sourcing the results.

Based on Surowiecki's book (https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds), there are a number of elements required to form a "wise crowd":

Criteria	Description
Diversity of opinion	Each person should have private information even if it's just an eccentric interpretation of the known facts.
Independence	People's opinions aren't determined by the opinions of those around them.
Decentralization	People are able to specialize and draw on local knowledge.
Aggregation	Some mechanism exists for turning private judgments into a collective decision.

A fundamental part of Matrix Games involves crowdsourcing ideas from diverse participants, and I believe that the element of aggregation would be best served by the use of Estimative Probability cards (above). It is generally felt that this is a more accurate method to leverage the work on Crowd Sourcing, as well as making the resulting probability more accessible and acceptable to the participants. The terms on the cards also reflect those commonly used in the intelligence community. It also follows that the participants in the Estimative Probability method should be from all those present and not just be limited to the specific roles in the Matrix Game.

Oinas-Kekkonen (2008) has made a number of conjectures based on Surowiecki's work, asserting that "too much communication can make the group as a whole less intelligent", which we can address by the encouraging relatively quick moves, and the intention to avoid too much detailed debate following a player's argument. This

means the game can have a reasonable number of moves, requiring that the participants to have to live with the consequences of their actions made earlier in the game. I would suggest at least six moves, to allow for two cycles of Action-Reaction-Counter Action by the players. I would therefore recommend, at least for high level policy and analytical games, that the Estimative Probability method is used.

The procedure should be, following the arguments, to have all participants with their own deck of cards, and assess the probability of success independently and without discussion. They should then all reveal them simultaneously to the facilitator for adjudication. My preference would be to select the mode or the median of the results, rather than the mean as it is quicker and avoids lengthy arithmetic. Excessive outliers can then be discussed quickly.

Voting for Yourself

If you are using voting systems, you should take great care to ensure that the players are being as professional as possible, and not merely “voting for themselves” in a competitive manner. Many players can be ~~quite~~ very competitive, so it may be necessary to not allow them to vote on their argument, and equally it may be necessary to keep an eye on players who are in direct competition. The intention is to develop a narrative, generating insights, rather than trying to win at all costs.

Notes about Arguments

The important thing to remember in a Matrix Game is that arguments can be made about *anything* that is relevant to the scenario. You can argue about your own troops or about the enemy, the existence of people, places, things or events, the weather, plague, disease or public opinion. The actions and consequences of arguments are reflected in the placement of the generic counters on a map, forming narrative markers for the game; or by writing the results on a whiteboard or flipchart so the players can keep track of what is going on.

Some things can seem a little odd to new players - “how can my opponent argue about my troops?” The answer is your opponent can’t give them orders, but could argue, for example, that their morale and motivation are low because they haven’t been paid in months. The only criterion for judgement is the likelihood of the event taking place. With a bit of imagination, common sense and rational thinking, it is possible to present persuasive arguments as to what should happen in any scenario, from traditional military campaigns to the strange worlds of cyber or defence procurement.

A common error in Matrix games is for a player to argue about another player being influenced by something or them agreeing to a course of action. The player is present and can simply be asked, so providing time between turns to allow the players to negotiate with each other (in secret if necessary) makes for a better game. It might be that a player wants to argue that all parties come to negotiations - in which case let them state their case, then simply ask the other players if they want to come along. If they agree then the argument is an automatic success. Arguments are for actions - if the players want to negotiate with each other, they can do that in between turns.

Number of Things you can do in an Argument

Sometimes players get carried away with their arguments and try to do several different things at once. You should only get to do **one action** a turn because part of the insight in the game comes from deciding what the highest priority is. The action

itself could be large (like a general mobilisation of the Militia), but it should be a single action, so mobilising the Militia and ordering a strategic missile strike, would be two separate actions - which one do you want to do first?

This doesn't mean that they are doing nothing else - it is just that the other things are part of the "business as usual" background noise - and the action is the one that they think will have the most impact, either immediately or in the future.

You shouldn't slavishly follow this rule with inexperienced players, however. Sometimes it may be necessary, in order to get the participants to come up with ideas outside their normal way of thinking, to force them for example to make one argument about conventional military things, and a second argument about political, economic, social, information or infrastructure issues. This should be the exception however!

Of course, like Newton's Law of Motion, once an argument has succeeded, the situation remains that way until another argument changes it.

In some cases, the players may wish to take time to come up with a plan in advance of the "game" itself. This is perfectly permissible but the planning should be conducted in such a way as to be able to break down the elements of the plan into no more than about three Arguments, and the appropriate timescales in which they would happen. The Arguments should be written down in the same way as Secret Arguments (below) and not shown to the opposing players. The opposition will then have the same number of Arguments that they can make, in the same time period, openly, as usual. Should one of the opposition arguments demand an immediate response from the players, the plan is then delayed. If any resources are then used that were needed by the plan, the plan is lost. If both sides end up planning, resolve the written arguments in the normal way. "Planned" arguments have a much higher chance of success - but are lost if the situation changes.

Reasonable Assumptions and Established Facts

It is important that the facilitator understands the difference between "reasonable assumptions" in the game, such as the proposition that well trained and equipped Special Forces soldiers are going to be much more effective in combat than untrained protestors; and "established facts" which are facts that have been specifically mentioned in the game briefings or have become established during play as the result of successful arguments.

The latter can be immediately deployed as supporting reasons (Pros and Cons), but the former need to have been argued successfully in order for them to be specifically included. Many inexperienced players will make vast all-encompassing arguments full of assumptions that are not reasonable. For example, it is not a reasonable assumption that unarmed protestors could fight off trained police. It is reasonable to assume that the police are trained, armed, equipped and quite capable of dealing with a group of protestors (after all, that is their job). It would be necessary to argue for a large number of protestors, argue that they had weapons of some sort, or argue that they were especially devoted or fanatical about their cause, for them to have a reasonable chance of beating the police.

Of course, you might argue that your protesters hugely outnumber the police, undergo special training, get access to firearms, or are simply fired up with enthusiasm by the powerful and impassioned speech from their leader, so they get a

bonus. In this case, you should mark the counter used in the game with a +1 or something similar (depending on the strength of the argument) to show their improved status.

Number of Actors

Matrix Games are best played with an even number of Actors as it is the action and counter-action running through the game that generates the insights; but occasionally having an “outsider” role with an interest in events can also be useful. The game works best with six to eight Actors and a facilitator.

It quite often happens that the sponsor for a Matrix Game wants the Actors involved in the scenario to be quite one-sided, so that there are several Actors on one side and only one opposing them. Apart from not generating a very interesting game, it may be necessary to point out that there wouldn’t be a crisis if one side outnumbered the other by such a margin. It might then be necessary to dig down into exactly who the Actors really represent and their capacity for independent action, in order to make the game more balanced and generate the insights required.

For example, in high level political/military games it is common for the sponsor to suggest that the Actors involved are a “laundry list” of the States present. This is a fundamental error because the Actors in a Matrix Game only get to make one argument each so, in a Baltic States game for example, having the USA, Estonia, Latvia, Lithuania, Poland, Sweden, Finland and Russia as Actors would mean that most of the time Russia would only get a single action against seven opposing ones each turn. A better way of representing things would be to have Russia, Russian Dissidents, the Baltic States as a single block, NATO, Poland (with its own agenda) and perhaps the Nordic States as a block.

If this proves too conceptually difficult, you can balance the game by “points” where perhaps Russia is allowed a number of points of arguments (so they can argue twice or have a single argument with double effect), against everyone else’s single point argument. The difficulty with this approach is that it can introduce too many arguments per turn and slow the game down excessively.

Personally, I would rather frame the Actors in such a way as to balance the game, rather than using a chit system with the more powerful players having more chits. I think that getting people to model people is usually a better way. My standard model is to select Actors that break down into six rough groupings: The two main protagonists, their two main supporters (but perhaps with their own additional objectives) and then either their oppositions, or associated Actors you might suppose were supporting but definitely have additional objectives that could be in conflict to the main Actors. Then, after all that, possibly an external power with an interest.
So, for a Dutch Election Game, the Actors were:

- The Hofstadt Network: an Islamic Terror Group.
- The Saudi backers of the Group.
- The Right-Wing Neo-Nazis.
- The Left-Wing Dutch Coalition Government (as a coalition they had 2 players, the Right-Wing, Left-Wingers and the Left-Wing, Left-Wingers, each with conflicting objectives, and they had to agree in order to make an argument).
- The Dutch Emergency Services (Police, Military, Fire, Medical).
- Geert Wilders, the Right-Wing Opposition Parliamentary candidate.

In the *Lasgah Pol* Game, about a 6-month Tour of Afghanistan (available at http://www.mapsymbs.com/wdmatrix1.html), the Actors were:

- Coalition Security Force Commander.
- District Governor (pro-security force).
- Afghan National Army Commander (pro-security force).
- Taliban Commander.
- Tribal Elder (anti-security force).
- Afghan National Police Commander (corrupt).

Discussions as to the Actors involved and balance in the Matrix Game can generate insights into the geo-political situation in their own right and prove to be almost as valuable as running the game.

However, it is all very well to conceptually make the game design decision that you are not going to represent the Baltic States as Actors in a game about the political situation in the Baltic, because the "Great Powers" in the region mostly ignore their wishes and do what they want; and quite another to play a game involving representatives from those countries. So, for example, at a NATO workshop on regional stability in the Baltic, it would be quite inappropriate to design such a game and alienate a significant proportion of the participants from the outset.

In this case an alternative approach that can work is to represent all the relevant Actors in the game, but only call on them when it is appropriate or necessary to do so (I am indebted to Sue Collins from NATO ACT for coming up with this idea). In this case you should start the game at the point of crisis between only two of the actors. They will make their arguments in turn, with all the other players participating in voting on the argument assessment, going back and forth, as if it was a two-player game. This continues until one of the other Actors decides that the events taking place have reached a point that is more important than their internal national agenda, and they must act. At which point they make an additional argument and it is resolved in the normal way. This works far better than I expected, because it discourages the smaller actors from "butting-in" with minor arguments that don't affect the situation in any significant way, and take up too much time in the game.

If you have several players representing an Actor in a Matrix Game, you can get them to work up alternative arguments for each turn and the team (or team leader) can then choose the best argument to take forward. This is especially useful for analytical games if the alternative arguments are recorded and the reasons for acceptance/rejection noted.

Why I like Matrix Games

- Designing a Matrix Game can be done quickly with the minimum of fuss.
- Participating in a Matrix Game does not require an understanding of complex and unfamiliar rules.
- Matrix games can cover a wide variety of possible scenarios, including conceptual conflicts like Cyber.
- They are especially good in the non-kinetic, effects based, domain.
- Matrix Games deal with qualitative outputs so are especially useful for non-analysts.
- The games work best with small groups, increasing immersion and buy-in to the game.

- Matrix Games are extremely inexpensive (and they work best with short sessions lasting half a day or less).
- They are perceived to be new and innovative (despite being around since the 1980s).
- They are easy to transport, requiring only pen and paper - with perhaps a few maps and counters.
- They work well in multi-domain, multi-agency contexts allowing all Actors to participate equally.

A Few Words of Warning

- The fact that a Matrix Game requires little infrastructure can be a problem - it just doesn't look sexy and the strengths that it can be done quickly with the minimum of fuss, can be reduced by efforts to make it look cool/expensive.
- The non-quantitative nature of the game can frustrate analysts.
- Matrix Games require an experienced facilitator to run them.
- Components and player selection can affect play: so, if all the counters are military, inexperienced players tend to make the majority of their arguments about military actions; and equally, it is no good getting a quiet introvert to try to play a dynamic leader like Vladimir Putin.
- A facility with language is important, which might prejudice play with multi-national participants.
- Matrix Games don't scale well and, while there are mitigating techniques for large groups (50+), they lose some of their impact.
- There is a paucity of academic research in this area (but this is improving).
- The games are vulnerable to a "Senior Figure" accusing the game structure of "just making things up!"
- Some players have great difficulty with the concept of "only one action per turn".
- Some players (fortunately very few) appear fundamentally unable to grasp the concept, which in a small game has a disproportionate effect.

Final Comments

Some of the most insightful and well-run games happen when the players all end up with a mutually shared understanding of the situation. The game has created in the participants a shared story-living experience of the situation of the game, with the Actors role-playing their parts. There is good evidence that role-play can more accurately predict outcomes in conflict than other methods, and Matrix Games use this as a fundamental part of the methodology. This happens best with small groups (less than 20 participants) and having the game flow naturally. An experienced Facilitator can be invaluable in helping the story move along, linking the arguments made and weaving them into the narrative so they make sense.

It is tempting to add extra rules and complexity to the simple base technique of the Matrix Game. This should be avoided if at all possible - the strength of Matrix Games come from their speed and simplicity. Additional rules can slow down production, complicate the game, hinder play and distract the players.

Try not to be clever - just keep it simple.

Having time at the end of the session to discuss the game and understand the objectives of the different Actors involved is vital. Going around the participants and asking them to read out their objectives and explain why they though they succeeded or failed can be most instructive. Also, if you then ask the assembled

group “who won?” and they all agree, then this can be a very powerful indicator of things that might need to be looked at more closely as a result of the game.

Finally, the insights from the game can take a little time to come out. They might not be immediately obvious, so taking time to consider what happened in the game and whether individual events are noteworthy, is very useful. I am continually surprised at the predictive power of such a simple game.

Further Reading

My “Practical Advice on Matrix Games” is available as a free download from http://www.mapsymbs.com/wdmatrix1.html which also has a considerable number of sample games.

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Confrontation Analysis/Dilemma Analysis Game

by Michael J Young

A Confrontation Analysis/Dilemma Analysis Game is a form of structured discussion game played with two to five teams of one to three people looking at a political or diplomatic confrontation. The players state what each team can do and what they want to have happen. The dispute can be described manually, using pens and paper, or with a spreadsheet program called Dilemma Explorer.

Here is an example of the Dilemma Explorer spreadsheet in action. We consider the situation at the start of World War 2, just after Germany invaded Poland.

Threatened Future ↓	Who does action ↓	Dilemma Explorer Controls	UK's position ↓	Germany's position ↓	Persuasion	Trust	Co-Operation Threat	Rejection
✓	Germany	conquer Poland	✗	✓				
✓	UK	declare war on Germany	✗	✗				

Each side in the conflict has a “position” column associated with what they are saying they want to have happen. There are the two columns to the right of the actions with ticks and crosses in. A tick is something they are saying they want to happen, and a cross is something they are saying they do not want to happen. In this example the UK wants Germany to not conquer Poland and for the UK not to go to war with Germany. Germany wants to conquer Poland and for the UK not to go to war with it.

The column on the left shows what the sides are saying will happen if nobody can come to an agreement (Germany conquers Poland, but goes to war with the UK). This is the “threatened future”. It is not what either side wants, but it is what people are saying will come to pass if no agreement takes place.

Both sides have Dilemmas caused by the confrontation which are shown by the columns on the far right of the table. In this case both sides have Persuasion dilemmas which happens when one side is threatening to do something that the other side doesn’t want to happen.

What happens during negotiations is that the options table changes. This can happen by:

- people changing their positions (changing the ticks and crosses),
- by people introducing new options (new rows in the table),
- by one side expressing doubt - saying it does not believe the other party will do what it has threatened to do.

All of these actions are attempts to eliminate dilemmas.

In the World War 2 option table what actually happened was that Germany was prepared to go to war with the UK. Essentially Germany said that it did not care if the UK declared war on it or not, it would still conquer Poland, so we show this by replacing the cross for “UK declares war on Germany” to a dash - where a dash indicates indifference. By doing this Germany’s eliminated its dilemma.

Threatened Future ↓	Who does action ↓	Dilemma Explorer Controls	UK's position ↓	Germany's position ↓	Persuasion	Trust	Co-Operation	Threat	Rejection
✓	Germany	conquer Poland	✗	✓					
✓	UK	declare war on Germany	✗	-					

So as Germany had no dilemmas, the actions went ahead. Germany conquered Poland and the UK declared war on it.

By structuring the negotiations in this way, using the Dilemma Explorer program, it is possible to track the progress of the negotiations and build up a history of the negotiations.

Confrontation Analysis is a great way to structure, focus and plan negotiations, both in real life and in games.

It has been used in many games in Wargame Developments, including negotiations about the future of Cyprus, Bahrain (*Move Over Tony Blair* - Nugget 268) and Libya (*Libya Decision Workshop* - Nugget 252), and the UK leaving the EU (*Brexit: The Wargame* - Nugget 319).

Further reading: John Curry and Mike Young’s “The Confrontation Analysis Handbook: How to Resolve Confrontations by Eliminating Dilemmas”, History of Wargames Project, 2017.

Virtual Gaming

In Virtual Gaming all the participants access the game via the Internet (see also Hybrid Session and PBeM). Members of WD gained considerable experience of Virtual Gaming as a way of keeping wargaming during lockdowns caused by the Covid pandemic.

Playing online has the potential for elderly wargamers to stay connected socially as they lose their mobility. In addition virtual gaming allows people from all over the world to play in games, however care needs to be taken to ensure that time zones are taken into account when international players are involved.

A wide variety of games are possible. For toy soldier games figures from 2mm to 54mm have been used. Gridded games are particularly successful, especially if the grid's co-ordinates are clearly marked.

Virtual gaming is more tiring than face to face gaming, and it takes more time to play a game. Longer games should be run over several sessions.

Satisfactory games can be run with a very basic webcam, although a high-definition camera with a wide viewing angle and auto-focus will produce better results. Many use iPads or smartphones with a tripod or holder. The camera can be moved around the battlespace viewing it from different angles, and the fog of war can be created with a lot more creativity than is available in the face to face games. Small cameras can be positioned on the gaming area, offering a "commander's eye-level view".

If bandwidth is limited it is still possible to have an enjoyable game using only voice channels.

It is prudent to have a technical rehearsal, some applications are fussy with the order in which cameras are turned on, or default to different audio devices. It is possible to have several devices logged in separately, in order to ensure that the game can continue if something goes wrong. It is very worthwhile exploring the limits of the technology.

For further information, including details of the platforms in use at the time of publication, see *Adventures in Lockdown* (Nugget 329), *Remote Wargaming* (Nugget 335) and *Lessons from Lockdown* (Nuggets 335 and 336).

Glossary of WD Terms

“When I use a word,” Humpty Dumpty said, in a rather scornful tone, “it means just what I choose it to mean - neither more nor less”

(Caroll, Lewis (1871). *Through the Looking Glass*. Macmillan).

After Dinner Game - A short, enjoyable wargame with the emphasis very much on player participation rather than any radical innovations, so called because such games are traditionally run after dinner at COW.

Agency in Games - The extent to which players can influence events in a game. It is generally held that a high degree of agency will be more rewarding for players, yet a rich narrative in a game with limited player agency can be very rewarding. See also Narrative in Games and Career Games.

Asymmetrical Warfare - warfare where the military capabilities and/or the tactics of the protagonists are significantly different. Examples can be found in colonial wars, guerrilla wars, insurgencies and terrorism. Successfully wargaming asymmetrical conflicts requires the game to reflect the cultural differences of those taking part, which could involve each side having totally different rules, and will certainly involve each side having different objectives. Some asymmetric games are Multi-Player Solo Games and use a plumpire to run one side, for example *Boots on the Ground* (see Nugget 274).

Autumn Virtual Gathering (AVG) - an online event lasting an afternoon and evening that provides members of WD with a forum to meet and take part in discussions and presentations between our established events, COW in July and VCOW in February. The first AVG was held in October 2021. The aim of the Autumn Virtual Gathering is to reach out to members, particularly international members and those who can’t attend COW in July. The AVG is not intended to be another VCOW and games are not run at the event so that distant games can be focussed around VCOW each February.

Back to Back Game - A game in which each side has only as much information as it would reasonably be expected to know. For example in a tabletop game with toy soldiers, the players would have two identical sets of the terrain models placed where they could not see their opponent’s model. They deploy their forces as they like on their own model, but the Umpire would decide which elements of the opposing force they manage to spot. In a Map Game, the players each work off a map of their own, whereas the Umpire has a copy of the map with all of the forces detailed on it. The Umpire then decides what each side has discovered, and when/where engagements take place. A Back-to-Back format is essential to accurately play Hidden Movement. See Closed Game.

Black Games - Sometimes referred to as “bad taste” wargaming, the “black” in black games refers to mood and not colour. A black game is specifically designed to explore the unpleasant or uncomfortable aspects of conflict. Most of these deal with areas not usually considered “suitable” for games, such as: terrorist attacks, bombing of population centres or the moral dilemmas arising from conflict. Most wargames, however, contain “black” elements; after all, playing a game about war can be considered in poor taste in itself. Two very successful examples of Black Games were *Home Front 86* where the players believed they were running a refugee

centre in Wales in WW3 but ended up running a Concentration Camp similar in operation to Bergen-Belsen (see Disguised Scenario) and an experimental *Northern Ireland Workshop* where every aspect of the "troubles" were examined using improvised theatre, role-play, and traditional gaming techniques. Some members of WD left in disgust at the thought of these activities, including the late Stuart Asquith (Editor of Practical Wargamer). Some supposedly Black Games, dealing with the IRA threats to Army units, were in fact put on by serving military members of WD, in an honest attempt to gain additional insights into very real operational problems. This unpaid Operational Analysis was of course unofficial and unadvertised, and may have served to distort the view of outsiders about the aims of WD.

Black games raise difficult ethical issues and should be restricted to consenting adults in a private place. For this purpose WD Conferences and the pages of The Nugget are regarded as private places, however the fact that someone has joined WD does not imply that they have agreed to be involved in bad taste games, and participants and readers should always be given an explicit warning that the subject of the game or article is "black" so that they have the opportunity to opt out. https://goldenlassogames.com/tools has a number of "safety tools" which can be used to reduce the risk of players in black games having a distressing experience.

Blended Games or Hybrid Games - A style of game that endeavours to combine features of both Face-to-Face and Distance Gaming.

Board Wargame - Originally a map based Open Game, played with a superimposed grid to regulate movement, using counters to represent forces, but this century under the influence of Euro Games the genre has become more diverse. There used to be a distinct gulf between the majority of Board-Gamers and Figure-Gamers, with some Figure-Gamers (quite unfairly) regarding themselves as superior. Due to the nature of the board game, a number of sophisticated mechanisms have been developed to cover various events, many of which have considerable utility in other game types. See also Gridded Games.

Bottom Up Game Design - A method of game design where the smallest tactical elements are examined in detail (such as the movement and firing capabilities of an individual) and the results extrapolated up to produce results for complete formations. There are great dangers in this approach, however accurate the detailed data is (any error, however small, when multiplied many times, can seriously distort the final results). This can result in games where the turns in the game are at 2½ minute intervals, yet a result is achieved in a game lasting 10-20 turns (25-50 minutes!), whereas in a historical battle a similar engagement would last many hours. Such games tend to concentrate on the minutiae of low-level tactics, while ignoring the real reasons why battles are lost and won. Most traditional toy soldier rules start their design process in this way, with the final result modified in an attempt to correct the inevitable distortion in results that this process brings.

Briefings - Material provided by the game designer to the player(s) at the start of a game. This may contain information on the game situation, the role a player is to take in the game, objectives, forces or resources and other information. Such a briefing may contain information that is unknown to some or all of the other players (hence the terms Hidden Briefing and Secret Briefing). Player briefings can be delivered verbally but written briefings are more common.

Player briefings can be short and sharp or convey quite nuanced information. In any case they are a key element of game design as they are the main vehicle by which the game designer explains to an individual player their role in the coming game. Written briefings should rarely exceed a single side of A4.

This is an example of a player briefing from a recent game on the Spartacist uprising in 1919 Berlin:
Comrade Rosa Luxemburg
Aged 47, you are a committed Communist from Poland and the co-founder of the Spartacists with Karl Liebknecht. Your aim is to bring the Communists to power in Germany by any and all necessary means.

Objectives:
- Bring about a government dominated by Communists.
- Ensure a constitution in which a council of commissars are supported by a Soviet of Party Deputies.
- Crush the rightist, Nationalists and Social Democrats.

Forces:
Two companies of armed Spartacist militia, in addition to Liebknecht's forces.
Votes in the People's Congress: 10.

This is a player briefing about the naval battle of the Kara Sea in 1942:
Commodore Wilhelm Meendsen-Bohlken, commander, Admiral Scheer group
Mission:
1. To cause as much damage and destruction to Soviet convoys in the Kara Sea and Barents Sea as possible, with particular emphasis on nickel convoys from Port Dikson to Archangel and Murmansk, with minimal losses to own forces, particularly surface units.
2. Units to be pre-positioned before 20 August for operations to commence on 20 August. All surface units to return West of map ref 2 by 30 August.

Forces:
Admiral Scheer (heavy cruiser)
Friedrich Eckoldt (Type 1934A destroyer)
Erich Steinbrink (Type 1934A destroyer)
Richard Beitzen (Type 1934 destroyer).

Calf - a small COW (Conference of Wargamers). Calves are occasionally organised by members of WD to explore an issue, exploit the potential of an interesting location, or just to get together for some games.

Cardboard Simulator - see Simulator, page 22.

Career Game - a game in which players follow the careers of characters set against a historical background. Career Games commonly allow the players little or no agency, with chance determining characters' survival and promotion as the game moves through history, however one of the main purposes and pleasures of the game is the creation of an enjoyable shared narrative. Career Games offer the opportunity to examine a long period of history in a quick and engaging way, and limited participant input means that a poor player does not spoil the experience of

the other players. This makes them particularly suitable for use as participation games at wargames shows. Examples include:

- Officers of the Royal Navy in the Napoleonic Wars (*'Tis to Glory We Steer* - Nugget 219).
- Officers in the Red Army 1917 - 1941 (*Better Red Than Dead* - Nugget 249).
- Politicians in the Roman Republic (three different *Cursus Honorum* games - Nuggets 268, 293, 300, 308 and 310).
- Officers in the British Army during the French Revolutionary and Napoleonic Wars 1793 - 1815 (*All True Soldier Gentlemen* - Nugget 313).

Closed Game - A game in which players can only see and know what they might reasonably be expected to see and know. This seems very obvious, but is ignored in many game designs. Games can have varying degrees of "closure", for example, a player may see the locations of all forces represented by counters on a map, but their fighting strengths may be hidden underneath. Alternatively, the player's view may be limited to a narrow section of the terrain model visible through a mock-up of the vision slit of a tank, with all other forces placed by an Umpire. See Back-to-Back Game, Hidden Set-Up, Hidden Movement and Open Game.

Collaborative Games - Most wargames are, by their nature, competitive. There are occasions where games may require all the players to co-operate in order to achieve their objectives. In addition some wargamers prefer to play what would normally be an adversarial game by collaborating to produce a credible narrative of the action, rather than being concerned with who won. This attitude is particularly useful when re-fighting historical battles which are not balanced, and is an alternative to giving the side which lost the real battle objectives which amount to lose less badly.

Combat Umpire - an umpire concerned only with combat resolution (usually an appointment in a Megagame).

Command Post Game - A game designed to represent the functions of a command headquarters with Umpire input and receipt of instructions, as well as the physical layout, as closely matching those experienced by a real command post as possible. A number of successful WW1 Command Post games have been run.

Command Vista Game - A game based on a visual representation of only what the commander would be expected to see, from his position in the battle taking place. All other input being handled by the Umpire (or team of Umpires). An example of this was a game where the players were the Admiral and Staff of a British Naval Squadron in the Napoleonic era, directing a landing and battle for the possession of a coastal town somewhere in the Caribbean. The players were placed on a wooden area of the floor, behind a railing, and a series of different scale models were laid out on the floor to represent what was going on. The players were required to peer through telescopes to see signal flags posted on the model ships, and try to see what was happening ashore as the model soldiers were moved about by the Umpires some 20 feet away. Occasionally a small boat would row up and an Umpire would "come aboard" to pass a message verbally, and the players were free to hoist signal flags of their own.

Committee Games - see page 23.

Conference of Wargamers - see COW (page 6) and VCOW.

Conflict Games - All wargames on military themes can be considered Conflict Games but the term is more particularly used for games which deal with any form of non-military conflict. Examples include the cardboard simulator *It's a Riot* (see Nugget 195), the matrix game *Proud Boys* on the aftermath of the 2020 US Presidential election (Nugget 331) and *Degenerate Art Exhibition* on art censorship in 1930s Nazi Germany at VCOW 2022. (Compare with Peace Games).

Confrontation Analysis/Dilemma Analysis Game - see page 37.

Control Panel Game - a game in which players use a card (often with counters or other markers) to record the status of and their intentions for the actions of whatever they command (which might be units, or a single person, ship or tank). This gives a visual means of passing orders from the players to the umpire and a quick way of recording damage. For example see John Salt's *Churchill Troop Commander* in Nuggets 228 and 229.

Co-operative Games - see Multi-Player Solo Games, page 19.

COTS - Commercial, Off The Shelf. Used to described wargames that are packaged for general release by companies with the intent of making a profit from their sales. This is in contrast to hobby or enthusiasts' games intended to illustrate a particular facet of war, or, for example, to bring attention to a neglected conflict.

COW (The Conference of Wargamers) - see page 6.

Cultural Wargame - a game in which the action is consistent with the practice and character of the period in which it is set (Callan, Andy (1980), *A Report on the Conference NEW DIRECTIONS IN WARGAMING held at Moor Park College, Farnham, on 23-25 May 1980*, Wargame Developments at page 4).

Cyber Wargame - a game relating to digital attacks on computer systems. See "*The Cyber Wargame Handbook: Wargaming in the 21st Century*" by John Curry and Nick Drage, History of Wargames Project, 2020 and "*Dark Guest: Training Games for Cyber Warfare*" by John Curry and Tim Price MBE, History of Wargames Project, 2013.

Deadly Discs - A game where frisbees were used as weapons hurled at the players. If hit the player was "killed" and out of that round of the game. Used as a mechanism in a number of Cardboard Simulators, for example when a car was covered in cardboard packing cases to resemble a WW1 tank, the Deadly Discs were used to simulate machine-gun fire on the outside of the hull, and as Assegai spears in a workshop about the Zulu wars.

Detournement Games - see Repurposed or Detournement Games.

Dialogue Games - A style of game in which players seek to build a shared narrative around the theme of the game by challenging another player with a problem drawn from the game theme and developing narrative to which they respond with a verbal solution. An example is *A Drop Too Many* on a WW2 airborne operation (reported in Nugget 213).

Dilemma Analysis Game - see page 37.

Disguised Scenario - A game designed to avoid the prejudice and pitfalls of hindsight. Few players volunteer to be the Italians in WW2 or the Spanish in the Peninsular War and most players will be aware of the torpedo bomber threat of the Japanese air force against the Prince of Wales off Singapore. One way of overcoming these problems is to design the game in a similar tactical scenario, but set in a different place, time or between different forces, without telling the players. Some of the most successful disguised scenarios involved the Mexican forces under Santa Anna being disguised as the British army in India. In *Home Front 86* a game about the Nazi administration in Belsen was disguised as an administration and logistics game set in a refugee centre in Wales during WW3. At VCOW 2020 *The Great Mutiny 1857* was, in fact, a re-fight of The Battle of Little Big Horn (see Nugget 334). See also Black Games.

Distant Games - also known as Remote Games, these are games in which some or all of the participants are at different physical locations and play the game via some form of electronic communication including video conferencing packages such as Zoom or Discord, social media apps such as WhatsApp, or email. This type of game came to the fore during the lockdowns caused by the 2020 Covid-19 pandemic and appears to remain popular as the pandemic becomes an epidemic. There are detailed discussions of distance wargaming techniques in Nuggets 329, 335 and 336. See also Virtual Gaming (page 40).

Distributed Gaming - see Multi-Centre Games.

EDNA (Ever Decreasing Number Allocation) - a mechanism to simulate progressively decreasing chances of success. The starting EDNA is a number (often 8, but can be varied) which represents a unit's or individual's ability or willingness to do something. Each time the unit or individual tries to do something it rolls a D10 (or 2D6) and compares the score with the EDNA. A dice throw less than or equal to the current EDNA indicates success. If the dice roll is more than the current EDNA the action has failed and the EDNA is reduced by the difference. If the EDNA is reduced to less than 1 the unit or individual is out of action. A variation uses a starting EDNA of from 1 to 5 and a D6, if the dice roll is more than the current EDNA the EDNA is reduced by 1.

Face to Face Games - A term that can be used in two different ways: traditionally as a variation on "Open Games", in contrast to "Back to Back Games" and more recently to indicate the participants are in the same physical location, in contrast to "Distant Games".

Free-Kriegsspiel – see page 13.

Funny Little Wars - see Little Wars.

Fuzzy Probability - The core of fuzzy probability is not to look at probability as a closed circuit but as an open range of results as yet to be resolved and that extrinsic and intrinsic factors that affect the distribution can affect the result set. For example, the average of the rolls on a six sided dice is 3½, a number that cannot be achieved in reality and as such using fuzzy logic we can assume that an average range of results will land between 3 and 4.

As a rule, wargames that use random resolution methods will have patterns as to their distribution. Understanding and having awareness of fuzzy probability allows participants to factor in multiple hard and soft factors that can affect the resolution and as such achieve probabilistic overmatch and layered resiliency.

Reference: Beer M. (2010). A Summary on Fuzzy Probability Theory. *Conference Proceedings 2010 IEEE International Conference on Granular Computing*, San Jose, CA, 5-6.

Gridded Games - Games played on a playing surface marked with a grid. Squares, hexagons, offset squares and simply “areas” are all in common use. Gridded games have the advantage of not requiring movement and ranges to be measured with a ruler, and they can preclude some gamey elements of tabletop games. Gridded games can be seen as a bridge between board wargames and toy soldier games. Nugget 254 has rules from the early development of Bob Cordery’s portable wargame series, with photos of a number of different layouts in Nugget Colour Supplement 254. There are now a considerable number of portable wargame books covering a variety of periods - search Bob Cordery Wargame in Amazon to see what is available. For rules for an Age of Sail naval variant see Nugget 333.

Hidden Movement - A Mechanism in a game, where things that a player would not be reasonably be expected to know (like troops moving behind a hill), are not revealed. This seems obvious, but is a sadly neglected area in most wargames due to the necessity of providing an Umpire to ensure it goes smoothly. It is possible to introduce mechanisms to model Hidden Movement in an Open Game:

- A number of counters are placed on the table instead of a unit which is out of sight to the opposing forces in the game. One counter represents the unit, the others are dummies. The counters are moved as the “real unit” would move, and are turned over when spotted to reveal what they really represent. The game still has an Open format as the mechanisms are visible to the players, even if they are modelling “Hidden” events.
- Maps can be used for movement by one or both sides until contact is made, when the toys are put on the table. If one side breaks contact movement goes back onto the maps.

Hidden Set-Up - A method where, at the start of a game, one player has the capability to place the forces allocated to him or her, in such a way that the other player can “see” only those forces he or she would be reasonably be expected to see. Forces that are hidden (like troops in buildings) are not revealed until they carry out an action that would reveal their presence (like moving or firing). Much easier to control than Hidden Movement (which see) and can be played without an Umpire (this can be done by using a “deployment sketch” which is prepared by the player before the game starts, and can be referred to in the event of a dispute). Set-up can be partially hidden so the opposing player can see that there is something there, but not what. Dummy counters can be used to obscure whether a location in fact has a unit or not.

History of Wargaming Project - aims to research and publish key works in the development of professional, hobby and educational use of wargaming, including cutting edge material. The catalogue includes material by a considerable number of past and present members of WD http://www.wargaming.co/index.htm.

Hobby Wargames/Wargamers - see Recreational Wargames/Wargamers

Hybrid Games - see Blended Games (cf. “Hybrid Warfare” and “Hybrid Warfare Game).

Hybrid Session - A session where some participants are in the room (“face to face”) and others access the session online. (cf. “Hybrid Warfare”).

Hybrid Warfare - “Things like Operations Other Than War, Effects Based, Non Kinetic, Hearts & Minds, Soft Effects, Shaping, Influence, Messaging, Grey Zone... Involving religion, training, morale, belief, cohesion, leadership, motivation, public support, political will…” (from Tom Mouat’s presentation *Why Wargaming* at Connections 2021 available at https://www.professionalwargaming.co.uk/2021.html).

Hybrid Warfare Game - A game focussed on current military concepts such as hybrid or grey zone or non-linear warfare that all tend to posit the corrosion of the traditional binary division of a state of war from peace time into a much more subtle graduated escalation of a range of diverse hostile activities across a wide spectrum. To be distinguished from Hybrid Games (see Blended Games). The game *The Dog-Rose Revolution* at VCOW 2022 was intended to explore the effectiveness of one side’s non-linear techniques but in the event these were almost entirely negated by an early conventional attack by their enemy.

Inquiry Games - A genre in which the game takes the form of some sort of inquiry into a past event. A recent example is *GRAPPLE X* on a public inquiry into a 1950s British nuclear test in the South Pacific (see Nugget 341). An inquiry game can be part of a larger game, often at end as a sort of “debrief”.

Kriegsspiel - The original Prussian wargame designed in 1824 to test Staff procedures and tactical understanding. It was originally played as a closed Map Game with rigid rules applied by an umpire (but see also Free-Kriegsspiel). One of the few wargames to be used by real soldiers for any length of time.

Lawn Game - A game requiring a lawn on which to play it. Implies a certain air of civilised gentility, as opposed to rampant competitiveness. Recent examples include *Spock’s Shameful Secret* (see Nugget 244), *PVO Strany* (see Nugget 258) and *A Battle of Monsters* (see Nugget 343). For Lawn Games involving figures the terrain can be improvised from things like grass cuttings.

Level (of a game) - see the section “Game Design” (page 9), and the glossary entries for “Skirmish Level Game”, “Tactical Level Game”, “Operational Level Game” and “Strategic Level Game”.

Liaison Umpire - an appointment in a large scale closed game or a Megagame. A Liaison Umpire is the interface between a player headquarters and the Umpires running the game. The Liaison Umpire translates the player’s intentions into game terms for resolution by the Combat Umpire and passes back the results to the players. One of the most important positions in the team that makes a Megagame, a good Liaison Umpire is priceless, and bad one is a disaster and can ruin the enjoyment of a game for all the players in a player headquarters. See Combat Umpire, and Umpire-Light (or Lite).

Little Wars - One of the earliest works on hobby wargaming, written by H. G. Wells and first published in 1912. Also *Floor Wars* (1913). Wells and his chums fought battles on floor and lawn, firing lead shot from spring-loaded toy cannon which 'killed' their hollow cast 1/32 scale lead toy soldiers. Modern devotees fire less harmful matchsticks or cotton buds! More recent developments of Wells's ideas include *Funny Little Wars (2009, revised edition 2022)* by Padre Paul Wright and *Little Cold Wars* (2016) by Tim Gow.

Mainstream - in the early years of WD "Mainstream" was a term used to describe wargames which used rigid commercial rules with equal point armies and woolly notions of period, often in a competitive setting. See also "Nurd".

Map Games - see page 17.

MapSymbs - NATO map symbols and other useful material as TrueType fonts developed by Tom Mouat and available at http://www.mapsymbs.com/. The Napoleonic map symbols font can be used for pretty well all periods before 1914 and the Map Icon font is handy for anything.

Matrix Game - see page 25.

Mechanism - One of the discrete building blocks of a game design. For example a mechanism to represent the random distribution of paratroops dropping onto an objective could be the dropping of 2cm squares of paper from 2ft above the table.

Megagame – see page 24.

Metagaming - A term for those human behaviours surrounding game play but exterior to the game itself. Traditionally these have often been associated with attempts to gain an unfair psychological advantage, for example through disconcerting an opponent by wearing a particularly loud cravat during a game. This sort of behaviour has been most satisfactorily described and lampooned by the late Stephen Potter in "*The Theory & Practice of Gamesmanship; or, the art of winning games without actually cheating* (Rupert Hart-Davis, London 1947). However the presentation *Taming the Serpent* at VCOW 2022 suggested that it might be possible for game designers to use metagaming behaviour to the overall benefit of the game (see Nugget 348 for offside reports). This is an area that may benefit from further research. In any case it is an unspoken rule among WD members to wear only the most discrete cravats to friendly fixtures.

Miniatures ("Minis") - see Toy Soldiers.

Muggergames - see page 16.

Multi-Activity Wargame - A game designed to use a number of sub-games, mechanisms, and cardboard simulators, each of which is specifically tailored to an aspect of the conflict being examined, Taken together they should make up a coherent whole. There is a danger, however, of the sum of the parts being less than the whole...

Multi-Centre Games - A style of game in which different teams in various locations participate in one game via electronic communications including video-conferencing, social media such as WhatsApp, email or SMS. An example is a 2018 game on the

seizure of the USS Pueblo in 1968, when game control and the US and South Korean teams were based in London, the Soviet team in Sheffield, the North Korean team in Northamptonshire and the player represent the People's Republic of China in Stirling. There is a description of *One Hell of a Gamble*, a fiftieth anniversary multi-centre game on the Cuban missile crisis, in Nugget 260.

Multiple Choice Game - A game played where the player is given a series of situations and required to choose one of a fixed number of pre-determined alternatives. These alternatives lead to different situations with their own alternatives. Most are text-based solo-games using the numbered paragraph format of the commercial "Adventure Game Books", with limited choices. Some games, notably the *Ace of Aces* series of air combat books, use pictures to display the situations with a large number of available courses of action and use a mechanism to allow the player to interact dynamically with another player using a corresponding version of the book.

Multi-Player Solo Games (or Co-operative Games) - see page 19.

Multi-Scenario Games - These are usually short games where the players take it in turns to participate in a game with the same initial set-up, but with multiple scenarios. For example in Dick Scholefield's *The Birds are Singing and it's a Wonderful Day*, the players were given command of a Platoon of men, told to advance to a farm some two miles away, dig-in, and await further orders. In front of the player was a beautiful terrain model of the situation and play was conducted by an Umpire in a similar fashion to a Role-Playing game - except the player had several figures to control and they were not assigned numerical "characteristics". Each time the game was played, a different variation on the basic scenario was used. Later variations have had multiple different initial scenarios (but based on the same basic terrain layout) and used real historical situations with which the players could compare their actions after the game.

Multi-Table Games - Not simply games played on more than one table, but games played using the Back-to-Back game format with more than one copy of the same terrain layout. The players can only "see" what the Umpire determines they should be able to see, and updates the terrain model on their tables accordingly.

If Players are in the same room they must be seated with their backs to each other, their tables laid out before them. Only friendly forces under command and other forces "spotted" by sighting tables or under Free Kriegsspiel rulings are displayed; in addition Umpires usually do all the dice throwing and adjudicating. Usually players will be given a written situation brief detailing time, place, forces under command etc. The only rules needed by the players are tables of movement with ground and timescales.

To play, these games can be immensely exciting and challenging because of the "fog of war" they generate. Your enemy becomes more numerous in your imagination and seems to be everywhere. The values of reconnaissance, cover, dead ground etc., come to the fore and the need for quick decision making with only limited information is stressed.

Interplay between "friendly" players can be enjoyable with mutually incompatible briefs, e.g. the non-Italian speaking German officer seeking resupply from the non-German speaking Italian quartermaster. Interpose a Long Range Desert Group raid

and watch the sparks fly! To be thoroughly recommended to all wargamers, especially as an umpire because you can try out all your most imaginative ideas.

Narrative Games - Games in which the objective is to attempt to shift the game narrative in the participant's favour. A developing strand in matrix gaming which may be emerging as a separate genre. An early example was *The Oxygen of Publicity* on a terrorist incident in eastern Europe at COW 2006 (reported in Nuggets 207 and 212), more developed examples include *De Valera's War* on Irish independence in World War Two at COW 2016 (reported in Nugget 296) and *Painting The White House Red,* the Special Supplement to Nugget 304.

Narrative in Games - As distinct from Narrative Games. Many games produce their own narrative and this can be a source of enjoyment for participants in recreational games. Indeed in some Career Games the amount of agency that participants have is strictly limited and the creation of an enjoyable shared narrative is one of the main purposes and pleasures of the game.

"The dramatic narrative of a war is as important a weapon as guns and bullets".
(Macintyre, Ben (2007). *SAS Rogue Heroes*, Penguin).

Non-Conflict Games - Whilst some will see "wargame" as implying a game about some form of conflict, whether armed or not, members of WD have long been involved in developing games which deal with topics such as military aid of the civil authorities, emergency planning in the Health Service (see Russell King's "*It Could Happen Tomorrow! Emergency Planning Exercises for the Health Service and Business*", History of Wargames Project 2015), and public health practitioners response to diseases (see John Curry and Ed McGrady's "*Roll to Save: Gaming Disease Response - How to Construct Wargames in Support of Public Health Professionals*" History of Wargames Project 2021). We do not see the absence of conflict, or of military involvement, preventing a game from being a "wargame", and we even accept that commercial co-operative Euro games can fall within the genre.

Nugget - The Nugget, the Journal of Wargame Developments, see page 8.

Nurd - Originally a pejorative term for someone who played "mainstream" games, later applied to the willing targets of exploitationist commercial games.

Offside Reports - pieces written for The Nugget by participants at sessions at COW or VCOW which might include the salient points of the sessions, what was felt to be of most value to those who didn't attend, and any other applications of what was seen (cf. Onside Reports) (adapted from a piece by Graham Evans in Nugget 60).

Old School Wargame - A tabletop wargame, often using 20 or 25mm figures and basic terrain, played with rules similar to those written by the likes of Donald Featherstone, Charles Grant and Peter Young in the 1960s and early 1970s. cf. "Traditional Toy Soldiers Game".

Onside Reports - pieces written for The Nugget by the presenters of sessions at COW or VCOW stating what they were trying to achieve, how they went about it and ideally including the rules and any other information necessary to allow readers to run the game (cf. Offside Reports) (adapted from a piece by Graham Evans in Nugget 60).

One Brain-Cell Rules - see page 20.

Open Game - An Open Game is one where all the mechanisms, structures and, by implication, the forces and capabilities within the game are openly visible to all players. All Traditional Toy Soldier Games are, by definition, Open Games, as are most Board Games.

Some games have been designed with one side playing in an Open Game format, while the other side plays with their forces hidden from view (these usually require an Umpire to ensure fair play); e.g. a Vietnam game where the US Forces played in an Open format on a large table, and the VC forces played from where they could see the large table but moved their forces on a smaller table (using counters on a gridded map) hidden behind a screen. When the VC interacted with the US forces they were placed on the large table. See Hidden Movement, Hidden Set-Up and Closed Game.

Operational Level Game - A game designed at the Operational level of war, where the emphasis is on the employment of Corps and Divisions within a single campaign. Chris Kemp's *Not Quite Mechanised* (*NQM*) and Tim Gow's *Megablitz* are good example of operational level games. (See Strategic, Tactical and Skirmish Level Games).

Peace Games/Non-conflict Games - "Peace Game" has, in the past, been used to describe:

- games which did not involve fighting, such as the negotiation of treaties; and
- games about peace keeping operations.

Peace Game is now taken to mean any game that does not involve conflict, such as civilian emergency planning exercises and games about humanitarian or disaster relief. See, for example, Russell King's "*It Could Happen Tomorrow! Emergency Planning Exercises for the Health Service and Business*" (History of Wargaming Project 2015), "*Pandemic Planning*" (Nugget 347) and the impressive list of resources on the Covid-19 pandemic which can be found at https://paxsims.wordpress.com/2020/03/16/covid-19-serious-gaming-resources/. (Compare with Conflict Games).

Play By eMail Games (PBeMs) - A development of Play-by-Mail Games brought on by widespread electronic connectivity in the late 1990s in which participants play the game via email. A recent example is *Kara Sea 1942* (Nugget 343) in which game control sent players a situation report each morning and they submitted orders each evening. Paddy Griffith's book "*Sprawling Wargames*" (History of Wargames Project, 2009) contains a chapter on the early history and development of PBeMs.

Play-by-Mail Game (PBM) - A game designed to be played by post. Requires a high degree of commitment by the players to be played properly, as delays in turnaround of orders can ruin the game. See also Play by eMail Games.

Plumpire - Player-Umpire. A subordinate umpire to a main umpire, with some freedom of action and visibility of the complete tactical situation. The players may not be aware that the plumpire is part of the umpiring team. A plumpire may alternatively be the only umpire, running the enemy in a Multi-Player Solo Game.

Pol/Mil Games - Games in which the key focus is the interaction between political and diplomatic activity and military operations. These often have a contemporary feel but can be equally valid as a way of looking at, for example, the Roman Republic.

Portable Wargames - see Gridded Games.

Professional Wargame - a game where the primary aim is for a serious purpose such as operational analysis, research, education or training. The attendees (except in education establishments) are typically paid; designing, developing and playing the game is part of their normal working duties. Most of these types of games are run by governments, the public sector, NGOs, large organisations or educational establishments (adapted from Curry, John (2021). *Re: hobby introducing errors into professional wargames*. post online on WDDG at https://groups.io/g/WDDG/message/342). See also "Serious Games" and "Recreational Wargames/Wargamers".

Professional Wargamers are:
i. those who develop or participate in professional wargames; or
ii. those who derive a substantial income from any form of wargaming.
(from *hobby introducing errors into professional wargames* (2021). Online discussion on WDDG at https://groups.io/g/WDDG/topic/82652232#348).

Programmed Enemy - A mechanism in a game where the actions of one side are decided before the action takes place, either in a simply reactive mode, or with a number of options triggered by player events. For example if the player does this, the enemy will do that... Programmed Entry can refer to all or part of the enemy force. See Multi-Player Solo Games.

Recreational Wargames/Wargamers (or Hobby Wargames/Wargamers) - Recreational wargames games are primarily played for entertainment, in the participants own time and at their own expense (adapted from Curry, John (2021). *Re: hobby introducing errors into professional wargames*. post online on WDDG at https://groups.io/g/WDDG/message/342). This is not to say that the games are trivial, they will often be "serious games" giving insights into historical events; or that they are always "fun" - players may be quite uncomfortable when a game dispels any delusions of adequacy or when a "Black Game" takes them out of their comfort zone.

There is not a clear distinction between the nature of recreational wargames and professional wargames, many recreational wargamers in WD enjoy playing "professional wargames" and many "professional wargamers" are recreational wargamers in their spare time.

Remote Games - see Distance Games.

Repurposed or Detournement Games - taking elements of a well known game and re-engineering them for use a different context.

Monopoly has inspired:
- Nic Robson's *The Blitz* (which also used counters from "*Risk*" to produce a game about fire fighting in the London Blitz, 1940).
- Tim Gow's *Shut It!* (aka *Look out George, he's got a shooter,* a tribute to the TV series *The Sweeney*)

- John Armatys's *Better Red than Dead* (officers' careers in the Red Army 1918 - 1941, see Nugget 249) and *Coastal Command* (the story of RAF Coastal Command in World War Two, see Nugget 283).

Cluedo has been a particularly fruitful source of game ideas with recent examples including:

- Matthew Hartley's *The Truth Is Really Out There* - investigative journalism (see Nugget 194).
- Russell King's *Cluedo Baader-Meinhof Wagen* aka *Cluedo Red Army Faction* - on terrorism in West Germany in the 1970s (see Nugget 338 and Colour Supplement 338).
- John Armatys's *Cluedo Hostage Rescue Team* - rescuing the traditional Cluedo characters who have been taken hostage by terrorists in Tudor Manor (see Nugget 341).

Resolution (of a game) - see the section "Game Design" (page 10).

Resource Allocation Game - A game where the primary mechanism by which success or failure is determined is not combat resolution, but judicious allocation of logistic supplies, or political influence cards, or industrial development points, etc.

Road Movie Game - A game in which the forces involved are moving from one place to another while various events take place along the way. Usually played at the Skirmish/Tactical level with toy soldiers on a model terrain using Multi-Player Solo Game techniques. Most Road Movie games, however, use a pre-generated list of random events, rather than a Role Playing Game format so that the games are repeatable. See Multi-Player Solo Games, Role-Playing Games and Programmed Enemy. Ian Drury's game *Hommes Soups* and Richard Brooks's *Drums along the Watusi* are Road Movie Games.

Role-Playing Games (RPG) - There are two differing aspects to Role-Playing games. They normally refer to a game in which the players represent specific individuals with assigned skills and abilities (often quite different from their real skills and abilities); all other elements of the game being represented by the Umpire. These are associated with some commercial fantasy and science-fiction games, such as *Dungeons & Dragons* and *Traveller*, in which each player usually controls only one "character".

However, Role-Playing can also be used to mean that the players are invited to "act out" the personality assigned to them, for example if their assigned characters are cowards, they will "succeed" by running away at the crucial moment. This is very difficult to achieve as it is often reasonably easy to make a player who is, in reality, a natural leader to act as a coward; it is difficult to get a player who is, in reality, a shy and timid individual to act out the role of a natural leader. It may, therefore, be appropriate to type-cast players to improve the chances of the game working properly.

Role-Playing games can be seen as a spectrum, with basic games requiring the players to play essentially their own character, but with game assigned strengths and weaknesses; through to more advanced Role-Playing games which require the players to act out of their individual characters and personalities, as well as giving them assigned strengths and weaknesses. It is also possible to introduce role-

playing elements into other games, such as Committee Games, by playing the appointments as real characters with programmed strengths and weaknesses. See Skirmish Level Games.

Scarlet Games - An emerging genre of games that apply wargaming techniques to subjects around sexual politics. An example is *Miami Vice* (Nuggets 162 and 330). A number of "safety tools" which can be used to reduce the risk of players in scarlet games having a distressing experience can be found at https://goldenlassogames.com/tools.

SCRUD - see Simple Combat Resolution Using Dice.

Serious Games - Games played for a serious purpose such as operational analysis, research, education or training (adapted from Curry, John (2021). *Re: hobby introducing errors into professional wargames*. post online on WDDG at https://groups.io/g/WDDG/message/342). Serious games may be played for recreation or as professional wargames.

Silly Hat Game - A game in which the players wear appropriate hats to help them to get into their roles and to indicate to others what their roles are. Some wargamers think that wearing hats is silly; the prudent game organiser will indicate that silly hats are optional. It has become a tradition that silly hats are worn at the finale of VCOWs by those who wish to do so.

Simple Combat Resolution Using Dice (SCRUD) - A system of quickly resolving combats using 6-sided dice. Each tactical entity (Regiment, Company, Division, etc.) on each side is represented by a single dice. All the dice for each side are rolled and then lined up in order, highest score to lowest. The dice can be modified by whatever factors are relevant, but scores higher than 6 or lower than 1 are not allowed. The two lines of dice are then compared, a pair of dice at a time, the higher score beating the lower score and three defeats eliminating a unit. SCRUD is sometimes used for combat resolution in Matrix Games.

Simulator (or Cardboard Simulator) - see page 22.

Skirmish Level Game - A game set at the level of modelling the actions of individual people in a battle. Differs from a Role-Playing game in that there are usually several figures under the control of the players, and the number of players is few (typically only two). They also tend to have fewer individual characteristics assigned to each figure in order to reduce bookkeeping.

Staff Planning Game - A game in which the players work out how to carry out a course of action as the Staff of a planning headquarters. Differs from a Committee Game in that the players form a hierarchy within the game and "they are all on the same side". Usually does not involve separate Hidden Briefings to the players. See Hidden Briefings and Committee Game.

Strategic Level Game - A game designed at the Strategic level of war, usually at the national level with the emphasis on the employment of armies and fleets (see Operational, Tactical and Skirmish Level Games).

Tabletop Game - A game played on a tabletop... Usually with toy soldiers on a model terrain.

Tactical Exercise Without Troops (TEWT) - see page 21.

Tactical Level Game - A game set at the tactical level, with the emphasis on the operation of individual units (battalions and companies or less). Most games that cover a single battle are tactical level games. See Strategic, Operational and Skirmish Level Games.

Telephone Battle/Telephone Game - A game played where the players (who may be in a single location or widely dispersed) communicate by telephone to pass messages. Normally the players are divided up into teams creating a military hierarchy, and conducting an operation by communication from the higher formations down the chain of command to the subordinate commanders, eventually to the Umpires. Ideally, the players should not know where the Umpire level in the game starts... See Voice Games.

The Curse of the Third Argument - The tendency to put forward a weak (or sometimes pathetic) third reason in a Matrix Game which requires players to produce three “reasons” in support of an argument.

Top Down Game Design - A game design system that only concentrates on the overall results of battles, and not the minute details of combat resolution. The designer typically starts with the question, “who won?”, followed up with “why?” seeking the most important factors only, and trying to introduce these factors into the game design. Top Down game design is the only practical method of trying to get a game to fit into a specific time period. See Game Design and One Brain Cell Rules.

Toy Soldiers - In many ways, the touchstone of a WD Member is whether toy soldiers are referred to as toy soldiers, or as “miniature figures”. The assumption being that WD members are self-confident enough about their hobby to be honest about the elements that make up parts of it, without being hypocrites. You should note however, that this is not a pejorative term. Beautifully painted toys obviously have an intrinsic artistic value and do add to the aesthetic qualities of certain types of game but, to the WD member they are not essential (and in some cases not even desirable).

Paper toy soldiers are a useful substitute for the “real” thing, the Junior General’s site https://www.juniorgeneral.org/ is a good source of free downloads. The search term “Soldados de papel recortables” produces interesting results. Helion publish a number of books of paper soldiers by Peter Dennis and additional ranges are available from his web site https://peterspaperboys.com/.

Very few games actually ***need*** toy soldiers, which are normally used only as markers and can be replaced by counters or blocks, albeit at the cost of aesthetic appeal. The “Commands & Colors” series of games are meant to be played on a board with wooden blocks but have a considerable following who play the game on hex terrain with proper toys.

Traditional Toy Soldiers Game - A pejorative term for the style of wargame common in the late 1970s, played on a tabletop, with a competitive spirit using painted “miniature figures” (or “miniatures”). The game does not have hidden movement and all forces are revealed to the opponent; indeed, an element of the traditional game is the arbitrary selection of forces (usually by “points values” or from

an “army list”) to ensure that both sides are “equal”. The game is normally played without an Umpire and with complicated sets of rules designed to cover every eventuality that might arise during a battle in the selected period. The terrain is also arbitrarily selected and the forces may be those that, historically, never faced each other (such as Samurai and Aztecs). Victory is decided by the numerical value of selected terrain features or casualties. Common features of the traditional game are that few are played to their conclusion, due to time constraints; and they involve protracted argument by the players over interpretations of the rules. See Bottom Up Game Design, Mainstream and Nurd, cf. “Old School Wargames”.

Umpired Games - see page 13.

Umpire-Light (or Lite) - A system, usually employed in a Megagame where the Liaison Umpire is required to carry out combat resolution, thus saving on the requirement for Combat Umpires. See Liaison Umpire, Combat Umpire and Megagame.

Unconventional Wargaming Materials - Things like Lego, string, hair rollers, fish tank flora …

Underneath the Banyan Tree - A philosophical debate about the purpose of wargaming, what we want to get out of it, and what it means to us.

Variable-Length Bounds - a technique to adjust the time interval of a game to critical events. For example if it is obvious that no contact will be made for a period of 12 hours, when the time in the game will be moved on by 12 hours and the tactical situation reassessed there, rather than repeat a standard one hour game turn 12 times in a row. A difficult concept to grasp and adopt, because it implies ignoring those units out of contact and moving the elements of a force direct to their critical events, despite the fact that some of these events occur at different times. Best used with a “standard” time slice, but with ways of incorporating multiple slices in a single turn.

VCOW - A virtual conference of wargamers, accessible to a global audience. The first VCOW was held because the Covid pandemic meant that COW 2020 had to be cancelled. The event was a success and the aim now is to hold a VCOW in February each year.

Vertical Wargame - A game where the players see the playing pieces and terrain as they would in reality, as vertical items in their fields of view, rather than the “top down” horizontal model that we get normally from wargame tables and maps. See Command Vista Game and, for a skirmish level virtual example, the offside reports on *Hadley’s Hope* in Nugget 332.

Virtual Gaming - see page 38.

Voice Games - see page 18.

Wargame - The Ministry of Defence Wargaming Handbook (2017) notes at paragraph 1.4 that “There is no single, commonly accepted, definition of ‘wargaming’” and provides a definition which can be added to the 17 listed in William L. Simpson Jr.’s “A Compendium of Wargaming Terms” (Updated 8 July 2018). We prefer not to define “wargame” because doing so can exclude useful game formats

and may limit the development and spread of new ideas and concepts. See “Defining Wargames” in Nugget 332. Non-conflict and peace games have long been within the ambit of WD.

WD Display Team - A team which puts on a presentation game at wargames shows. There are display teams in the North, South and West of Great Britain, and Europe (which is actually a one-man branch of WD Display Team (North)). If you want to form a team and present a game at a show get in touch via the WD website.

WDDG - The Wargame Developments Discussion Group https://groups.io/g/WDDG is an e-mail group of wargame designers (most of whom are members of Wargame Developments) who discuss different approaches to the design of military conflict simulations. It also acts as a notice board for WD.

Workshop - An experimental “brainstorming” session, where the participants discuss and develop games. This could involve examining all the aspects of a type of conflict that the participants feel important, for example a siege workshop. Holding a workshop can be a very useful tool to use before starting to design a game, or when the creative process in a particular project is stalled for some reason, or when a game design is broken and there is the possibility that the thoughts of others might rescue it.

Zeitgeist Games - To an extent any game that seeks to capture the something of a particular period of history could be considered to be attempting to capture that era’s Zeitgeist (see Cultural Wargame) but the term Zeitgeist Game is more particularly reserved for those games that abandon conventional gaming techniques in order to achieve a whole-hearted embrace of a particular theme. In some ways these games mark the point where wargames and performance art merge. An example might be the *Warsaw Pact Political Consultative Committee* series of vodka-fuelled role plays (see Nuggets 308 and 336).

The Wargame Developments Constitution

1. The group shall be known as WARGAME DEVELOPMENTS (also abbreviated to and known as WD).

2. The group shall be a non-profitmaking organisation, and any surpluses shall be used to further the group's aims.

3. The group's aims shall be:
   a. To develop and propagate a wide variety of wargaming ideas and techniques and to develop new and existing methods of wargaming.
   b. To publish a regular journal (which shall be known as THE NUGGET) as a forum for discussion and for the exchange of ideas and information.
   c. To organise an annual conference (which shall be known as the CONFERENCE OF WARGAMERS, also abbreviated to and known as COW) for members of the group.

4. The group's Principal Officers shall be:
   a. The **Chair and Conference Organiser**, whose duties shall be:
      i. To chair the Annual General Meeting and any plenary session at the annual conference.
      ii. To organise - with the assistance of the Membership Secretary and Treasurer - the annual conference (COW).
      iii. To ensure that all members are notified of the COW programme and informed of its outcomes by means of reports in the group's journal.
   b. The **Editor**, whose duties shall be to edit the group's journal and to ensure that it is published at least six times each year.
   c. The **Membership Secretary and Treasurer,** whose duties shall be:
      i. To keep an accurate record of all monies received by and expended by the group in pursuit of its aims.
      ii. To keep an accurate record of all members of the group.
      iii. To assist the Chair and Conference Organiser in the organisation of the annual conference (COW).
      iv. To assist the Editor in the despatch of the journal to members of the group.

5. The group's other Officers shall be:
   a. **Display Team Organisers**, whose duties shall be to co-ordinate on a regional basis WD's presence at wargame events.
   b. **Colour Supplement Editor**, who duties shall be to assist the Editor by producing an online colour supplement to THE NUGGET as and when required.
   c. **Assistant Membership Secretary and Treasurer**, whose duty shall be to assist the Membership Secretary and Treasurer.

6. The Officers serve on an annual basis and must stand for re-election at the Annual General Meeting.

7. The **Governing Committee** shall comprise the Principal Officers. Its duty shall be the running and administration of Wargame Developments between Annual General Meetings. For this purpose it may:

a. Co-opt members of WD to serve on the committee, as necessary. The names of those co-opted shall be reported to the Annual General Meeting.
b. Replace any Principal Officer who:
    i. Resigns during their year in office.
    ii. Becomes incapable of continuing to discharge the duties of their office through illness or - in the unanimous opinion of the other Principal Officers - other incapacity.

8. The Annual General Meeting shall be held after the final sessions of the annual conference and shall be open to all members. Agenda items shall be submitted to the members in advance of the Annual General Meeting.

9. The Membership Secretary and Treasurer is empowered to open an account with a British Bank or other deposit-taking institution for the purposes of the group and to ensure the safekeeping of its funds. There shall be a minimum of three signatories on the account. The Membership Secretary and Treasurer may sign cheques or make payments as a sole signatory.

10. The annual subscription to the group shall be set at the Annual General Meeting (by simple majority vote) and shall be binding until the next Annual General meeting.

11. This Constitution can be amended by the Committee. Any changes shall be reported to the next Annual General Meeting.

Updated 30th October 2022.

Tables of Probabilities

1D6			% chance	
	Out of 6	This result	This or lower	This or higher
1	1	16.7	16.7	100
2	1	16.7	33.3	83.3
3	1	16.7	50.0	66.7
4	1	16.7	66.7	50.0
5	1	16.7	83.3	33.3
6	1	16.7	100	16.7

2D6			% chance	
	Out of 36	This result	This or lower	This or higher
2	1	2.8	2.8	100
3	2	5.6	8.3	97.2
4	3	8.3	16.6	91.7
5	4	11.1	27.7	83.4
6	5	13.9	41.7	72.3
7	6	16.7	58.3	58.3
8	5	13.9	72.3	41.7
9	4	11.1	83.4	27.7
10	3	8.3	91.7	16.6
11	2	5.6	97.3	8.3
12	1	2.8	100	2.8

3D6			% chance	
	Out of 216	This result	This or lower	This or higher
3	1	0.5	0.5	100
4	3	1.4	1.9	99.5
5	6	2.8	4.7	98.1
6	10	4.6	9.3	95.3
7	15	6.9	16.2	90.7
8	21	9.7	25.9	83.8
9	25	11.6	37.5	74.1
10	27	12.5	50.0	62.5
11	27	12.5	62.5	50.0
12	25	11.6	74.1	37.5
13	21	9.7	83.8	25.9
14	15	6.9	90.7	16.2
15	10	4.6	95.3	9.3
16	6	2.8	98.1	4.6
17	3	1.4	99.5	1.9
18	1	0.5	100	0.5

Best of 2D6

	Out of 36	This result	% chance This or lower	This or higher
1	1	2.8	2.8	100
2	3	8.3	11.1	97.2
3	5	13.9	25.0	88.9
4	7	19.5	44.5	75.0
5	9	25.0	69.5	55.6
6	11	30.6	100	30.6

D6 x D6

	Out of 36	This result	% chance This or lower	This or higher
1	1	2.8	2.8	100
2	2	5.6	8.4	97.2
3	2	5.6	14.0	91.6
4	3	8.3	22.3	86.0
5	2	5.6	27.9	77.7
6	4	11.1	39.0	72.1
8	2	5.6	44.6	61.0
9	1	2.8	47.4	55.4
10	2	5.6	53.0	52.6
12	4	11.1	64.1	47.0
15	2	5.6	69.7	35.9
16	1	2.8	72.5	30.3
18	2	5.6	78.1	27.5
20	2	5.6	83.7	21.9
24	2	5.6	89.3	16.3
25	1	2.8	92.1	10.7
30	2	5.6	97.6	7.9
36	1	2.8	100	2.8

D6 - D6

	Out of 36	This result	% chance This or lower	This or higher
+ 5	1	2.8	2.8	100
+ 4	2	5.6	8.3	97.2
+ 3	3	8.3	16.6	91.7
+ 2	4	11.1	27.7	83.4
+ 1	5	13.9	41.7	72.3
0	6	16.7	58.4	58.4
- 1	5	13.9	72.3	41.7
- 2	4	11.1	83.4	27.7
- 3	3	8.3	91.7	16.6
- 4	2	5.6	97.3	8.3
- 5	1	2.8	100	2.8

Difference between 2D6 and 1D6			% chance	
	Out of 216	This result	This or lower	This or higher
0	15	6.9	6.9	100
1	31	14.4	21.3	93.1
2	31	14.4	35.6	78.7
3	30	13.9	49.5	64.4
4	28	13.0	62.5	50.5
5	25	11.6	74.1	37.5
6	21	9.7	83.8	25.9
7	15	6.9	90.7	16.2
8	10	4.6	95.4	9.3
9	6	2.8	98.1	4.6
10	3	1.4	99.5	1.9
11	1	0.5	100	0.5

Playing Cards	% chance with number of jokers in pack		
	0	1	2
Specific Card	1.92	1.88	1.85
Specific Value	7.69	7.54	7.41
Court card	23.07	22.64	22.22
Specific Suit	25.00	24.53	24.07
Specific Colour	50.00	47.17	48.15

Suit Order:

Bridge	♣	♦	♥	♠
Whist*	♥	♣	♦	♠
Skat	♦	♥	♠	♣

* as used to determine the turn sequence in Richard Brooks's *Minischlact* and adopted for a number of other games.

If you need card symbols for game materials and are using MS Windows the following works with most text fonts (including Arial, Times New Roman and Calibri). Make sure that the number lock is on, hold down the "Alt" key and type one of the numbers below using the key pad, when you release the Alt key you get the symbol shown:

3	♥
4	♦
5	♣
6	♠

The Quantification of Subjective Data

It is sometimes useful to be able to express words as numerical probabilities, or numerical probabilities in words. One approach to doing this is shown in the section on matrix games on page 29. There are a number of alternative systems, including:

	Probability	Key words and phrases
Near Certain	90 - 99%	will, shall, is expected, is anticipated, extremely likely.
Probable	65 - 89%	likely, will, we believe, we estimate, it is probable that.
Possible	36 - 64%	even chance, may, could.
Improbable	10 - 35%	unlikely, probably not, might.
Slight Chance	1 - 9%	highly doubtful, near impossible, extremely unlikely.

(From an unclassified extract of the secret US report Strategic Defense Initiative Organization (SDIO), Capstone Systems Threat Assessment Report. Global Protection Against Limited Strikes, SDIO-SI- 2660-002-93 dated 3rd January 1993 and quoted by Thomas Y Atkins in Nugget 110 (with correction in Nugget 111)).

	Probability
Highly Likely	> 90%
Likely	60 - 90%
Even chance	40 - 60%
Unlikely	10 - 40%
Highly unlikely	< 10%

(From NATO AJP-2.1 2016 Probability Levels, Probability Statements for Assessments (Numerical and Verbal)).

Qualitative Term	Probability
Almost certain	≥ 95%
Highly likely	80 - 90%
Likely or Probably	55 - 75%
Realistic possibility	40 - < 50%
Unlikely	25 - 35%
Highly unlikely	10 - 20%
Remote chance	≤ 5%

(UK Professional Head of Intelligence Assessment (PHIA) Probability Yardstick, 2018).

For further examples and a discussion on the perils of using them see Irwin, Daniel and Mandel, David R. (2020). Variants of Vague Verbiage: Intelligence Community Methods for Communicating Probability, *SSRN Electronic Journal*, June 2020.

See https://www.visualcapitalist.com/measuring-perceptions-of-uncertainty/ for a slightly disconcerting study on how a sample of NATO officers interpreted verbal descriptions as numerical probabilities.