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Analytic War Plans:
Adaptive Force-Employment Logic in the
RAND Strategy Assessment System (RSAS)

William Schwabe, Barry Wilson

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A RAND NOTE

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PREFACE

The work described in this Note was sponsored by the Director of Net Assessment in the Office of the Secretary of Defense (OSD). It was conducted in the RAND Strategy Assessment Center (RSAC), which is part of RAND’s National Defense Research Institute (NDRI), a federally funded research and development center sponsored by OSD.

Comments are welcome and should be addressed to the authors or to Dr. Paul Davis, Director of the RSAC.
SUMMARY

The RAND Strategy Assessment System (RSAS) simulates future USSR vs. U.S. armed conflict scenarios by playing Red Agent and Blue Agent programs against each other. Independent, political-military decisions of other countries are simulated by Green Agent. A set of integrated force simulation models, called CAMPAIGN, keeps track of forces, executes orders from the Agent programs, and computes the outcomes of military operations. Military analysts can use a Control Agent program to replace or override Red, Blue, or Green Agents. Human players can observe, override, or replace the decision logic in the Agent programs. The Agent programs have alternative sets of decision rules, which analysts using the RSAS can control.

Red and Blue Agents are each headed by a National Command Level, which gives guidance to subordinate Military Command Levels. The programs that the Military Command Level models execute are called Analytic War Plans (AWPs). These have three functions:

- To provide adaptive force-employment orders as part of simulations.
- To provide templates and standard, modular procedures to be used by military planners and analysts as they construct and test concepts of operations based on alternative strategies.
- To provide an evolutionary knowledge base that can be used to communicate concepts and details thereof from one group of analysts/planners to another.

AWP programs use conditional logic to adapt the force orders they issue. This replaces the more familiar approach in actual military operations plans (OPLANs) and most simulations of having set, “scripted” orders. The use of unconditionally scripted orders for analysis is fundamentally flawed as a basis for analytic comparisons because, in fact, force employment would change if capabilities and scenario changed. For example, it is common to compare the effectiveness of U.S. defenses with and without weapon X, without considering whether an attacker would change his strategy if we had weapon X. AWPs can represent how strategies might be adapted.

1Also called Force Agent.
AWPs represent a rule-based method for building in sensible adaptations that move in the direction of optimization. True optimizations are of dubious relevance in much work because of their dependence on information the commanders would not have about forces, laws of war, and so forth.

Each different strategy for a Command or theater is represented by a different AWP. An alternative approach would be feasible, but RSAS developers opted for keeping plans relatively pure for the sake of clarity and familiarity. Although RAND has not had access to actual OPLANs in developing the RSAS AWPs, the AWPs are similar enough to OPLANs that JCS and CINC planners should be able to use their own versions of AWPs to represent and study strategies and concepts of operations.

AWPs are written in the **RAND-ABEL®** computer language. Individual plans are named with a number following the name of their command. Plans ending in the number 0 are peacetime plans that can be used to monitor the bounding conditions on the command.

AWP source code can be accessed through the RSAS background menu by pulling down the menus Abel-Rules/AWP, then either Blue or Red, and the name of the command. Files ending in “.A” contain RAND-ABEL code.

In addition to the Red, Blue, and Green Agents already mentioned, there is a **Control Agent**, which can act for the RSAS user in doing things the user would otherwise do interactively with the computer.² Control Agent has three modes of operation:

- **Scenario Generator** by which the user schedules interventions with the RSAS Data Editor, to pass instructions to other Agent programs at desired times.
- **Control Plan** by which the user schedules interventions in an interpreted RAND-ABEL plan, similar to an AWP, with moves, conditional logic, and orders. This maximizes flexibility and collects interventions in one place and is often used as a prototype for developing AWPs.
- **Order Function** by which the user inserts instructions for immediate execution.

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²See Davis and Hall, 1988, pp. 58-65 for additional information on Control Agent.
In an Analytic War Plan, there is a hierarchy of functions. The highest level is the concept of operations for the campaign. This is divided into phases, which consist of moves, which evoke procedures, such as time-sequenced orders to forces.

A phase is composed of a number of moves and usually lasts for more than one day. Typically, RSAS plans have preparation or deterrence, conventional, nuclear, and termination phases. A move is composed of a number of procedures that are done at one time. A combat phase, for example, may have several reinforcement and air allocation moves. A procedure is composed of specific force order tables that accomplish a single purpose. Examples deploy U.S. forces in-place in AFCENT or order a limited nuclear strike in-theater. Phases and moves are specific to individual plans, and their names contain the name of the plan. Procedures are more general and can be used in any plan. In practice, procedures are sometimes performed directly from a phase.

Procedures contain force order tables that issue orders to the various force models of the RSAS. Procedures may be written for a particular AWP, in which case the first part of its name is the plan name, or they may be written as general procedures. If for a single plan, their on-line source code is in the file containing the plan's top-level, phase, and move functions; in this example, the file is Src/Blue/Awp/Afcnt/afcent1.A. The general procedures are in file library.A for the appropriate command, such as Src/Blue/Awp/Afcnt/library.A.

The plan, phase, and move functions are in files bearing the AWP's name. Procedures or orders unique to a plan are included in the plan file also; other procedures, which may be used by more than one plan, are in library files. Plans and library procedures for a given command, such as AFCENT, are in directories bearing the command's name. All such command directories are in a directory named for an agent, such as Blue. The Blue and Red plan directories are in a directory named AWP, which is in the Src (source) directory, which houses all RSAS RAND-ABEL source code.

Authorization for plans to take many important actions must be specifically granted through the Authorization variable. Authorization comes from the National Command Level models, the user, a control plan, or the scenario generator. The JCS or SHC coordinating plans can set some authorizations if those plans are authorized to do so.

Preplanned communications up the Red or Blue chain of command are represented by the function Notify-higher-authority, which passes on a reason and recommendation.
In addition to preplanned communications represented by notifications, AWPs notify higher authority of violation of active **bounds**. Bounds can be thought of as conditions that, if arising, might prompt the NCL to reconsider strategy or guidance.

In the Automated mode of running the Blue and Red Agents, the NCL models (Sams and Ivans) do not specify the specific AWPs to run in each command, but instead specify the desired escalation level, objectives, and strategies (as well as the control variables mentioned previously). From these guidances, the Global Command Level AWPs (JCS and SHC) choose the best fitting plan.

**Escalation-guidance** specifies for each command the level of hostilities, and implicitly the weapons to use, in order to achieve its objective.

Analytic war plans issue orders to the RSAS force models through RAND-ABEL **order tables**. The JCS and SHC war plans communicate to Green Agent through Cable and Announcement functions that give desired third-country postures. All plans also communicate with their superior plans in the command hierarchy through the Notify-higher-authority function, giving the reason for the communication and a recommendation for action. Communication downward is through authorizations and other controls.

A log tracing the execution of the Red and Blue Agents is available through the background menu. Log statements in the analytic war plans write execution information into the game log at three levels of detail: decisions only, decisions and reasons, and decisions, reasons, and notes. Log information can be viewed during or after the game at any level up to the level written.

**Control plans** are standardized interpreted functions allowing the analyst to schedule interventions such as parameter changes or orders to forces on the basis of time or condition in the simulation.\(^3\) For example, the baseline AWP might not employ certain units explicitly, leaving their employment to be determined by a general force-allocator program called the Ground Commander Model embedded in Campaign-MT. A control plan, however, might specify that, in addition to all the orders coming from the

---

\(^3\)Control plans are part of the larger “analyst plan,” which is the interpreted files collecting the analyst’s special instructions or modifications for the particular run or set of runs in question. Typically, they will include a number of statements establishing values for combat-model parameters and specifying such administrative matters as log level, the displays to be automatically reported into the log, and game duration. They may also contain statements changing decision-model parameters for Green, Red, or Blue. And they may contain modified versions of functions appearing in any of the RAND-ABEL models used in the simulation. These modified versions will then be used interpretively instead of the compiled versions during the run.
baseline plan, specific orders should be sent to these particular units at specified times or events.

Control plans can represent the analyst by changing the laws of war or inserting exogenous events, can represent and supplement AWPs by issuing orders to forces, and can play the NCL by picking AWPs and setting AWP guidance. Often a control plan is a mix of the three. In the role of AWPs, control plans have often been used in the AWP development process to test in the interpreter the orders of a planned AWP before building its more complex structure.

One control plan exists for each of the Blue, Red, Green, and Force Agents. All are run by Control Agent. Default copies of these control plans can be found in the file Rsas/Run/INT/Hide/analyst-plan.A, along with documentation and examples.

RAND-ABEL is relatively easy to read. Here is an example of a function containing log statements, order tables, and some conditional logic. Although one would want to know definitions for some of the terms, readers with a general military background will be able to make sense of most of it:

Define AFCENT1-forward-defense-order:

Log-decision " Ordering dispersal of air forces".

<table>
<thead>
<tr>
<th>Table Disperse-order</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>unit</td>
<td>owner</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
</tr>
</tbody>
</table>

[End Table].

If Today < C-Day of AFCENT + 1
Then
{
Log-decision " NORTHAG delaying vice defending".
Log-note " CENTAG axis mission Defend".

---

4If a control plan is used to define a scenario through AWP selection and controls, it is a good idea to avoid also using the scenario generator, through the Data Editor or through application of a delta WSDS. Both use some of the same mechanisms and can easily step on each other's efforts.
AWPs make extensive use of RAND-ABEL decision tables, in which columns of conditional (input) variables appear to the left of a solidus (/) and one or more columns of actions (outputs) appear to the right. These decision tables are logically equivalent to sets of if-then-else rules in which the conditions on each row are checked against the current situational data base. If they match the current situation, the output action is taken and the remaining rows are not executed; otherwise, each row is checked in turn, until a match is or is not found. In this example, the conditions of NATO cohesion and prescribed strategy (known to the program) are used to determine a plan for AFCENT. If no match is otherwise found (the -- means “any”), the peacetime plan is selected:

<table>
<thead>
<tr>
<th>Axis</th>
<th>Mission</th>
<th>Start-Kms</th>
<th>End-Kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR-2</td>
<td>Defend-delay</td>
<td>0</td>
<td>159</td>
</tr>
<tr>
<td>CEUR-3</td>
<td>Defend-delay</td>
<td>0</td>
<td>126</td>
</tr>
<tr>
<td>CEUR-4</td>
<td>Defend-delay</td>
<td>0</td>
<td>149</td>
</tr>
<tr>
<td>CEUR-5</td>
<td>Defend-delay</td>
<td>0</td>
<td>96</td>
</tr>
<tr>
<td>CEUR-6</td>
<td>Defend-delay</td>
<td>0</td>
<td>40</td>
</tr>
</tbody>
</table>

AWPs and Control Plans contain many orders written as RAND-ABEL force order tables. These tables are executable RAND-ABEL code and must be correctly formatted. The RAND-ABEL force order tables are actually calls to lower-level utility functions which translate the table entries into CAMPAIGN, Referee, and Flag model orders.

Notifications are the message mechanism by which commands within Red and Blue Agents report to their superior commands. Thus a notification from an AFCENT analytic war plan would be received by the EUR plan and, if sent further, would be
received by the JCS plan, and finally the NCA. This communication is one-way, from lower commands to higher.\(^5\)

**Cables** are the message mechanism by which the GCLs of Red and Blue Agents communicate their requests for changes in political postures, basing privileges, and control of forces. This communication is one-way from Red or Blue Agent to a third country, and may be delayed depending on the political and military situation in the receiving country.

**Hotlines** are the message mechanism by which the GCLs of Red and Blue agents may communicate. The message below means “If you Do-not-escalate, then I Will-not-escalate, else I will escalate to Eur-demo-tac-nuc at day 10, 0 hour.”

<table>
<thead>
<tr>
<th>Hotline request</th>
<th>Hotline reward</th>
<th>Hotline penalty</th>
<th>Hotline deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do-not-escalate</td>
<td>Will-not-escalate</td>
<td>Eur-demo-tac-nuc</td>
<td>(10 * 24)</td>
</tr>
</tbody>
</table>

**Announcements** are the message mechanism by which the GCLs of Red and Blue agents and third countries modeled by Green Agent communicate “If-then-else” messages. The message below means “From FRG To-Blue: If you Provide-nuc-defense, then I will do nothing (--), else I will Cease-fire at day 10, 0 hour.”

<table>
<thead>
<tr>
<th>Announce country</th>
<th>Announce channel</th>
<th>Announce action</th>
<th>Announce reward</th>
<th>Announce penalty</th>
<th>Announce deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG</td>
<td>To-Blue</td>
<td>Provide-nuc-defense</td>
<td>--</td>
<td>Cease-fire</td>
<td>(10 * 24)</td>
</tr>
</tbody>
</table>

**Force queries** are RAND-ABEL functions that report a data value about the state of the world from the force models. Force queries begin, with a few exceptions, with the words “Ask-force.”

The **Flag Model** is a RAND-ABEL force model available to the Red and Blue agents. Using a simple set of arrays, it keeps track of the status of a set of actions by region and actor. When one of the list of actions is ordered, a flag is raised (or single value set) to indicate that the action is taking place. No detailed modeling takes place. The RSAS decision agents often use this mechanism to indicate actions for which no detailed force model exists, or is even possible. Some of these actions cover capabilities of other force models. Actions such as Conventional-combat are only modeled by

\(^5\)Higher commands communicate to their subordinates by issuing authorizations, other guidance, and force orders.
CAMPAIGN in certain regions of the world. The Flag Model allows these actions to be captured worldwide.

Enumerations are ordered sets of values, whose names, by RAND convention, include the prefix “Type.” Rule writers need to know the declared values of enumerations to test on them in If-Then statements.

The body of this Note describes the structure of Analytic War Plans and Control Plans in detail. It provides annotated examples of a Control Plan and two Analytic War Plans—one a forward defense plan for NATO’s Central Region and the other a global coordination plan for the JCS. Reference Sections give formats for all RAND-ABEL order tables, lists of predefined variables and their allowed values, formats for queries to Force simulation models, and more.

A considerable body of work has already been accomplished, but much more remains to be done. Currently, AWP s are available for the major theaters, but there is considerable need and potential for representation of additional strategies and extension and refinement of those already modeled.
ACKNOWLEDGMENTS

Paul Davis introduced the idea of analytic war plans into the RSAS and has made many contributions since then.

The first AWPs were written by William Jones with assistance from David Stein and Mark LaCasse. Subsequently, many improvements have been made by David Shlapak, Robert Howe, John Schrader, Bruce Pimie, Bruce Bennett, Patrick Allen, Loretta Verma, and Richard Wise.

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I. INTRODUCTION

BACKGROUND

Red and Blue Agents

The RAND Strategy Assessment System (RSAS) simulates future USSR vs. U.S. armed conflict scenarios by playing Red Agent and Blue Agent programs against each other. Independent, political-military decisions of other countries are simulated by Green Agent. A set of integrated force simulation models called CAMPAIGN \(^1\) keep track of forces, execute orders from the Agent programs, and compute the outcomes of military operations. Military analysts can use a Control Agent program to replace or override Red, Blue, or Green Agents. Human players can observe, override, or replace the decision logic in the Agent programs. The Agent programs have alternative sets of decision rules, which analysts using the RSAS can control. Figure 1 depicts this architecture.

---

\(^1\) Also called Force Agent.
As shown in Fig. 2, Red and Blue Agents are headed by National Command Level (NCL)\(^2\) programs, which simulate political-military decisionmaking. The guidance output from the NCL is input to Military Command Level (MCL) programs. The Red MCLs correspond to the Supreme High Command (the Russian abbreviation is VGK) and subordinate High Commands for theater (the Russian abbreviation for a theater is TVD) Commands. On the Blue side the MCLs correspond to the Joint Chiefs of Staff (JCS), coordinating theater Commands (such as SACEUR and USCINCPAC), and individual theater Commands (such as AFCENT, CENTCOM, and SAC). The Command structure can be changed, but the standard organizations for Red and Blue Agent military are as shown in Figs. 3 and 4, respectively.

Functions of Military Command Level Models

The programs that the Military Command Level models execute are called Analytic War Plans (AWPs). These have three functions:

- To provide adaptive force-employment orders as part of simulations.
- To provide templates and standard, modular procedures to be used by military planners and analysts as they construct and test concepts of operations based on alternative strategies. The templates improve comprehensiveness and clarity; the modular procedures save time and improve consistency and clarity.

![Diagram](image)

---

\(^2\)To avoid possible confusion between two meanings of “command,” which can mean an entity in a military organization or an order to subordinates, we use “Command” for the organizational entity and “order” for the directive.
To provide an evolutionary knowledge base that can be used to communicate concepts and details thereof from one group of analysts/planners to another. That is, these models are inherently reusable, within the RSAS environment.

**Technological Significance**

AWP programs use conditional logic to adapt the force orders they issue. This replaces the more familiar approach in actual military operations plans (OPLANs) and most simulations of having set, “scripted” orders. The use of unconditionally scripted orders for analysis is fundamentally flawed as a basis for analytic comparisons because, in fact, force employment _would_ change if capabilities and scenario changed. For example, it is common to compare the effectiveness of U.S. defenses with and without weapon X, without considering whether an attacker would change _his_ strategy if we had weapon X. AWP.s can represent how strategies might be adapted.

AWPs represent a rule-based method for building in sensible adaptations that move in the direction of optimization. True optimizations are of dubious relevance in
much work because of their dependence on information the commanders would not have about forces, laws of war, and so forth.

AWPs represent a highly sophisticated application of artificial intelligence (AI) techniques that has been turned into something down-to-earth and comfortable, rather than something esoteric and mysterious.

**Concepts Behind Analytic War Plans**

An analytic war plan is a representation for analytic purposes of a war plan in a form suitable for execution by the RSAS Red or Blue Agent. Analytic war plans are intended to be credible surrogates not only for real war plans but also for the plan adjustments made by military commanders in the course of a campaign.

There is meant to be approximate verisimilitude between the RSAS Agent Command structure and that of the Soviet Union and the United States; however, there are some composite Commands in RSAS. For example, the Transportation Command (TRANSCOM) is implicitly within RSAS’s JCS, and the Pacific Fleet Command (CINCPACFLT) is within PAC. These could be broken out separately, if needed.
Distinctions have not explicitly been drawn between combined Commands, such as SACEUR or Combined Forces Command, and their U.S. components, such as USCINCEUR and U.S. Forces Korea. Additionally, because RSAS is more a tool for modeling strategies than organizations, a single Analytic War Plan representing a strategy must be executed by a single Military Command. For example, RSAS representations of a strategic nuclear Single Integrated Operations Plan (SIOP) must be executed by a single MCL (here, SAC), despite the fact it would be executed by several real-world Commands (SAC, LANTCOM, and PACOM). These and other RSAS vs. real-world distinctions are summarized in Tables 1 and 2.

Table 1

<table>
<thead>
<tr>
<th>Red Agent Command</th>
<th>Corresponding Soviet Union/Allied Command</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHC</td>
<td>Soviet Supreme High Command</td>
<td>Red agent SHC controls allied forces only</td>
</tr>
<tr>
<td></td>
<td>Warsaw Pact High Command</td>
<td>if authorized by Green agent</td>
</tr>
<tr>
<td>NWCOM</td>
<td>Northwest Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Northern Fleet Command</td>
<td></td>
</tr>
<tr>
<td>HCFW</td>
<td>Western TVD Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Baltic Fleet Command</td>
<td></td>
</tr>
<tr>
<td>HCFSW</td>
<td>Southwestern TVD Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black Sea Fleet Command</td>
<td></td>
</tr>
<tr>
<td>HCFS</td>
<td>Southern TVD Command</td>
<td></td>
</tr>
<tr>
<td>SNF</td>
<td>Strategic Nuclear Forces</td>
<td>SNF is treated as an intercontinental and</td>
</tr>
<tr>
<td></td>
<td>Rear TVD Command</td>
<td>homeland command</td>
</tr>
<tr>
<td>HCFFE</td>
<td>Far Eastern TVD Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pacific Ocean Fleet Command</td>
<td></td>
</tr>
<tr>
<td>DPRK</td>
<td>Democratic People's Republic of Korea (North Korea)</td>
<td>DPRK is treated as a military command under</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Green agent's North Korea</td>
</tr>
</tbody>
</table>

Each different strategy for a Command or theater is represented by a different AWP. An alternative approach would be feasible, but RSAS developers opted for keeping plans relatively pure for the sake of clarity and familiarity. Although RAND has not had access to actual OPLANS in developing the RSAS AWPs, the AWPs are similar enough to OPLANS that JCS and CINC planners should be able to use their own versions of AWPs to represent and study strategies and concepts of operations.

Because analytic war plans are inspired by military operation plans (OPLANS) and operation orders (OPORDs), it may be helpful to quote the official U.S. definitions of these:
Table 2
COMPARISON OF BLUE AGENT WITH UNITED STATES/ALLIES

<table>
<thead>
<tr>
<th>Blue Agent Command</th>
<th>Corresponding United States/Allied Command</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCS</td>
<td>Joint Chiefs of Staff</td>
<td>Blue agent JCS controls allied forces only if authorized by Green agent</td>
</tr>
<tr>
<td>EUR</td>
<td>SACEUR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>USCINCEUR</td>
<td></td>
</tr>
<tr>
<td>AFNORTH</td>
<td>AFNORTH</td>
<td></td>
</tr>
<tr>
<td>AFCENT</td>
<td>AFCENT</td>
<td></td>
</tr>
<tr>
<td>AFSOUTH</td>
<td>AFSOUTH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>US Sixth Fleet</td>
<td></td>
</tr>
<tr>
<td>LANT</td>
<td>USLANTCOM</td>
<td></td>
</tr>
<tr>
<td>PAC</td>
<td>USPACOM</td>
<td></td>
</tr>
<tr>
<td>SAC</td>
<td>SAC</td>
<td>SAC is treated an an intercontinental and homeland command</td>
</tr>
<tr>
<td></td>
<td>NORAD</td>
<td></td>
</tr>
<tr>
<td>KOREA</td>
<td>Combined Forces Command, Korea</td>
<td>Subordinate to PAC</td>
</tr>
</tbody>
</table>

1. [An operation plan is a] plan for a single or series of connected operations to be carried out simultaneously or in succession. It is usually based upon stated assumptions and is the form of directive employed by higher authority to permit subordinate commanders to prepare supporting plans and orders.

2. The designation “plan” is usually used instead of “order” in preparing for operations well in advance. An operation plan may be put into effect at a prescribed time, or on signal, and then becomes the operation order.

3. [An operation order is a] directive, usually formal, issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation.3

The RSAS does not make formal distinctions between OPLANS and OPORDs. However, to some extent, a full analytic war plan, including rules for dealing with several possible contingencies, can be likened to an operation plan, and the specific path through a plan’s logic taken during execution can be likened to an operation order.

Actual war plans familiar to U.S. military audiences are highly structured documents, often containing a considerable amount of redundant boilerplate, a rather linear concept of operations with relatively few, if any, contingency options, and detailed

---

3The Joint Chiefs of Staff, Dictionary of Military and Associated Terms, JCS Pub. 1, June 1979, p. 246.
tables of organization, communications, deployments, targeting, etc. They tend to be relatively strong on the early phases of a campaign and relatively weak on later stages, such as falling back, reconstituting, counterattacking, and terminating hostilities. They may be well integrated at the CINC level and below, but few are integrated CINC-to-CINC.

By comparison, AWPs also are highly structured, contain redundant boilerplate, are linear but allow for considerable conditional branching, and contain many detailed tables of orders. The structure is not the OPLAN's nesting by operational function of "body-annex-appendix-tab" but is a time- and triggering-event-based hierarchy of plan-phase-move-orders, as depicted in Fig. 5. An OPLAN's concept of operations may include a phase structure, but, unlike an AWP, it is not the basic organizing principle of the plan. The boilerplate in OPLANS meets bureaucratic requirements, such as citing references; in AWPs it meets computer system requirements, such as declaring variable names. OPLANS are meant to coordinate the efforts of thousands of people; the more linear they are, the better their chance of being executed as intended. AWPs, being computer programs, have no difficulty with conditional logic covering what to do if baseline assumptions prove incorrect. AWP order tables are similar to those in CINC-level OPLANs.

One of the difficulties--and benefits--in developing and using AWPs in the RSAS is that they must be comprehensive, describing a campaign strategy from beginning to end robustly enough to deal with major uncertainties in enemy behavior.

The RSAS distinguishes between AWPs that do or do not have subordinate command level plans running under them. Those that do have subordinate command levels must perform a coordinating function; hence, we refer to them as coordinating plans. The coordination includes response to redirection from above (such as occurs when the national command level "switches" plans), response to communications received from other countries, and response to reports from subordinates. All the plans are largely cybernetic in nature; that is, they function by making adjustments within limits set by higher authority.4

Plans at the lowest level in the Red or Blue Agent command organization do not have to coordinate subordinate analytic war plans. We refer to these as campaign plans.

---

4As an example, an AWP for defense in NATO's Central Region must specify how Blue uses operational reserves over time. It may do this by specifying use of a lower-level model called the Ground Commander Model (GCM), which follows logic such as reinforcing failure with weighting factors for different Corps sectors.
Fig. 5 -- Structure of OPLANs and AWPs

A campaign is typically divided into phases that are subdivided into moves. Execution proceeds from the beginning to ending phase, unless aborted by higher authority. A campaign plan issues orders, waits until time or circumstances for the next action, then picks up where it left off.

AWP Files

AWPs are written in the RAND-ABEL® computer language, developed from C for use in RSAS decision models. The source code for each AWP is in a separate file. Individual plans are named with a number following the name of their command. Plans ending in the number 0 are peacetime plans that can be used to monitor the bounding conditions on the command. Bounds are discussed in Section II. Tables 3 and 4 list the Blue and Red AWPs currently provided with RSAS.

AWP source code can be accessed through the RSAS background menu by pulling down the menus Abel-Rules/AWP, then either Blue or Red, and the name of the command. Files ending in "A" contain RAND-ABEL code. The actual directory structure, as shown in Fig. 6, is the same as that of the walking menus. Code for AWPs can be found in the appropriate command directory. "Dict" directories contain files of data dictionary declarations for variables, enumerations (types), and functions. Dictionary files end in "D." The Utility directory contains utility functions pertaining to the mechanics of AWP operation. The Make directory contains the compiled AWP object code and the files that create it.
Table 3
BLUE AGENT ANALYTIC WAR PLANS

<table>
<thead>
<tr>
<th>AWP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans ending with zero</td>
<td>Peacetime plans reporting bound violations</td>
</tr>
<tr>
<td>JCS1</td>
<td>Regional or global conflict</td>
</tr>
<tr>
<td>EUR1</td>
<td>Defense of Western Europe</td>
</tr>
<tr>
<td>SAC1</td>
<td>Strategic nuclear strike</td>
</tr>
<tr>
<td>AFNORTH1</td>
<td>Defense of the Northern Region</td>
</tr>
<tr>
<td>AFCENT1</td>
<td>Forward defense of the Central Region</td>
</tr>
<tr>
<td>AFCENT2</td>
<td>Forward defense of the Central Region, fallback allowed</td>
</tr>
<tr>
<td>AFCENT3</td>
<td>Forward defense of the Central Region with an incohesive alliance</td>
</tr>
<tr>
<td>AFCENT4</td>
<td>Forward defense of the Central Region with nuclear use authorized</td>
</tr>
<tr>
<td>AFSOUTH1</td>
<td>Defense of the Southern Region</td>
</tr>
<tr>
<td>AFSOUTH2</td>
<td>Strategic leverage on Central Europe</td>
</tr>
<tr>
<td>CENT1</td>
<td>Limited deployment to the Persian Gulf</td>
</tr>
<tr>
<td>CENT2</td>
<td>Forward defense of Iran</td>
</tr>
<tr>
<td>LANT1</td>
<td>Defense of the Atlantic</td>
</tr>
<tr>
<td>PAC1</td>
<td>Defense of the Pacific</td>
</tr>
<tr>
<td>KOREA1</td>
<td>Defense of South Korea</td>
</tr>
</tbody>
</table>

On-line documentation about AWP s can be found in the following places, most easily reached with the walking menus available with an RSAS background open:

- Src/AWP/README file describes the latest on the directory structure and files within.
- AfcenT and HcFw code files each contain an extensive strategy discussion at the beginning. Other AWP files have lists of forces used but little strategy documentation.
- Doc/Software/MCL also contains documentation for some individual AWP s.
- Dictionary files in Dict directories contain documentation on most variables and enumerations, following the declaration of each element.

Other files of interest:

- Src/Interface/to-Force-C/Dict/type.D. Enumerations of names used in orders to CAMPAIGN.
- Src/Interface/to-Force-C/Dict/order-func.D. Declarations of order tables to CAMPAIGN.
Table 4
RED AGENT ANALYTIC WAR PLANS

<table>
<thead>
<tr>
<th>AWP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans ending with zero</td>
<td>Peacetime plans reporting bound violations</td>
</tr>
<tr>
<td>SHC1</td>
<td>Regional or global conflict</td>
</tr>
<tr>
<td>SNF1</td>
<td>Strategic nuclear strike</td>
</tr>
<tr>
<td>NWCOM1</td>
<td>Attack against Norway</td>
</tr>
<tr>
<td>HCFW1</td>
<td>Short-warning attack against FRG</td>
</tr>
<tr>
<td>HCFW2</td>
<td>Short-warning attack against FRG with premobilization</td>
</tr>
<tr>
<td>HCFW3</td>
<td>Variable mobilization attack against FRG</td>
</tr>
<tr>
<td>HCFW4</td>
<td>Full mobilization attack against FRG</td>
</tr>
<tr>
<td>HCFW5</td>
<td>Short-warning attack against FRG, respect Austrian neutrality</td>
</tr>
<tr>
<td>HCFW6</td>
<td>Short-warning attack against FRG with premobilization, withhold</td>
</tr>
<tr>
<td>HCFW7</td>
<td>Variable-mobilization attack against FRG, respect Austrian neutrality</td>
</tr>
<tr>
<td>HCFW8</td>
<td>Full mobilization attack against FRG, respect Austrian neutrality</td>
</tr>
<tr>
<td>HCFW9</td>
<td>Full mobilization attack against FRG with alliance problems</td>
</tr>
<tr>
<td>HCFW10</td>
<td>Full mobilization attack against FRG with alliance problems, respect Austrian neutrality</td>
</tr>
<tr>
<td>HCFSW1</td>
<td>Attack against NATO Southern Region</td>
</tr>
<tr>
<td>HCFSW2</td>
<td>Attack against the Balkans</td>
</tr>
<tr>
<td>HCFS1</td>
<td>Limited invasion of Iran</td>
</tr>
<tr>
<td>HCFS2</td>
<td>Full-scale invasion of Iran</td>
</tr>
<tr>
<td>HCFFE1</td>
<td>Attack in the Pacific</td>
</tr>
<tr>
<td>DPRK1</td>
<td>Attack against the ROK</td>
</tr>
</tbody>
</table>


Control Plans
In addition to the Red, Blue, and Green Agents already mentioned, there is a Control Agent, which can act for the RSAS user in doing things the user would otherwise do interactively with the computer.⁵ Control Agent has three modes of operation:

⁵See Davis and Hall, 1988, pp. 58-65 for additional information on Control Agent.
Fig. 6--AWP directory and file structure

- **Scenario Generator** by which the user schedules interventions with the RSAS Data Editor. These interventions pass instructions to other Agent programs at desired times.
- **Control Plan** by which the user schedules interventions in an interpreted RAND-ABEL plan, similar to an AWP, with moves, conditional logic, and orders. This maximizes flexibility and collects interventions in one place and is often used as a prototype for developing AWPs.
- **Order Function** by which the user inserts instructions for immediate execution.

Here, we are concerned only with Control Plans. The major differences between AWPs and Control Plans are shown in Table 5.

A Control Plan can serve in lieu of an Analytic War Plan; however, it can also supplement portions of one or more AWPs, or it could govern switching from one AWP to another.
WRITING AND MODIFYING ANALYTIC WAR PLANS

AWPs can be written in a top-down or bottom-up fashion. The top-down approach for writing a campaign plan involves specifying its phase structure, making assumptions about enemy, own, and allied forces, formulating a concept of operations for each phase, and developing a sequence of orders to forces. It is often convenient to begin by copying an existing AWP that resembles the new one. Calls to perform existing procedures in the library (library.A functions) can speed the early stages of the process; the Table of Contents and Index to this Note should prove useful in helping users find the library procedures they need. The substance of library procedures is most readily examined on-line via selection from pull-down walking menus. Procedures requiring tailoring can be copied into files in the Rsas/Run/INT directory; it may be convenient to put these in red.A and blue.A files. Any changes or new RAND-ABEL rules must be debugged; this is most readily done in the interpreted mode (with files in the Rsas/Run/INT directory) via the pull-down menu item “Interpret now.” This should be done before attempting to run the AWP. If there are errors in the RAND-ABEL code, there will be indications in the scrolling field beneath the RSAS Control Panel (upper left portion of the screen), which also makes reference to a log giving fuller information on

Table 5

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Analytic War Plan</th>
<th>Control plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming language</td>
<td>RAND-ABEL</td>
<td>RAND-ABEL</td>
</tr>
<tr>
<td>Type of program</td>
<td>Usually compiled, but all or</td>
<td>Usually interpreted</td>
</tr>
<tr>
<td>Structure</td>
<td>portions can be interpreted</td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>Nested hierarchy of functions:</td>
<td>Single function with a series</td>
</tr>
<tr>
<td>Structure</td>
<td>plan, phase, move</td>
<td>of moves controlled by if-then</td>
</tr>
<tr>
<td>Command levels represented</td>
<td>Separate AWP for global command,</td>
<td>One CP per side (Red, Blue, or</td>
</tr>
<tr>
<td>Command levels represented</td>
<td>supertheater command, and area</td>
<td>Green)</td>
</tr>
<tr>
<td>Command levels represented</td>
<td>command levels</td>
<td></td>
</tr>
<tr>
<td>Used to call library procedures</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

6This subsection is a quick overview of a complex subject. Readers unfamiliar with Force (CAMPAIGN) and other RSAS terminology should disregard the undefined jargon and skim this material for general meaning. RSAS users actually writing or modifying AWP s should consult the classified literature for detailed examples and procedures. Authors include Robert Howe, John Schrader, and William Schwabe.
errors. After successful interpreting, the AWP can be run, using the “Run game” button on the Control Panel. To verify desired results, the user should closely monitor execution-time logs, which can be displayed on screen, Force displays, which are accessible by stopping the run and mousing on the Control Panel’s “Force” button, and by examining post-run logs and graphics.

The process is iterative: write, run, verify, rewrite . . . . It can take a matter of days or weeks.

After an AWP is running reasonably well in generating a linear, baseline sequence of events, it is often desirable to augment it with conditional logic to cover different exigencies, such as relationships between M-, C-, and D-day timing, various force ratios, and differing authorizations or constraints from higher authority. It is often helpful to involve a group of analysts in this process. RAND commonly does this through brainstorming sessions during which decision trees and tables are laid out on a blackboard. Another technique is to conduct one-on-one structured interviews with specialists. It is also possible to send hardcopy of new rules out for people to review, but this works only if the reviewers understand the substantive issues involved, have sufficient familiarity with RSAS and AWPs, and are motivated.

The bottom-up approach begins with interactive use of Force models, often called “sandtabling.” This can be done either in the full-system environment or in the Force-only (Camper) environment. Either way, the analyst inputs force orders (typing them in the Force window or mousing on CMENT buttons), advancing game time, and examining Force displays of the results. This is greatly facilitated by use of “.com” files output by Force; these can be edited on-line and input again, via the Force “use” command. In this manner, the user analyst builds up an extensive .com file of Force orders observed to produce desired outcomes.

When the .com file has reached an adequate state of development (a matter of analyst judgment), it can be edited into separate Red and Blue control plans or into AWPs and supporting library procedure functions. The RAND-ABEL Send-force-order is especially useful here, as it uses strings directly extractable from the .com file. Later, the Send-force-order tables can be translated into RAND-ABEL Assign, Alert, Deploy, and other order tables, as described later in this Note.

OVERVIEW OF THE NOTE

Following this Introduction, Section II explains the basic structure of control plans and analytic war plans.
Sections III through V give detailed examples of a Red control plan and two analytic war plans: AFCENT1, a theater campaign plan for the forward defense of NATO’s central region; and JCS1, a global coordination plan for conflicts beginning outside Europe.

The remainder of the Note contains reference material for users interested in modifying plans or seeking better understanding of the present plans. It includes formats for all RAND-ABEL force orders, formats for all intra- and inter-agent communications, formats for all queries to Force, the list of flag variables (situational variables set by heuristic rules or by fiat rather than by process models), and information on the current library of Red and Blue procedures.

An Appendix provides a short introduction to the RAND-ABEL programming language, developed by RAND for the RSAS. RAND-ABEL is available for non-RSAS uses as part of the RAMP (RAND-ABEL Modeling Platform).

The Note ends with a Bibliography and an Index.
II. STRUCTURE

AWP STRUCTURE

Here we explain how AWPs work, describing their general structure and giving examples drawn from an existing plan. Readers not familiar with the RAND-ABEL language may want to read the Appendix before this section.

In an OPLAN, the concept of operations is one annex among several; others may include task organization, communications, coordinating instructions, etc. There is a hierarchy of functions, with appendices to the annexes, and tabs to the appendices. In an Analytic War Plan, there is also a hierarchy of functions, but the highest level is the concept of operations for the campaign. This is divided into phases, which consist of moves, which evoke procedures, such as time-sequenced orders to forces.

A phase is composed of a number of moves and usually lasts for more than one day. Typically, RSAS plans have preparation or deterrence, conventional, nuclear, and termination phases. A move is composed of a number of procedures that are done at one time. A combat phase, for example, may have several reinforcement and air allocation moves. A procedure is composed of specific force order tables that accomplish a single purpose. Examples deploy U.S. forces in-place in AFCENT or order a limited nuclear strike in-theater. Phases and moves are specific to individual plans; their names contain the name of the plan. Procedures are more general and can be used in any plan. In practice, procedures are sometimes performed directly from a phase.

The plan, phase, and move functions are in files bearing the AWP’s name. Procedures or orders unique to a plan are included in the plan file also; other procedures, which may be used by more than one plan, are in library files. Plans and library procedures for a given command, such as AFCENT, are in directories bearing the command’s name. All such command directories are in a directory named for an agent, such as Blue. The Blue and Red plan directories are in a directory named AWP, which is in the Src (source) directory, which houses all RSAS RAND-ABEL source code.

Top-level Plan Function

The first function in each plan is referred to as the “top-level” plan function. It identifies and performs the phases of the plan.
All AWPs must begin with Sleep-and-wake-immediately. This is a technical function which temporarily stops execution of the plan. This allows all plans to be started before any enter their first phase. Figure 7 is a complete top-level function.

```
AWPs execute linearly but "sleep" and "wakeup" where they left off

Define Plan-AFCENT1:
 Perform Sleep-and-wake-immediately.
 Perform AFCENT1-deterrence-phase.
 Perform AFCENT1-defense-phase.
 Perform AFCENT1-nuclear-phase.
 Perform AFCENT1-termination-phase.
End.
```

Fig. 7--Structure of top-level function in RAND-ABEL analytic war plan

**Phase Function**

The general structure for a phase has an initial move that performs orders to be done on entry into the phase, and a loop in which the plan moves once each day for the duration of the phase. In this daily-repeated section other moves are performed as the conditions for them arise. A phase function is shown in Fig. 8.

The variable Point-in-plan controls the phase of the plan. Because the RSAS allows plans to be switched during a game, knowledge of the current phase of each plan must be maintained so that a substituted plan can start execution in the correct phase. If, for instance, a Blue plan for a fallback-defense in Central Europe was substituted after D-day for a forward-defense plan, the new plan must begin in the proper phase. The variable Point-in-plan can take on the values of the enumeration Type-plan-point. These have one value for each plan phase and transition to each phase. If the plan given in the example above were begun with the variable Point-in-plan at Conventional, the deterrence phase would be passed through with no actions taken.
Define AFCENT1-deterrence-phase:

If Point-in-plan of AFCENT is at most Move-to-deterrence
Then Perform AFCENT-deterrence-move.

While Point-in-plan of AFCENT is at most Deterrence:

If (Today is at least C-Day of AFCENT)
   and Authorization of Deployment, AFCENT is Full
Then Perform AFCENT1-deterrence-deployment-move.

Wakeups are event- or time-driven
Perform Sleep-to-next-move using the function
   AFCENT-wake-at-combat as planned-wakeup, and
   ((Today + 1) * 24) as time-limit.

Force query governs phase change
If the report from Ask-force-theater-conflict-level
   using Central-Europe as theater is at least Gen-conv
Then Let Point-in-plan of AFCENT be Move-to-defense.

End.

Fig. 8--Structure of phase function in RAND-ABEL analytic war plan

Note that because the performance of the initial move function, AFCENT-
deterrence-move, depends on the phase marker Point-in-plan indicating transition into the
phase, the move will only be performed once in the run. Although not shown here,
within AFCENT-deterrence-move the variable Point-in-plan is changed from Move-to-
deterrence to Deterrence. Thus, if the deterrence phase function is ever performed again
because a new plan has been switched in, the move will not be performed.

Because the variable Point-in-plan is followed by the phrase "of AFCENT," it is
shown not to be a single value but an array that has separate values for each command.
Point-in-plan of AFCENT refers to the value for the command AFCENT, the current
phase of the current AFCENT plan. The While statement causes the repeated execution
of a block of statements, which must appear between braces. As long as the Point-in-plan
of AFCENT remains Deterrence, the plan will remain in this phase.
Certain programming conventions, though not required for the RAND-ABEL code to execute, are used to improve readability. Here, the braces are aligned vertically and the block of statements they define are indented.

Within the While loop, the plan tests the conditions of the various moves that make up the phase, sleeps until the next day or possible other wakeup conditions are met, and then checks the conditions for changing the phase. The RAND-ABEL statement beginning "If (Today is at least C-Day of AFCENT)" is a typical form for a move, consisting of a conditional test which, if true, causes the move to be performed. It might seem that a While loop is not appropriate here, as one would order initial deployments only once. A single execution is generally not sufficient, however, because AFCENT can order allied, NATO forces to deploy only after their governments have put them on call to the NATO command, and those decisions (which can be simulated by Green Agent) cannot be assumed to occur immediately or simultaneously.

The function Sleep-to-next-move puts the plan to sleep, allowing other plans and agents to move and take actions, and specifies the conditions under which the plan will next wake. When the plan wakes again, it will resume execution just where it left off, with the statement following the Sleep-to-next-move function. The two arguments to the function, planned-wakeup and time-limit, specify the two conditions under which the plan will next move. The name of a function that tests one or more conditions is given for planned wakeup. In this case, the function AFCENT-wake-at-combat is given.

The argument time-limit specifies an absolute time, measured in hours from the beginning of the game (day 0, hour 0) for the next wakeup. Whichever of the two conditions occurs first will cause the plan to wake and continue execution. Today is a variable that always contains the current game-day. Thus ((Today + 1) * 24) is the start of the next day.

It has proved convenient to have each plan move regularly at the beginning of each day. While it would be possible to place the conditions for each move in the phase within the planned-wakeup function, so that the plan would wake the instant any move condition was met, in practice such a function would be unwieldy. A daily wakeup has been sufficient to test conditions for moves and seems consistent with the human planning cycle.

Following the wakeup on the new day, a test of the conditions under which the phase may be changed is made. If the phase is not changed, then the statements within the While loop are begun again. If the conditions are met, the variable Point-in-plan is changed to indicate transition to the next phase. The test for continuance of the While
loop then fails and the phase function is exited. Control returns to the top-level plan function and the next phase is entered.

**Move Function**

The structure of move functions is illustrated by Fig. 9, the initial move performed on entry into the AFCENT1-defense-phase.

This move function notifies higher authority that war has begun, performs procedures that issue orders to Blue forces, sets the AFCENT index of the variables D-Day and Point-in-plan, and logs a statement.

```
Define AFCENT1-forward-defense-move:
    Perform Notify-higher-authority using under-attack as reason, and no-recommendation as recommendation.
    Perform AFCENT1-forward-defense-order.
    Perform Weser-Lech-barrier-order.
    Let D-Day of AFCENT be Today
    Log-decision " AFCENT - Defense phase".
    Let Point-in-plan of AFCENT be Defense.
End.
```

Fig. 9--Structure of move function

The form and content of move functions vary widely. The actions taken in a given move take place at the same particular time under the same specific conditions; however, the specific conditions are not fully known in advance. For that reason, many move functions must include conditional logic.

**Procedure Functions**

A procedure contains force order tables that issue orders to the various force models of the RSAS. Procedures may be written for a particular AWP, in which case the first part of its name is the plan name, or they may be written as general procedures. If
for a single plan, their on-line source code is in the file containing the plan's top-level, phase, and move functions; in this example, the file is Src/Blue/Awp/Afcent/afcent1.A. The general procedures are in file library.A for the appropriate command, such as Src/Blue/Awp/Afcent/library.A.

Define AFCENT1-forward-defense-order:

Table Send-force-order

<table>
<thead>
<tr>
<th>order</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;set airwar ceur cas_tgt 60 0 40&quot;</td>
</tr>
</tbody>
</table>

Table Disperse-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>in-region</th>
<th>% dispersal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>all</td>
<td>FRG</td>
<td>5</td>
</tr>
<tr>
<td>Air</td>
<td>all</td>
<td>UK</td>
<td>5</td>
</tr>
</tbody>
</table>

Table Axis-mission-order

<table>
<thead>
<tr>
<th>axis</th>
<th>mission</th>
<th>start-kms</th>
<th>end-kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR-2</td>
<td>Defend-delay</td>
<td>0</td>
<td>159</td>
</tr>
<tr>
<td>CEUR-3</td>
<td>Defend-delay</td>
<td>0</td>
<td>126</td>
</tr>
</tbody>
</table>

End.

Fig. 10--Structure of procedure

Building Procedure Functions From Use Files

Sometimes the details of a scenario are first worked out by the user interactively typing all orders into CAMPAIGN; this is sometimes called "sandtabling." A series of CAMPAIGN use files, sets of related orders to CAMPAIGN formatted as the analyst typed them, may then be built up. It is a simple process to convert these use files to a RAND-ABEL control plan (as a prototype AWP) and then to the procedure functions performed by a fully structured AWP.
The following statements are CAMPAIGN orders (not their RAND-ABEL counterparts) assigning aircraft carrier taskgroups BCG.20.3 and BCG.20.7 to the taskgroup BCG.20.1 and deploying the combined 20.1 taskgroup to the Norwegian Sea at taskforce speed.

order US assign BCG.20.3 -- -- BCG.20.1
order US assign BCG.20.7 -- -- BCG.20.1
order US deploy BCG.20.1 -- -- Norwegian-Sea taskforce

These three orders can be placed in a RAND-ABEL Send-force-order table for use in a CP or AWP. The Send-force-order table sends the quoted order to CAMPAIGN as it is written, and thus is the most direct way to place use file orders into RAND-ABEL. The following is an example of naval assignment orders:

Table Send-force-order

order

"order US assign BCG.20.3 -- -- BCG.20.1"
"order US assign BCG.20.7 -- -- BCG.20.1"
"order US deploy BCG.20.1 -- -- Norwegian-Sea taskforce"
[End Table].

These strings are sent to a force model (CAMPAIGN-MT, the naval model, etc.), where they are parsed and executed. The correct format and spelling for these strings can be found on-line and in CAMPAIGN documentation, including data bases. The RSAS AWP- or CP-writer must check those sources. Although we do not give the force model formats in this Note, we have tried to indicate where the information can be found.

Alternatively, this can be expressed as a RAND-ABEL function, using RAND-ABEL forms of the orders:

Define LANT-deploy-3-carrier-taskgroup:

Table Assign-naval-order

force to-force

"BCG.20.3" "BCG.20.7"
"BCG.20.1" "BCG.20.7"
[End Table].

1The RSAS data base file vessel.sec uses “BCG” (Blue Carrier Group) in lieu of the more familiar “CVBG,” as an abbreviation for aircraft carrier battle group.
Table: Deploy-naval-order

<table>
<thead>
<tr>
<th>force</th>
<th>thru-region</th>
<th>lat-lon</th>
<th>to-regio</th>
<th>at speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;BCG.20_7&quot;</td>
<td>--</td>
<td>65N5E</td>
<td>Norwegian-Sea Taskforce</td>
<td></td>
</tr>
</tbody>
</table>

[End Table]

End.

Documentation on the format of these order tables can be accessed through the RSAS background pull-down menu. The procedure is to use the right mouse button to display the pull-down, walking menus: ABEL-Rules/Interface/to-Force-C/Dict/order-func.D. Alternatively, accessing the rules from a shell window, this is the file Rsas/Src/Interface/to-Force-C/Dict/order-func.D.

Coordination Functions

Coordinating plans, in addition to moving through their own phases, have the added responsibility to select and manage their subordinate plans.

The first action of a coordinating plan is to choose and start executing its subordinate plans. These plans may be specifically named by the user through the scenario generator or a control plan, or chosen by the coordinating plan according to general guidance given by the NCL models. Each phase also includes functions that respond to notifications from subordinates and to communications from other countries.

By convention, Red and Blue agents send and receive all international communications at the Global Command Level (GCL), SHC for Red and JCS for Blue.

PREPARING AWPS

Preparing an AWP is not simply a matter of assembling a group of experts and having them run through a scenario. The work may include (1) substantial effort to make RAND-ABEL rules consistent with existing RSAS data- and rule-bases, (2) iterating the plan to make sure it really does what was desired and that any gaps or flaws in it get filled, and (3) focusing purposeful attention on “what ifs” to cover other than expected courses of action. It is usually better to insulate military experts from the computer program, lest they become confused or bogged down in nonsubstantive matters. Interactions with military experts must, however, be structured, lest it be inefficient or impossible to translate their discussions into AWPs. Fortunately (by design), the time- and event-sequence structure of AWPs lends itself well to expert review in the form of time-sequence lists of phases and operations, and the RAND-ABEL decision tables and order tables can readily be separated out and reviewed by military experts. To facilitate
military review of outcomes from running AWPs, it is helpful to include in the AWPs numerous logging statements, which record decisions, reasons, and notes in military English.

INPUTS TO EXECUTING AWPS

After AWPs are written, their execution can be varied through several input variables, set by human players (using the Data Editor), by National Command Level rules, by higher level AWPs, or by control plans.

The values of inputs are, in many cases, members of predeclared RAND-ABEL enumerations, which are similar to sets. By convention, the names of enumerations begin with "Type-". A complete listing of the values of these enumerations can be found in Section XI.

The values of most input variables can be viewed in the Data Editor using the tableau set User-generated/control.T.

Authorizations

Authorization for plans to take many important actions must be specifically granted through the Authorization variable. Authorization comes from the National Command Level models, the user, a control plan, or the scenario generator. The JCS or SHC coordinating plans can set some authorizations if those plans are authorized to do so.

To give an example, a RAND-ABEL statement authorizing full alert for AFCENT would appear as:

Let Authorization of Alert, AFCENT be Full.

The values for Blue authorizations are given in Table 6. Authorizations different for Red are shown in Table 7.
Table 6
BLUE AUTHORIZATIONS AND THEIR VALUES

<table>
<thead>
<tr>
<th>Authorization</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airborne-alert</td>
<td>None</td>
</tr>
<tr>
<td>Alert</td>
<td>None</td>
</tr>
<tr>
<td>Bastion-target</td>
<td>None</td>
</tr>
<tr>
<td>Biological</td>
<td>None</td>
</tr>
<tr>
<td>Chemical</td>
<td>None</td>
</tr>
<tr>
<td>Combat</td>
<td>None</td>
</tr>
<tr>
<td>Combat-initiation</td>
<td>Max-relative</td>
</tr>
<tr>
<td>Deep-attack</td>
<td>None</td>
</tr>
<tr>
<td>Delegation</td>
<td>None</td>
</tr>
<tr>
<td>Deployment</td>
<td>None</td>
</tr>
<tr>
<td>Dispersal</td>
<td>None</td>
</tr>
<tr>
<td>Disperse-leadership</td>
<td>None</td>
</tr>
<tr>
<td>Evacuate-cities</td>
<td>None</td>
</tr>
<tr>
<td>Jamming</td>
<td>None</td>
</tr>
<tr>
<td>Launch-satellite</td>
<td>None</td>
</tr>
<tr>
<td>Mobilization</td>
<td>Demobilize</td>
</tr>
<tr>
<td>Move-satellite</td>
<td>None</td>
</tr>
<tr>
<td>Nuclear</td>
<td>None</td>
</tr>
<tr>
<td>Open-ocean-ASW</td>
<td>None</td>
</tr>
<tr>
<td>Poise</td>
<td>None</td>
</tr>
<tr>
<td>Preempt-air</td>
<td>None</td>
</tr>
<tr>
<td>Release</td>
<td>None</td>
</tr>
<tr>
<td>Reserve-commitment</td>
<td>None</td>
</tr>
<tr>
<td>Respond-in-kind</td>
<td>None</td>
</tr>
<tr>
<td>Sanctuary</td>
<td>Honored</td>
</tr>
<tr>
<td>Special-operation</td>
<td>None</td>
</tr>
<tr>
<td>Termination</td>
<td>None</td>
</tr>
<tr>
<td>UCW</td>
<td>None</td>
</tr>
<tr>
<td>USSR-target</td>
<td>None</td>
</tr>
</tbody>
</table>

Table 7
RED AUTHORIZATIONS (WHERE DIFFERENT FROM BLUE)

<table>
<thead>
<tr>
<th>Authorization</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert</td>
<td>Withhold-alert</td>
</tr>
<tr>
<td>Blue-engagement</td>
<td>None</td>
</tr>
<tr>
<td>Nuclear</td>
<td>None</td>
</tr>
<tr>
<td>SNA-strike</td>
<td>None</td>
</tr>
<tr>
<td>US-target</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 8
BLUE GLOBAL-AUTHORIZATIONS

<table>
<thead>
<tr>
<th>Authorization</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership-requisition</td>
<td>None</td>
</tr>
<tr>
<td>Craf</td>
<td>II</td>
</tr>
<tr>
<td>NATO-alert</td>
<td>Withhold-alert</td>
</tr>
</tbody>
</table>

**Global-authorization**

Blue plans have three authorizations that are not specific to individual commands but apply worldwide, listed in Table 8. An If-Then statement conditional on NATO’s having gone to an alert level of at least Simple-alert would be written as:

If Global-authorization of NATO-alert is at least Simple-alert
Then . . .

**M-Day**

M-Day, set by command, is the day on which forces assigned to that command begin mobilization. For example, the following statement would set M-Day for CENT to game day five:

Let M-Day of CENT be 5.

**C-Day**

C-Day, set by command, is the day on which forces assigned to that command begin deployment. For example:

Let C-Day of CENT be 5.

**D-Day and Expected-D-Day**

D-Day, set by command, is the day on which combat begins in the arenas belonging to that command. D-Day is used by the attacker (normally Red) and Expected-D-Day by the defender (normally Blue). D-Day and Expected-D-Day are referred to as:

Let D-Day of HCFFE be 15.

Let Expected-D-Day of PAC be 17.
Notifications

Preplanned communications up the Red or Blue chain of command are represented by the function Notify-higher-authority, which passes on a reason and recommendation. The declared values of reason and recommendation are listed in Section XI. The form of the statement is:

Perform Notify-higher-authority using Under-attack as reason and No-recommendation as recommendation.

This function causes the AWP to sleep, allowing a higher-level, coordinating AWP to respond. A plan executing a notification cannot know if or how higher authority may respond; therefore, plan writers must anticipate various eventualities. It is generally prudent to assume that no response means “carry on under previously granted guidance and authorizations.”

Bounds

In addition to preplanned communications represented by notifications, AWPs notify higher authority of violation of active bounds. Bounds can be thought of as conditions that, if arising, might prompt the NCL to reconsider strategy or guidance. The current list of bounds is given in Section XI.

Bounds are turned on by the statement:

Let Bound of <bound name, as enumerated in Type-bound>², <command name, as enumerated in Type-command> be On.

Each bound has associated with it a function that is tested at every clock advance. These functions are in file Rsas/Src/NCL/Blue/SamN/Decide/Controls/Theater/Bounds-on-war-plans.A for Blue, and /Red/IvanO/ for Red. Each AWP has a hidden wakeup rule that performs these bound testing functions for each bound that is on. When the function triggers (that is, when its conditions are true, causing its “then” action to execute), a notification is automatically generated without the AWP waking up.³

Many bounds also have threshold values that specify when the bound breaks. For example, there is an Enemy-mobilizing bound, whose threshold value can be set to the

²The angle bracket notation indicates a value to be specified. Here, one would specify a bound name and command name, as in “Let Bound of Combat-occurring, AFCENT be On.”
³This is handled in the AWP utility function “Sleep-to-next move.”
number of equivalent divisions considered to indicate mobilization is occurring. The format for setting Bound-threshold is:

Let Bound-threshold of <bound name>, <command name> be <numerical value>.

When running with the automated NCL models, these bounds wake the NCLs to make a move. Using the scenario generator, the notifications generated by broken bounds may be used to trigger events. Using control plans, broken bounds are turned off as they occur, although the bound testing functions are often used directly as wakeup functions for moves.

**Intl-comm-reporting-requirement**

If “Yes,” this requires the GCL command to notify the NCL of any international communications received, i.e., messages from another country.

Let Intl-comm-reporting-requirement be Yes.

**Pre-mob-directive (Red)**

This directs the GCL command to initiate premobilization training immediately.

Let Pre-mob-directive be <value in enumeration Type-special-action-authorization>.

**Automated NCL Guidance for Picking Plans**

In the Automated mode of running the Blue and Red Agents, the NCL models (Sams and Ivans) do not specify the specific AWPs to run in each command, but instead specify the desired escalation level, objectives, and strategies (as well as the control variables mentioned previously). From these guidances, the GCL AWPs (JCS and SHC) choose the best fitting plan.

Escalation-guidance specifies for each command the level of hostilities, and implicitly the weapons to use, in order to achieve its objective.

Let Escalation-guidance of <command> be <value in enumeration Type-military-involvement>.

Objectives are the goals for each command.

Let Objective of <command> be <value in enumeration Type-operational-objective>.
The strategy for each command is made up of the following component variables:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>General-target-withhold</td>
<td>Withhold attack on allies, neutrals, or noncombatants.</td>
</tr>
<tr>
<td>Specific-target-withhold</td>
<td>Withhold attack on specific countries.</td>
</tr>
<tr>
<td>Target-withhold</td>
<td>Withhold attack on specific classes of targets.</td>
</tr>
<tr>
<td>Theater-priority</td>
<td>Importance of the theater. Primary theaters will not be drawn down to support secondary theaters.</td>
</tr>
<tr>
<td>Delegate-authority</td>
<td>Level of delegation of NCL authority to the command.</td>
</tr>
<tr>
<td>Delegation-withhold</td>
<td>Circumstances under which the delegation of authority is revoked.</td>
</tr>
<tr>
<td>Delegated-control-of-forces</td>
<td>The types of forces over which control is delegated to a command.</td>
</tr>
<tr>
<td>Conditions-for-use</td>
<td>Conditions under which delegated authority may be used.</td>
</tr>
<tr>
<td>ROE-for-self-defense</td>
<td>How a command may engage the enemy if attacked.</td>
</tr>
<tr>
<td>Combat-tempo</td>
<td>Intensity and pacing of combat.</td>
</tr>
<tr>
<td>Ground-strategy</td>
<td>Strategy for ground forces.</td>
</tr>
<tr>
<td>Air-strategy</td>
<td>Strategy for air forces.</td>
</tr>
<tr>
<td>Targeting-strategy</td>
<td>Strategy for SAC/SNF strategic missile forces.</td>
</tr>
<tr>
<td>Naval-strategy</td>
<td>Strategy for naval forces.</td>
</tr>
<tr>
<td>Deception-strategy</td>
<td>Strategy for deception.</td>
</tr>
<tr>
<td>Termination-strategy</td>
<td>Strategy for termination.</td>
</tr>
</tbody>
</table>

Let General-target-withhold of <value in enumeration Type-general-target-withhold> be Yes.
Let Specific-target-withhold of <value in enumeration Type-country> be Yes.
Let Target-withhold of <value in enumeration Type-target-withhold> be Yes.
Let Theater-priority of <value in enumeration Type-command> be <value in enumeration Type-theater-priority>.
Let Delegate-authority of <value in enumeration Type-command> be <value in enumeration Type-delegated-authority>.
Let Delegation-withhold of <value in enumeration Type-command> be <value in enumeration Type-delegation-withhold>.
Let Delegated-control-of-forces of <value in enumeration Type-command> be <value in enumeration Type-forces-controlled>.
Let Conditions-for-use of <value in enumeration Type-command> be <value in enumeration Type-forces-controlled>.
Let ROE-for-self-defense of <value in enumeration Type-command> be <value in enumeration Type-self-defense>.
Let Combat-tempo of <value in enumeration Type-command> be <value in enumeration Type-combat-tempo>.
Let Ground-strategy of <value in enumeration Type-command> be <value in enumeration Type-ground-strategy>.
Let Air-strategy of <value in enumeration Type-command> be <value in enumeration Type-air-strategy>.
Let Targeting-strategy of <value in enumeration Type-command> be <value in enumeration Type-targeting-strategy>.
Let Naval-strategy of <value in enumeration Type-command> be <value in enumeration Type-naval-strategy>.
Let Deception-strategy of <value in enumeration Type-command> be <value in enumeration Type-deception-strategy>. 
Let Termination-strategy of <value in enumeration Type-command> be <value in enumeration Type-termination-strategy>.

Mob-duration indicates the desired mobilization duration without being specific. A short mobilization is for short-warning invasions, while a long mobilization is for 25 to 30 days of preparations before D-day. Best refers to the optimal choice of mobilization duration, either short or long.

Let Mob-duration of <command> be <value in enumeration Type-mob-duration>.

Alliance-criteria indicates whether the alliance is Cohesive or there are Problems. A value of Unspecified means alliance cohesion is not to be considered in plan selection.

Let Alliance-criteria of <command> be <value in enumeration Type-alliance-criteria>.

OUTPUTS

Analytic war plans issue orders to the RSAS force models through RAND-ABEL order tables. The JCS and SHC war plans communicate to Green Agent through Cable and Announcement functions that give desired third-country postures. All plans also communicate with their superior plans in the command hierarchy through the Notify-higher-authority function, giving the reason for the communication and a recommendation for action. Communication downward is through authorizations and other controls.

A log tracing the execution of the Red and Blue Agents is available through the background menu. Log statements in the analytic war plans write execution information into the game log at three levels of detail: decisions only, decisions and reasons, and decisions, reasons, and notes. Log information can be viewed during or after the game at any level up to the level written.

STRUCTURE OF CONTROL PLANS

Use of Control Plans

Control plans are standardized interpreted functions allowing the analyst to schedule interventions such as parameter changes or orders to forces on the basis of time.

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4Previous documentation (e.g., Davis and Hall, 1988, pp. 59 ff.) defines "analyst plans" and "control plans."
or condition in the simulation. For example, the baseline AWP might not employ certain units explicitly, leaving their employment to be determined by a general force-allocator program called the Ground Commander Model embedded in Campaign-MT. A control plan, however, might specify that, in addition to all the orders coming from the baseline plan, specific orders should be sent to these particular units at specified times or events.

Control plans can represent the analyst by changing the laws of war or inserting exogenous events, can represent and supplement AWPs by issuing orders to forces, and can play the NCL by picking AWPs and setting AWP guidance. Often a control plan is a mix of the three. In the role of AWPs, control plans have often been used in the AWP development process to test in the interpreter the orders of a planned AWP before building its more complex structure.

One control plan exists for each of the Blue, Red, Green, and Force Agents. All are run by Control Agent. Default copies of these control plans can be found in the file Rsas/Run/INT/Hide/analyst-plan.A, along with documentation and examples.

**File Structure**

Control plans are often grouped in Analyst Plan files, as shown in Fig. 11, which is adapted from Davis and Hall, 1988, p. 59.

An Analyst Plan file may contain modified functions, as shown in the figure, or such functions may be in separate files, such as red.A and blue.A. In either case, the Analyst Plan file and any other “.A” suffix files to be interpreted must be in or linked to the RSAS/Run/INT directory.

---

5Control plans are part of the larger “analyst plan,” which is the interpreted files collecting the analyst’s special instructions or modifications for the particular run or set of runs in question. Typically, they will include a number of statements establishing values for combat-model parameters and specifying such administrative matters as log level, the displays to be automatically reported into the log, and game duration. They may also contain statements changing decision-model parameters for Green, Red, or Blue. And they may contain modified versions of functions appearing in any of the RAND-ABEL models used in the simulation. These modified versions will then be used interpretively instead of the compiled versions during the run.

6If a control plan is used to define a scenario through AWP selection and controls, it is a good idea to avoid also using the scenario generator, through the Data Editor or through application of a delta WSDS. Both use some of the same mechanisms and can easily step on each other’s efforts.
Move-number Structure

The most commonly used control plan structure tests a move number to
distinguish moves and sets predefined variables to specify wakeup time limits and
conditions.

Owner: Blue.

Define Control-plan:

[ Move 0 ]

If Move-number is 0
Then
  [ Actions ]

Let Next-move-planned-wakeup be the function Never-wake.
Let Move-number be 1.
Exit.
[ Repeat for move 1, etc. ]
End.

The variable Move-number determines the move that will be done at the next wakeup. It begins with the value 0, so the first move must always be numbered 0.

The variable Next-move-time-limit specifies the time-limit for the next move. If the condition tested by the planned-wakeup function is not met by the time-limit, the plan will wake up. The time limit is measured in hours from the beginning of the game, which is day 0, hour 0. A time-limit for day 2, hour 0 would be 48. Time-in-hours gives the current game time measured in hours. In the example above, "Time-in-hours + 24" sets the Next-move-time-limit for 24 hours in the future.

The variable Next-move-planned-wakeup specifies the wakeup function to be tested each time-advance while the plan is asleep. When the condition in the wakeup function is true, or, more technically, the wakeup function exits reporting Yes, the plan will wake up. The function Never-wake will never cause a wakeup.

Each set of actions must be put between the braces of a move as given above. The control plan executes statements from its beginning each time after waking up. Thus the value of Move-number controls which move is performed. The conditions for the next move, Next-move-time-limit and Next-move-planned-wakeup, must be reset within each move. If they are not, the plan will sleep with the same wakeup conditions as triggered the current wakeup and will wake up again immediately. If Move-number is not reset then the same move will be done next. The Exit statement is not required, but shows explicitly that only the one move will be performed.

The last move should always set Next-move-time-limit to "never" and Next-move-planned-wakeup to "Never-wake." An error message about a coprocess trying to kill itself will be generated if this is not done and the plan runs beyond its last move.

**Interpreting Sleeping Functions**

Analysts who wish to make interpretive changes during a game to a function containing a sleep statement (such as an AWP phase function) must be aware of the following rule: Interpretive changes made to a sleeping function will be ignored.

A sleeping function is one that has executed a sleep statement, such as Sleep-to-next-move, and has stopped executing, waiting for its wakeup rules to be triggered. For
typical analysis purposes, this would only be an AWP function while the AWP is performing that phase.

When an AWP sleeps, the state of the function that performed the sleep is saved in order that it be able to resume, when awakened, precisely where it left off. This consists of remembering the point in the function at which the sleep was performed, as well as the value of all local variables. If interpretive changes to the function were allowed while it was sleeping, then the remembered point in the function could be rendered meaningless; the sleep statement could even have been removed. Therefore, any such attempted new interpretation is ignored.

Put another way, the form of a function may not be changed while the function is executing, which includes sleeping as a form of suspended execution. Note that if an interpretation of that function had been in place when the function began executing, then it would be that interpretation that would be preserved, and all further changes ignored (including the removal of the interpretation) until the function exited.

In practice, then, do not make interpretive changes to an AWP phase function while the AWP is executing that phase. Changes may be made while the plan is in a prior phase (changes while in a following phase would have no effect on the current game).

Since reading a WSDS is effectively resuming a game at the point where the WSDS was saved, this rule also applies to saved WSDSs. Interpretive changes to functions sleeping when the WSDS was saved will be ignored when the WSDS is read and execution resumed.

**TABLES FOR SCENARIO DEFINITION**

The following tables can be used to define a scenario through a control plan.

**Start-new-AWPs (Blue)**

<table>
<thead>
<tr>
<th>jcs</th>
<th>sac</th>
<th>eur</th>
<th>afnorth</th>
<th>afcent</th>
<th>afsouth</th>
<th>cent</th>
<th>korea</th>
<th>lant</th>
<th>pac</th>
</tr>
</thead>
<tbody>
<tr>
<td>===</td>
<td>===</td>
<td>===</td>
<td>======</td>
<td>======</td>
<td>======</td>
<td>======</td>
<td>======</td>
<td>======</td>
<td>===</td>
</tr>
<tr>
<td>JCS1</td>
<td>EUR1</td>
<td>AFNORTH1</td>
<td>AFCENT2</td>
<td>AF SOUTH2</td>
<td>KOREA1</td>
<td>LANT1</td>
<td>PAC1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

7In addition to the sleeping function, the function that performed the sleeping function (and the function that performed it, etc.) may not be changed. All have points within them saved when the sleep was performed.
This causes the specified Blue AWPs to be started. Unspecified (--) leaves the current plan in effect.

**Start-new-AWPs (Red)**

Table Start-new-AWPs

<table>
<thead>
<tr>
<th>shc</th>
<th>snf</th>
<th>nwcom</th>
<th>hcfw</th>
<th>hcfsw</th>
<th>hcfb</th>
<th>dprk</th>
<th>hcfpe</th>
</tr>
</thead>
<tbody>
<tr>
<td>===</td>
<td>===</td>
<td>------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>SCH1</td>
<td>--</td>
<td>NWCOM1</td>
<td>HCFW4</td>
<td>HCFSW2</td>
<td>--</td>
<td>DFRK1</td>
<td>HCFPE1</td>
</tr>
</tbody>
</table>

This causes the specified Red AWPs to be started. Unspecified (--) leaves the current plan in effect.

**Force-order-event**

Table Force-order-event

<table>
<thead>
<tr>
<th>event-#</th>
<th>day</th>
<th>hour</th>
<th>period</th>
<th>stop-day</th>
<th>display</th>
<th>order-string</th>
</tr>
</thead>
<tbody>
<tr>
<td>======</td>
<td>===</td>
<td>===</td>
<td>======</td>
<td>=========</td>
<td>========</td>
<td>=============</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>No &quot;set govt US air-mutl 1.3&quot;</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0</td>
<td>24</td>
<td>20</td>
<td>Yes</td>
<td>&quot;display xland CEUR&quot;</td>
</tr>
</tbody>
</table>

This creates an event in the Scenario Generator Force Displays and Orders list. At the specified day and hour the order-string is issued to Force. If period is greater than 0, it will be issued again in that many hours, until the value for stop-day is reached. For displays to appear in the log, display must be Yes. Up to 30 events per side may be defined in a given game.

**Green-event**

Table Green-event

<table>
<thead>
<tr>
<th>event-#</th>
<th>day</th>
<th>hour</th>
<th>country</th>
<th>side</th>
<th>cooperation</th>
<th>involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>======</td>
<td>===</td>
<td>===</td>
<td>======</td>
<td>====</td>
<td>============</td>
<td>===========</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>0</td>
<td>Belgium</td>
<td>Blue</td>
<td>Transit</td>
<td>On-call</td>
</tr>
</tbody>
</table>

This creates an event in the Scenario Generator Green Agent event list, specifying the postures for a country to take at the given day and hour. On the succeeding Green Agent move, the country will issue orders appropriate to its new postures. However, Green Agent will make no moves thereafter for the country, assuming that its play has been taken over by the analyst. Up to 30 events may be defined.
Action-event

Table Action-event

<table>
<thead>
<tr>
<th>event-#</th>
<th>day</th>
<th>hour</th>
<th>duration</th>
<th>actor</th>
<th>name</th>
<th>region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>240</td>
<td>Red City-evacuation</td>
<td>USSR-Moscow</td>
</tr>
</tbody>
</table>

This creates an event in the Scenario Generator Exogenous Actionlist, specifying the actions to be taken in the Flag model at the given day and hour. See Section IX for further information on the Flag model. Up to 30 events may be defined.

SM-apply-delta-wsds

Table SM-apply-delta-wsds

<table>
<thead>
<tr>
<th>file</th>
<th>directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;D.Europe.cvtd&quot;</td>
<td>&quot;Wsds&quot;</td>
</tr>
</tbody>
</table>

This causes System Monitor (SM) to apply the given delta WSDS. The directory path given is relative to the Run directory.

SM-write-wsds

Table SM-write-wsds

<table>
<thead>
<tr>
<th>file</th>
<th>directory</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;newwsds&quot;</td>
<td>&quot;Wsds&quot;</td>
<td>&quot;New Wsds&quot;</td>
</tr>
</tbody>
</table>

This saves the current game state as a WSDS file. The directory path given is relative to the Run directory.

Stop-game

Perform Stop-game.

This stops the game, without quitting.
Quit-game

Perform Quit-game.

This exits the game.

EXAMPLES

The next three sections provide detailed listings of a Red control plan and two Blue analytic war plans that can respond to it. The functions are presented as they appear in the on-line source code, except that explanations have been inserted as footnotes and some classified material has been deleted. For the most part, what makes the on-line code classified is identification of forces by name.
III. (RED) CONTROL PLAN: ATTACKS AGAINST IRAN AND NATO

In this section we list a Red Control Plan as it would appear in an on-line RSAS file. Comments and Log statements provide self-contained documentation; additional comments appear here as footnotes. The timeline is diagrammed in Fig. 12.\(^1\) The scenario is for illustrative purposes; all events occur on days that are even multiples of five.

<table>
<thead>
<tr>
<th>Day</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCFS</td>
<td>M- &amp; C-day</td>
<td>D-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCFW</td>
<td>M- &amp; C-day</td>
<td>D-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NWC</td>
<td>Civil unrest</td>
<td>M- &amp; C-day</td>
<td>D-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCFW</td>
<td>M- &amp; C-day</td>
<td>D-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCFE</td>
<td>M- &amp; C-day</td>
<td>D-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPRK</td>
<td>M- &amp; C-day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 12.--Timeline for Red Control Plan

- The plan assumes dissolution of central authority in Iran. The Soviets watch the situation; after five days (day 5), they alert their forces in the Southern TVD for a possible opportunistic invasion of Iran.
- Civilians in several Eastern European countries begin demonstrations. The Soviets respond by alerting their forces in Non-Soviet Warsaw Pact (NSWP) countries and ordering NSWP indigenous forces to increased alert (day 15).
- Following twenty days of preparations (day 25), the Soviets invade Iran but do not attack any U.S. forces outside Iran.
- Five days later (day 30), the DPRK communicates with the USSR, seeking support for an invasion of the ROK.
- The Soviets begin to mobilize in Europe and the Far East (day 35).
- After fifteen days of preparation (day 50), the Soviets and their Warsaw Pact allies attack in Europe. They do not support the DPRK, which remains at high alert but does not attack. Soviet air attacks U.S. bases in Japan and nuclear storage sites in the ROK. This is summarized in Table 9.

\(^1\)The abbreviations for Red Commands were defined in Table 1.
Table 9
SUMMARY OF RED CONTROL PLAN

<table>
<thead>
<tr>
<th>Day</th>
<th>Red Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>HCFS M- and C-day</td>
</tr>
<tr>
<td>15</td>
<td>Civil unrest in NSWP促使北约行动提示</td>
</tr>
<tr>
<td>25</td>
<td>HCFS D-day invasion of Iran</td>
</tr>
<tr>
<td>35</td>
<td>HCFW M- and C-day</td>
</tr>
<tr>
<td></td>
<td>HCFSW M- and C-day</td>
</tr>
<tr>
<td></td>
<td>DPRK M- and C-day</td>
</tr>
<tr>
<td>50</td>
<td>HCFW D-day</td>
</tr>
<tr>
<td></td>
<td>HCFSW D-day</td>
</tr>
<tr>
<td></td>
<td>DPRK D-day deferred</td>
</tr>
</tbody>
</table>

Owner: Red. \(^2\)

Define Control-plan

[**** DAY 0 ********************************************] \(^3\)

If Move-number is 0\(^4\)
Then
  
  Log-note " Red will log everything".
  Let Agent-log-level of Red be Log-everything.

  Let Next-move-time-limit be 5 * 24. \(^5\)
  Let Move-number be 5.
  Exit.

---

\(^2\) The file will not interpret without an "Owner " statement.

\(^3\) This style of comment is used to separate moves. All moves in an analyst control plan must be within a single function, "Control-plan," not as separate functions as is the case with analytic war plans. The Control-plan function may, however, call other functions, which may be in the same or other files.

\(^4\) This analyst control plan follows the convention of numbering its moves to coincide with the game days on which they are scheduled to occur.

\(^5\) The next move will occur in five days, on day five.
[**** DAY 5 **************************************************]

If Move-number is 5
Then
{
  Log-note "Red move on day 5".
  Log-decision " Red decides to invade Iran".
  Log-reason " because of opportunity presented by situation".

  Log-decision " M-day of HCFS is today".
  Let M-Day of HCFS be Today.
  Let Authorization of Mobilization, HCFS be Full-mob.  

  Log-decision " C-day of HCFS is today".
  Let Authorization of Deploy, HCFS be Full.
  Let C-Day of HCFS be Today.

  Log-decision " D-day of HCFS is set to day 25".
  Let D-Day of HCFS be 25.

  Table Start-new-AWPs
     shc  snf  hcfw  nwcom  hcfsw  hcffe  hcfss  dprk
    ==== ==== ==== ======== ======== ======== ====
    SHC1 -- -- --  --  --  --  HCFS2 --  

  Let Move-number be 15.
  Exit.
}

[**** DAY 15 **************************************************]

If Move-number is 15
Then
{
  Log-note "Red move on day 15".
  Log-decision " Mobilization of Soviet forces in Eastern Europe".
  Log-reason " prompted by unrest in Eastern Europe".

---

6AWP HCFS2 schedules mobilization for M-day, as set here. On the scheduled day, however, it will **order** mobilization only if it is authorized.

7Whenever a subordinate AWP, such as HCFS2, is started, a Global Command Level AWP, such as SHC1, must also be started. The "..." beneath a command name means that its AWP is not to be changed.

8Here, RSAS does not model (simulate) unrest in Eastern Europe; it simply records such as the reason for mobilization of Soviet forces.
Table Mobilize-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>command</th>
<th>arena</th>
<th>in-region</th>
<th>%-ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>USSR</td>
<td>--</td>
<td>--</td>
<td>GDR</td>
<td>100</td>
</tr>
<tr>
<td>all</td>
<td>USSR</td>
<td>--</td>
<td>--</td>
<td>Poland</td>
<td>100</td>
</tr>
<tr>
<td>all</td>
<td>USSR</td>
<td>--</td>
<td>--</td>
<td>Czechoslovakia</td>
<td>100</td>
</tr>
<tr>
<td>all</td>
<td>USSR</td>
<td>--</td>
<td>--</td>
<td>Hungary</td>
<td>100</td>
</tr>
</tbody>
</table>

[End Table].

Log-decision "Red asks NSWP allies to alert their forces". 9

Table Cable 10

<table>
<thead>
<tr>
<th>country</th>
<th>side cooperation</th>
<th>home-involvement</th>
<th>other-involvement</th>
<th>other-area</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDR</td>
<td>Red Transit</td>
<td>Full-alert</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Poland</td>
<td>Red Transit</td>
<td>Full-alert</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>Red Transit</td>
<td>Full-alert</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hungary</td>
<td>Red Transit</td>
<td>Full-alert</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

[End Table].

Let Move-number be 25.
Exit.

{  

[**** DAY 25 ####################################################################]  

If Move-number is 25
Then
{
Log-note "Red move on day 25".

If Today >= D-Day of HCFS
Then
{
Log-note "HCFS2-conventional-move has been modified", 11
Log-note "in INT/red.A to delete Red attack on Blue naval".
Log-note "forces in the Arabian Sea".
[If attack against Blue naval forces IS desired, remove brackets from the following statements]

9Note the distinction here: Red can issue an order, such as a "Mobilize-order" directly to its forces, whether in the Soviet Union or abroad, but it cannot order forces not under its command. The following "Cable" will be acted upon by Green agent on behalf of the recipient NSWP countries.

10Here, Red is asking these NSWP allies to side with the Soviet position, to allow Red forces to transit their territories, and to put their forces in full alert.

11To use control plans to control AWPs intelligently, analysts must know what is in the AWPs. The standard HCFS2 plan has Red attack Blue naval forces in the Persian Gulf and Arabian Sea. In the present scenario, however, Red wishes to have the option of containing the conflict within Iran; hence, the naval attacks are deleted from HCFS2, lest Blue spread the conflict further. The modified HCFS2-conventional-move is in file Run/int/Hide/red.A.
Log-decision "Red will attack Blue naval forces in region".
Perform HCFS2-naval-attack-order.

Log-decision "Warsaw Pact sets Threat of War state of readiness".
Log-reason "prompted by NATO's Military Vigilance".
Let Authorization of Alert, HCFW be Threat-of-war-alert.

Let Move-number be 35.
Exit.

[**** DAY 35 ************************************************************************]

If Move-number is 35
Then

Log-note "Red move on day 35".

Log-decision "Red decides to attack NATO's central region".
Let C-Day of HCFW be Today.
Let Authorization of Deployment, HCFW be Full.
Let M-Day of HCFW be Today.
Let Authorization of Mobilization, HCFW be Full-mob.
Let Authorization of Alert, HCFW be Full.
Let D-Day of HCFW be (Today + 15).

Log-decision "Red decides to attack NATO's northern flank".
Let C-Day of NWCOM be Today.
Let Authorization of Deployment, NWCOM be Full.
Let M-Day of NWCOM be Today.
Let Authorization of Mobilization, NWCOM be Full-mob.
Let Authorization of Alert, NWCOM be Full.
Let D-Day of NWCOM be (Today + 15).

Log-decision "Red decides to attack NATO's southern flank".
Let C-Day of HCFSW be Today.
Let Authorization of Deployment, HCFSW be Full.
Let M-Day of HCFSW be Today.
Let Authorization of Mobilization, HCFSW be Full-mob.
Let Authorization of Alert, HCFSW be Full.
Let D-Day of HCFSW be (Today + 15).

Log-decision "Red decides to attack Blue forces in Pacific".
Let C-Day of HCFFE be Today.
Let Authorization of Deployment, HCFFE be Full.

---

12 This is a very useful technique for using one analyst control plan to control several variants on a baseline case.
13 Note here that the change in Pact readiness is logged as a decision, but the reason is logged as a reason. If this control plan were used in a game in which there were Blue players, they might be shown Red logs at the "Decisions-only" level; they would not necessarily know why Pact readiness had been increased.
Let M-Day of HCFFE be Today.
Let Authorization of Mobilization, HCFFE be Full-mob.
Let Authorization of Alert, HCFFE be Full.
Let D-Day of HCFFE be (Today + 15).

Log-decision "Red decides to support possible attack against ROK".
Let C-Day of DPRK be Today.
Let Authorization of Deployment, DPRK be Full.
Let M-Day of DPRK be Today.
Let Authorization of Mobilization, DPRK be Full-mob.
Let Authorization of Alert, DPRK be Full.
Log-note "but D-day of DPRK is not yet established".
[Let D-Day of DPRK be (Today + 15).]\(^{14}\)

If (Today \(\geq\) M-Day of HCFW) and (Today \(\geq\) M-Day of DPRK)\(^{15}\) Then

<table>
<thead>
<tr>
<th>Shc</th>
<th>Snf</th>
<th>Hcfw</th>
<th>Nwcom</th>
<th>Hcfsw</th>
<th>Hcffe</th>
<th>Hcfs</th>
<th>Dprk</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHC1</td>
<td>SNF1</td>
<td>HCFW8</td>
<td>NWCOM1</td>
<td>HCFSW1</td>
<td>HCFFE1</td>
<td>HCFS2</td>
<td>DPRK1.(^{16})</td>
</tr>
</tbody>
</table>

Else If Today \(\geq\) M-Day of HCFW Then

<table>
<thead>
<tr>
<th>Shc</th>
<th>Snf</th>
<th>Hcfw</th>
<th>Nwcom</th>
<th>Hcfsw</th>
<th>Hcffe</th>
<th>Hcfs</th>
<th>Dprk</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHC1</td>
<td>SNF1</td>
<td>HCFW8</td>
<td>NWCOM1</td>
<td>HCFSW1</td>
<td>HCFFE1</td>
<td>HCFS2</td>
<td>--.</td>
</tr>
</tbody>
</table>

Else If Today \(\geq\) M-Day of DPRK Then

<table>
<thead>
<tr>
<th>Shc</th>
<th>Snf</th>
<th>Hcfw</th>
<th>Nwcom</th>
<th>Hcfsw</th>
<th>Hcffe</th>
<th>Hcfs</th>
<th>Dprk</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHC1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>HCFFE1</td>
<td>HCFS2</td>
<td>DPRK1.</td>
</tr>
</tbody>
</table>

\(^{14}\)The brackets cause this statement to be bypassed. If running a scenario in which the DPRK attacks the ROK, remove the brackets.

\(^{15}\)This applies if Red is mobilizing for war in both Europe and Korea. It was convenient to let Central Europe (HCFW) serve to test for all of Europe. If an analyst wanted to run cases in which Red might attack parts of NATO, then the logic would have to be extended.

\(^{16}\)Although this starts plan SNF1, a strategic nuclear war plan, it does not authorize dispersal or weapons release, which would be done through separate orders. Again, the analyst must know what is in the AWPs that are used.
Let Next-move-time-limit be 50 * 24.
Let Move-number be 50.
Exit.

[***** DAY 50 ******************************************]
If Move-number is 50
Then
{
Log-note "Red move on day 50".
If Today >= D-Day of HCFW
Then
{
Log-decision " Red attacks Blue naval forces SWA".
Log-reason " coincidentally with attacks in Europe".
Perform HCFS2-naval-attack-order.\footnote{This will execute once daily from day 50 until the termination phase or the game stops (set earlier to be on day 75).}
}
}

[***** DAY 50 AND THEREAFTER ******************************************]
If Move-number >= 50
Then
{
If Today >= D-Day of HCFFE and
Point-in-plan of HCFFE is not Termination\footnote{This checks to see if there is a Blue aircraft carrier in the Northwest Pacific Basin.}
Then
{
If the report from Ask-force-count-totals-by-region\footnote{Although provision was made earlier for invading Iran without attacking Blue forces at sea, once Red attacks NATO, there is no longer reason not to attack Blue naval forces in the Arabian sea. The HCFFE1 and NWCOM1 AWPs will attack Blue naval forces in the Pacific and Atlantic Oceans, respectively.}
using Carrier as unit,
Blue as side,
US as owner, and
NW-Pac-Basin as region > 0
Then
{
Log-decision " Attacking CVBG in NW Pac Basin on day " Today.
Table Strike-order\footnote{Classified versions would specify Red units ordered to strike Blue CVBGs.}

<table>
<thead>
<tr>
<th>unit-name</th>
<th>weapon</th>
<th>qty</th>
<th>at-govt target</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>&quot;CVBG NWPBasin&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
}
}
If the report from Ask-force-count-totals-by-region using Carrier as unit, Blue as side, US as owner, and Bering as region > 0
Then
|
Log-decision " Attacking CVBG in Bering Sea on day " Today.
Table Strike-order
<table>
<thead>
<tr>
<th>unit-name</th>
<th>weapon</th>
<th>qty</th>
<th>at-govt target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;CVBG Bering&quot;.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Let Next-move-time-limit be ((Today + 1) * 24).
Let Move-number be (Move-number + 1).
Exit.
|
End.
IV. AFCENT1: A FORWARD DEFENSE OF NATO'S CENTRAL REGION

Having seen in Section III a Red Control Plan for attacks against Iran, NATO, and (possibly) Korea, we turn now to an Analytic War Plan that could be used to counter its attack against NATO's Central Region. The plan is summarized in Table 10, which shows the names of the major Blue actions in each phase.

Table 10
SUMMARY OF BLUE AWP AFCENT1

<table>
<thead>
<tr>
<th>Phase</th>
<th>Blue Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deterrence</td>
<td>Deterrence move</td>
</tr>
<tr>
<td></td>
<td>Deterrence deployment move</td>
</tr>
<tr>
<td></td>
<td>IGB barrier order</td>
</tr>
<tr>
<td></td>
<td>Early reinforce order</td>
</tr>
<tr>
<td></td>
<td>Preemptive air move</td>
</tr>
<tr>
<td></td>
<td>Initial forward air defense order</td>
</tr>
<tr>
<td></td>
<td>Support Austria move</td>
</tr>
<tr>
<td>Defense</td>
<td>Forward defense move</td>
</tr>
<tr>
<td></td>
<td>Deterrence deployment move</td>
</tr>
<tr>
<td></td>
<td>Adjust priority</td>
</tr>
<tr>
<td></td>
<td>Initial defense move</td>
</tr>
<tr>
<td></td>
<td>Widen air defense move</td>
</tr>
<tr>
<td></td>
<td>UK CAS deployment move</td>
</tr>
<tr>
<td></td>
<td>Ems-Neckar barrier order</td>
</tr>
<tr>
<td></td>
<td>Support Austria move</td>
</tr>
<tr>
<td></td>
<td>Realign FRG II Corps</td>
</tr>
<tr>
<td>Nuclear</td>
<td>Nuclear move</td>
</tr>
<tr>
<td></td>
<td>Deterrence deployment move</td>
</tr>
<tr>
<td></td>
<td>Demonstrative nuclear use move</td>
</tr>
<tr>
<td></td>
<td>Battlefield nuclear use move</td>
</tr>
<tr>
<td></td>
<td>Theater nuclear use move</td>
</tr>
<tr>
<td></td>
<td>Massive military nuclear use move</td>
</tr>
<tr>
<td>Post-nuclear</td>
<td>Post-nuclear move</td>
</tr>
<tr>
<td>Termination</td>
<td>Termination move</td>
</tr>
</tbody>
</table>

Figure 13 shows the timeline.

¹This AWP is in file Src/AWP/Blue/Afcen1/Afcen1. The .A suffix in RSAS file names indicates the file is RAND-ABEL source code.
²Many of these Blue actions are conditional on events or authorizations.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Deterrence</th>
<th>Defense</th>
<th>Nuclear</th>
<th>Post-Nuc Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground</td>
<td>Deploy</td>
<td>Defend forward</td>
<td>Disperse*</td>
<td></td>
</tr>
<tr>
<td>Air</td>
<td>Deploy</td>
<td>Fwd air defense</td>
<td>Disperse*</td>
<td></td>
</tr>
<tr>
<td>Defenses</td>
<td>IGB barrier*</td>
<td>Weser-Lech barrier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td>Late allies</td>
<td>Under attack</td>
<td>Terminating</td>
<td></td>
</tr>
</tbody>
</table>

*As authorized

Fig. 13--Timeline for AFCENT1

The theater is depicted in Fig. 14, showing axes as outlined numbers.

Fig. 14--Map of Central European theater
Plan-AFCENT1

PURPOSE

Defend NATO's Central Region against attack by Warsaw Pact forces.

STRATEGY

Deter attack, if possible; otherwise, conclude hostilities as soon as possible under favorable terms, by executing NATO's strategy of forward defense and flexible response.

COORDINATING INSTRUCTIONS

This plan is consistent with the following Objective of JCS:

Destroy-Soviet-Union
Defeat-Red-worldwide
Defeat-Pact
Defend-alliances
Limit-coalition-losses
Limit-US-losses
Support-allies
Unspecified

This plan is consistent with the following Escalation-guidance for this theater: all levels.

This plan is consistent with the following Objectives of AFCENT:

Pursue
Restore
Hold
Limit-losses
Limit-US-losses
Deter
Unspecified

This plan is consistent with the following Ground-strategy for this theater: Forward.

ORGANIZATION OF THE PLAN

Each phase of the campaign is divided into moves, which are decisions that are appropriately made together at specific times.

Moves, which are specific to the plan, evoke operations and force orders, which are not necessarily plan-specific.

---

3Phasing of the campaign is controlled by the top-level function of the plan, Plan-AFCENT.

4Each AWP begins with a lengthy comment giving the purpose, strategy, coordinating instructions, etc. of the plan in military terms.

5These are values of a declared variable Objective of JCS.
The plan and its components consists of text, enclosed in brackets ([, ]), and RAND-ABEL executable code. Text describing the purpose and strategy of the plan appears above. Following this text, describing the organization of the plan, there is the RAND-ABEL code that controls execution of the phases. Following that, there is text and code for each phase and move. The text and code for operations and force orders are in a separate file, SOP (standard operating procedures).

Text describing each phase includes its objective(s), assumed threat, assumed friendly forces, concept of operations, and planned contingencies.  

Owner: Blue.

[============================================================================================]

Define Plan-AFCENT1:

   Perform Sleep-and-wake-immediately.
   Perform AFCENT1-deterrence-phase.  
   Perform AFCENT1-defense-phase.  
   Perform AFCENT1-nuclear-phase.  
   Perform AFCENT1-post-nuclear-phase.  
   Perform AFCENT1-termination-phase.

End.

**AFCENT1-deterrence-phase**

The sequence of deterrence phase actions is flow charted in Fig.15.

**OBJECTIVES**

Deter Warsaw Pact attack and be prepared to defend the NATO Central Region if attacked.

**ASSUMED THREAT**

Deleted

**ASSUMED FRIENDLY FORCES**

Deleted

---

6Some of which has been deleted from this Note for reasons of classification.

7All RAND-ABEL names, whether they be for functions, variables, or variable values, must not contain blanks: hyphens are generally used to connect parts of names, as in Plan-AFCENT1.

8The names of such plan-specific functions include the plan name in the function name, as in AFCENT1-deterrence-phase.

9None of the AWPs developed to date have anything but the barest of termination phases.

10The deterrence phase involves force deployment and axis prioritization.
AFCENT1-deterrence-phase

Point-in-plan ≤
Move-to-deterrence

AFCENT-deterrence-move

While Point-in-plan ≤
Deterrence

No
Yes

AFCENT-deterrence-deployment-move

Today ≥ C-Day and
Deployment Authorization = Full

No
Yes

Notify-higher-authority

Today > Expected-D-Day + 1

No
Yes

IGB-barrier-order

Today > C-Day + 5 and
Expected-D-Day > Today + 5
and IGB-barrier is in place

No
Yes

AFCENT-support-Austria-move

Pact divisions on WTVD-10 > 0 and
Support-Austria not yet done and
Austria's involvement ≥ On-call and
Austria's side is Blue

Sleep-to-next-move

No
Yes

Theater conflict level ≥ Gen-conv

Point-in-plan = Move-to-defense

Fig. 15--AFCENT1 flowchart of deterrence phase
CONCEPT OF OPERATIONS

NATO forces rapidly mobilize and deploy to GDP positions. Barrier preparation at the IGB is ordered if there is enough time prior to expected D-Day.

PLANNED CONTINGENCIES

If D-Day appears imminent and the Belgian sector appears subject to a strong attack, the plan will consider either getting them assistance from the adjacent sector or committing the reserve division.

If Austria requests it, and the threat appears to justify it, forces will advance into Austria and prepare defenses near Linz. Other contingencies deleted.

******************************************************************************

Define AFCENT1-deterrence-phase:

If Point-in-plan of AFCENT is at most Move-to-deterrence
Then Perform AFCENT-deterrence-move.

While Point-in-plan of AFCENT is at most Deterrence:11
{[ Deploy U.S. and Allied forces as they become available ]

If (Today is at least C-Day of AFCENT)12
  and Authorization of Deployment, AFCENT is Full
Then Perform AFCENT1-deterrence-deployment-move.13

[ Revise expected D-Day ]

If Today is greater than Expected-D-Day of AFCENT + 1 [day]
Then Perform Notify-higher-authority using time-limit-expired as reason, and revise-expected-D-Day as recommendation.14

[ Start IGB Barrier construction if there appears to be time]

---

11The plan then cycles through the While loop, testing for moves that must be performed, sleeping until the next day, waking to test for changing the phase, and then repeating the loop.

12Parentheses are required in some RAND-ABEL statements to make the logic unambiguous. For rules governing use of parentheses, see the RAND-ABEL reference manual, listed in the Bibliography.

13Much of the domain knowledge in AWPs is expressed in If-Then rules, as in this function, or in decision tables, as we'll see later. Here, if the current game day (Today) is at least C-day for this theater and deployment has been authorized by higher authority (Authorization of Deployment, AFCENT), then the plan performs the AFCENT1-deterrence-deployment-move.

14This prompts higher authority to reassess when D-Day is expected.
If Today is greater than C-Day of AFCENT + 5 and
Expected-D-Day of AFCENT is greater than Today + 5 [days]15
and Move-done of AFCENT, IGB-barrier is No
Then Perform IGB-barrier-order.16

If (the report from Ask-force-overlay-data using Divisions as
data, and WTVD-10 as overlay) > 0
and Move-done of AFCENT, Support-Austria is No
and (the report from Ask-green-involvement using Austria as
country, and CEurope as area is at least On-call)
and (the report from Ask-green-side using Austria as country,
and CEUR as area is Blue)
Then Perform AFCENT-support-Austria-move.

[ Sleep until 0 hour, tomorrow ]

Perform Sleep-to-next-move17 using the function AFCENT-wake-at-
combat as
planned-wakeup, and ((Today + 1) * 24) as time-limit.

[ Check for change of phase ]

If the report from Ask-force-theater-conflict-level using
Central-Europe as theater is at least Gen-conv
Then Let Point-in-plan of AFCENT be Move-to-defense.
}
End.

AFCENT1-deterrence-deployment-move

Define AFCENT1-deterrence-deployment-move:

[ Order the initial deployment of national forces as they commit to
NATO ]

Table
{
Declare country# : Let country# be Type-country.
Declare move# : Let move# be Type-AWP-move.
Declare order-function#: Let order-function# be address of
Do-nothing.

15The assumption here is that tank barriers at the Inner German Border would not be
ordered until at least five days after C-Day nor unless D-Day was expected to be at least five days
hence. These numbers are illustrative only and can be changed.
16Library functions, which are not plan-specific, but which are used by this plan, are in file
Src/AWP/Blue/Afcent/library.A.
17The function Sleep-to-next-move causes the plan to sleep until either the planned-
wakeup condition occurs or the time-limit is reached. Here, the planned-wakeup is inactivated by
using the function Never-wake, and the time-limit is set to the next day. The time-limit is in
hours, which is why Today + 1 (day) is multiplied by 24.
If (the report from Ask-green-involvement using country# as country and CEurope as area >= On-call or country# is US) and Move-done of AFCENT, move# is No
Then Perform order-function#.

<table>
<thead>
<tr>
<th>country#</th>
<th>move#</th>
<th>order-function#</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>UK-deploy</td>
<td>(function UK-deploy-to-AFCENT)</td>
</tr>
<tr>
<td>Canada</td>
<td>Canada-deploy</td>
<td>(function Canada-deploy-to-AFCENT)</td>
</tr>
<tr>
<td>France</td>
<td>France-deploy</td>
<td>(function France-deploy-to-AFCENT)</td>
</tr>
<tr>
<td>FRG</td>
<td>FRG-deploy</td>
<td>(function FRG-deploy-to-AFCENT)</td>
</tr>
<tr>
<td>Belgium</td>
<td>Belgium-deploy</td>
<td>(function Belgium-deploy-to-AFCENT)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Nether-deploy</td>
<td>(function Netherlands-deploy-to-AFCENT)</td>
</tr>
</tbody>
</table>

[End Table].

[Test for missing allies]

If Today > C-Day of AFCENT + 2 and
   ( Move-done of AFCENT, UK-deploy is No
     or Move-done of AFCENT, France-deploy is No
     or Move-done of AFCENT, FRG-deploy is No
     or Move-done of AFCENT, Belgium-deploy is No
     or Move-done of AFCENT, Nether-deploy is No )
Then Perform Notify-higher-authority using
   alliance-incohesion as reason, and change-plan as recommendation.

End.

**AFCENT1-defense-phase**

I

**OBJECTIVES**

Defend the NATO Central Region from conventional attack by Warsaw Pact forces.

ASSUMED THREAT

Deleted.

ASSUMED FRIENDLY FORCES

Deleted.

French forces are assumed available for commitment on M-day from their peacetime locations.

---

The comment "[End Table]" is a convenient marker for the period it precedes, which is required at the end of every RAND-ABEL table. For tables of more than one row, it is customary to place the period on a separate line, as "[End Table]." so that it does not become lost in subsequent editing.
CONCEPT OF OPERATIONS

Deleted.

PLANNED CONTINGENCIES

Deleted.

Define AFCENT1-defense-phase:

If Point-in-plan of AFCENT is Move-to-defense
Then Perform AFCENT1-forward-defense-move.

While Point-in-plan of AFCENT is Defense;\textsuperscript{19}
{Perform AFCENT-determine-FLOT.
Perform AFCENT1-deterrence-deployment-move.
Perform AFCENT-adjust-priority.
If Today is D-Day of AFCENT + 3
Then Perform AFCENT1-widen-air-defense-move.
[Order defenses along the Ems-Neckar line when the FLOT penetrates into any zone containing the Weser-Lech line]

If Move-done of AFCENT, Ems-neck-barrier is No and
(FLOT of CEUR-2 > 159 or FLOT of CEUR-3 > 126 or
FLOT of CEUR-4 > 149 or FLOT of CEUR-5 > 96 or
FLOT of CEUR-6 > 65 or FLOT of CEUR-7 > 65 or
FLOT of CEUR-8 > 190 or FLOT of CEUR-9 > 190 or
FLOT of CEUR-10 > 443)
Then Perform Ems-Neckar-barrier-order.

[Sleep until 0 hour, tomorrow]

Perform Sleep-to-next-move using the function
Test-nuclear-authorization as planned-wakeup, and
((Today + 1) \times 24) as time-limit.

[Check for change of phase]

If Authorization of Release, AFCENT is Nuclear
Then Let Point-in-plan of AFCENT be Move-to-nuclear.
If Authorization of Termination, AFCENT is not None
Then Let Point-in-plan of AFCENT be Move-to-termination.

\textsuperscript{19}The two moves within this phase are the AFCENT1-deterrence-deployment-move, performed on C-day (C-Day of AFCENT) and each day thereafter if authorized, and the AFCENT1-prioritization-order, performed once on D-day - 2 days. Since the plan moves only once each day, the test "If Today is D-Day of AFCENT - 2" will be true only once.
End.

**AFCENT1-forward-defense-move**

Define **AFCENT1-forward-defense-move**:

Perform Notify-higher-authority using under-attack as reason, and no-recommendation as recommendation.

Perform **AFCENT-forward-defense-priority-order**.

Perform **AFCENT-forward-defense-order**.

Perform **AFCENT1-forward-defense-order**.

Perform **AFCENT-init-forward-air-defense-order**.

Perform **Weser-Lech-barrier-order**.

Let D-Day of **AFCENT** be Today.

Log-decision " **AFCENT** - Defense phase".

Let Point-in-plan of **AFCENT** be Defense.

End.

**AFCENT1-forward-defense-order**

Define **AFCENT1-forward-defense-order**:

Log-decision " Ordering dispersal of air forces".

<table>
<thead>
<tr>
<th>Table Disperse-order(^{20})</th>
</tr>
</thead>
<tbody>
<tr>
<td>unit</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Air</td>
</tr>
</tbody>
</table>

[End Table].

If Today < C-Day of **AFCENT** + 1\(^{21}\)

Then

Log-decision " NORTAG delaying vice defending".

Log-note " CENTAG axis mission Defend".

---

\(^{20}\)This dispenses 5 percent of aircraft presently in regions shown. Percentage here is illustrative.

\(^{21}\)That is, if NATO had less than one day to prepare. The "1" here is illustrative. The militarily substantive issue is what is the minimal preparation time necessary to order forces to hold at the IGB. Alternatively, one could test on NATO force level or the Pact/NATO force ratio.
Table Axis-mission-order

<table>
<thead>
<tr>
<th>axis</th>
<th>mission</th>
<th>start-kms</th>
<th>end-kms</th>
<th>expire-D+</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR-2</td>
<td>Defend-delay</td>
<td>0</td>
<td>159</td>
<td>999\textsuperscript{22}</td>
</tr>
<tr>
<td>CEUR-3</td>
<td>Defend-delay</td>
<td>0</td>
<td>126</td>
<td>999</td>
</tr>
<tr>
<td>CEUR-4</td>
<td>Defend-delay</td>
<td>0</td>
<td>149</td>
<td>999</td>
</tr>
<tr>
<td>CEUR-5</td>
<td>Defend-delay</td>
<td>0</td>
<td>96</td>
<td>999</td>
</tr>
<tr>
<td>CEUR-6</td>
<td>Defend-delay</td>
<td>0</td>
<td>40</td>
<td>999</td>
</tr>
</tbody>
</table>

[End Table].

Else Log-decision " NORTHAG defending".

End.

**AFCENT\textsuperscript{1}-widen-air-defense-move**

Define AFCENT\textsuperscript{1}-widen-air-defense-move:

- Perform AFCENT-widen-air-defense-order.

End.

**AFCENT\textsuperscript{1}-nuclear-phase**

\{

**OBJECTIVES**

Defend the NATO Central Region from conventional or nuclear attack by Warsaw Pact forces.

**ASSUMED THREAT**

As in the conventional phase. Additionally, Red theater nuclear forces may be employed.

**ASSUMED FRIENDLY FORCES**

As in the conventional phase.

**CONCEPT OF OPERATIONS**

Deleted

\}

Define AFCENT\textsuperscript{1}-nuclear-phase:

- If Point-in-plan of AFCENT is Move-to-nuclear
  Then Perform AFCENT\textsuperscript{1}-nuclear-move.

- While Point-in-plan of AFCENT is Nuclear:
  \{
  Perform AFCENT-determine-FLOT.

  Perform AFCENT\textsuperscript{1}-deterrence-deployment-move.

\textsuperscript{22}The value "999" is effectively "infinity."
If Authorization of Nuclear, AFCENT is Demo-nuc and Move-done of AFCENT, Demo-nuc-use is No Then Perform AFCENT-demonstrative-nuclear-use-move.

If Authorization of Nuclear, AFCENT is at least Limited-nuc and Number-of-battlefield-nuclear-strikes < 3 Then Perform AFCENT-battlefield-nuclear-use-move.

If Authorization of Nuclear, AFCENT is Limited-nuc and Move-done of AFCENT, Theater-nuclear is No Then Perform AFCENT-theater-nuclear-use-move.

If Authorization of Nuclear, AFCENT is Massive-nuc and Move-done of AFCENT, Massive-military-nuclear is No Then Perform AFCENT-massive-military-nuclear-use-move.

[ Sleep for 12 hours ]

Perform Sleep-to-next-move using the function Never-wake as planned-wakeup, and (Time-in-hours + 12) as time-limit.

[ Check for change of phase ]

If Authorization of Termination, AFCENT is not None Then Let Point-in-plan of AFCENT be Move-to-termination.

If Authorization of Release, AFCENT is not Nuclear Then Let Point-in-plan of AFCENT be Move-to-post-nuclear.

End.

**AFCENT1-nuclear-move**

Define AFCENT1-nuclear-move:

If Authorization of Dispersal, AFCENT is Full Then Perform AFCENT-nuclear-dispersal-order.

Log-decision "AFCENT - Nuclear phase".
Let Point-in-plan of AFCENT be Nuclear.

End.

**AFCENT1-post-nuclear-phase**

Define AFCENT1-post-nuclear-phase:

If Point-in-plan of AFCENT is Move-to-post-nuclear Then Perform AFCENT1-post-nuclear-move.

While Point-in-plan of AFCENT is Post-nuclear:

[ Sleep until 0 hour, tomorrow ]
Perform Sleep-to-next-move using the function Never-wake as planned-wakeup, and ((Today + 1) * 24) as time-limit.

[ Check for change of phase ]

If Authorization of Termination, AFCENT is not None
Then Let Point-in-plan of AFCENT be Move-to-termination.

End.

**AFCENT1-post-nuclear-move**

Define AFCENT1-post-nuclear-move:

Log-decision " AFCENT - Post-nuclear phase".
Let Point-in-plan of AFCENT be Post-nuclear.

End.

**AFCENT1-termination-phase**

Define AFCENT1-termination-phase:

If Point-in-plan of AFCENT is Move-to-termination
Then Perform AFCENT1-termination-move.

While Plan-is-active:
{
  Perform Sleep-until-bound-broken.
}

End.

**AFCENT1-termination-move**

Define AFCENT1-termination-move:

Log-decision " Termination ordered".

Perform Notify-higher-authority using termination-in-theater as reason and change-plan as recommendation.

Perform Terminate-order using CEUR as arena.

Log-decision " AFCENT - Termination phase".
Let Point-in-plan of AFCENT be Termination.

End.
AFCENT1-lookahead-evaluation

Decision logic for National Command Level models includes provision for
“lookaheads,” each a game within a game, for the purpose of testing tentatively selected
objectives, strategies, etc. The NCL makes assumptions about opponent and other
behavior, then has the RSAS run ahead in lookahead mode; it then evaluates results by
performing <Command>-lookahead-evaluation functions, such as this one.

Define AFCENT1-lookahead-evaluation:

Declare obj : Let obj be Type-operational-objective.
Declare strin : Let strin be Type-stringency.
Declare criterion: Let criterion be Type-theater-status.
Declare assess : Let assess be Type-theater-status.

Let obj be Objective of AFCENT.
Let strin be Lookahead-stringency of AFCENT.

Decision Table

<table>
<thead>
<tr>
<th>obj</th>
<th>strin</th>
<th>assess</th>
<th>criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pursue</td>
<td>--</td>
<td>(Ground-status of Central-Europe) Very-good</td>
<td></td>
</tr>
<tr>
<td>Restore</td>
<td>High</td>
<td>(Ground-status of Central-Europe) Very-good</td>
<td></td>
</tr>
<tr>
<td>Restore</td>
<td>&lt;High</td>
<td>(Ground-status of Central-Europe) Good</td>
<td></td>
</tr>
<tr>
<td>Hold</td>
<td>--</td>
<td>(Ground-status of Central-Europe) Mixed</td>
<td></td>
</tr>
<tr>
<td>Limit-losses</td>
<td>High</td>
<td>(Ground-status of Central-Europe) Very-good</td>
<td></td>
</tr>
<tr>
<td>Limit-losses</td>
<td>Medium</td>
<td>(Ground-status of Central-Europe) Good</td>
<td></td>
</tr>
<tr>
<td>Limit-losses</td>
<td>Low</td>
<td>(Ground-status of Central-Europe) Mixed</td>
<td></td>
</tr>
<tr>
<td>Limit-US-losses</td>
<td>High</td>
<td>(Forces-status of Central-Europe) Very-good</td>
<td></td>
</tr>
<tr>
<td>Limit-US-losses</td>
<td>Medium</td>
<td>(Forces-status of Central-Europe) Good</td>
<td></td>
</tr>
<tr>
<td>Limit-US-losses</td>
<td>Low</td>
<td>(Forces-status of Central-Europe) Mixed</td>
<td></td>
</tr>
<tr>
<td>Deter</td>
<td>--</td>
<td>(Political-status of Central-Europe) Very-good</td>
<td></td>
</tr>
<tr>
<td>Unspecified</td>
<td>--</td>
<td>(Ground-status of Central-Europe) Good</td>
<td></td>
</tr>
</tbody>
</table>

[End Table].

If assess >= criterion
Then
{ Log-note " AFCENT1 objective met in lookahead".
Exit reporting objective-met.
} Log-note " AFCENT1 objective unmet in lookahead".
Exit reporting objective-unmet.

End.
V. JCS1: A BLUE ANALYTIC WAR PLAN FOR GLOBAL DEFENSIVE COORDINATION

This section provides an annotated listing of JCS1. Table 11 summarizes Blue actions by phase.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Blue Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deterrence</td>
<td>Deterrence move</td>
</tr>
<tr>
<td></td>
<td>Deterrence messages</td>
</tr>
<tr>
<td></td>
<td>Assign lift priority</td>
</tr>
<tr>
<td></td>
<td>Deterrence DEFCON</td>
</tr>
<tr>
<td></td>
<td>Deterrence delegation</td>
</tr>
<tr>
<td></td>
<td>Deterrence announcement response</td>
</tr>
<tr>
<td></td>
<td>Deterrence notification response</td>
</tr>
<tr>
<td>Regional combat</td>
<td>Regional combat move</td>
</tr>
<tr>
<td></td>
<td>Regional combat DEFCON</td>
</tr>
<tr>
<td></td>
<td>Regional combat announcement response</td>
</tr>
<tr>
<td></td>
<td>Regional combat notification response</td>
</tr>
<tr>
<td>Global combat</td>
<td>Global combat move</td>
</tr>
<tr>
<td></td>
<td>Global combat messages</td>
</tr>
<tr>
<td></td>
<td>Global combat DEFCON</td>
</tr>
<tr>
<td></td>
<td>Global combat announcement response</td>
</tr>
<tr>
<td></td>
<td>Global combat notification response</td>
</tr>
<tr>
<td>Nuclear</td>
<td>Nuclear move</td>
</tr>
<tr>
<td></td>
<td>Nuclear messages</td>
</tr>
<tr>
<td></td>
<td>Nuclear DEFCON</td>
</tr>
<tr>
<td></td>
<td>Nuclear deployment</td>
</tr>
<tr>
<td></td>
<td>Nuclear announcement response</td>
</tr>
<tr>
<td></td>
<td>Nuclear notification response</td>
</tr>
<tr>
<td>Termination</td>
<td>Termination move</td>
</tr>
<tr>
<td></td>
<td>Termination messages</td>
</tr>
<tr>
<td></td>
<td>Termination DEFCON</td>
</tr>
<tr>
<td></td>
<td>Termination deployment</td>
</tr>
<tr>
<td></td>
<td>Termination delegation</td>
</tr>
<tr>
<td></td>
<td>Termination announcement response</td>
</tr>
<tr>
<td></td>
<td>Termination notification response</td>
</tr>
</tbody>
</table>

Additionally, the plan performs the following actions in conjunction with one or more phases:
Plan selection (for subordinate Commands)
Announcement penalty
Announcement response
Deployment of forces to theaters

Plan-JCS1

Owner: Blue.

Define Plan-JCS1:

Log-reason Day-and-hour "Commencing execution of plan JCS1".
Perform Sleep-and-wake-immediately.¹
Perform JCS1-plan-selection.

Perform JCS1-deterrence-phase.²
Perform JCS1-regional-combat-phase.
Perform JCS1-global-combat-phase.
Perform JCS1-nuclear-phase.
Perform JCS1-termination-phase.

End.

JCS1-plan-selection³

Define JCS1-plan-selection:

Declare esc-guidance : Let esc-guidance be
    Type-military-involvement.⁴
Declare nato-cohesion: Let nato-cohesion be Type-alliance-criteria.
Declare strategy : Let strategy be Type-ground-strategy.
Declare orient : Let orient be Type-color.
Declare EUR-plan : Let EUR-plan be Type-AWP.⁵
Declare AFNORTH-plan : Let AFNORTH-plan be Type-AWP.
Declare AFCENT-plan : Let AFCENT-plan be Type-AWP.

¹For technical reasons, this statement must appear in every AWP before executing any subordinate functions. By convention, it generally follows a log statement, "Commencing execution of plan <plan name>.”
²Each of the phase functions contain logic governing transition to the next phase, if any.
³The function JCS1-plan-selection selects and starts the subordinate plans to the coordination plan, according to outside guidance. Since the coordination plan is above its subordinates in the plan hierarchy, whenever it is switched to a new plan all of its subordinates are also killed and must be rechosen. Thus the first step in a coordination plan is to select its subordinate plans, regardless of the phase its predecessor may have been in.
⁴The first statement declares a new variable for use in this function. Because the variable has been declared within a function, it can be used in this function only and has no existence elsewhere in the system.
⁵This variable can take on any of the values of the enumeration Type-AWP, which are the names of the Blue AWPs. Thus the variable AFCENT-plan is given the value of the selected AFCENT plan name, and then used later in the function to start the plan.
Declare AFSOUTH-plan : Let AFSOUTH-plan be Type-AWP.
Declare CENT-plan : Let CENT-plan be Type-AWP.
Declare KOREA-plan : Let KOREA-plan be Type-AWP.
Declare LANT-plan : Let LANT-plan be Type-AWP.
Declare PAC-plan : Let PAC-plan be Type-AWP.
Declare SAC-plan : Let SAC-plan be Type-AWP.
Declare each-command : Let each-command be Type-command.

[ Given guidance from the NCA, JCS1 uses the following logic to select from among the available plans. This logic is not used in User-generated or Human-player modes, where the analyst provides the plan names. ]

If NCL-mode is not User-generated and NCL-mode is not Human-player
Then Perform JCS1-select-plans-from-guidance.\(^6\)

For each-command (EUR or CENT or KOREA or LANT or PAC or SAC):
{  
  Perform Start-new-plan using (Proposed-plan-name of each-command) as name.\(^7\)
}

[ Set Expected-D-Day if it has not been set by the NCL ]

For each-command (AFNORTH or AFCENT or AFSOUTH or CENT or KOREA or LANT or PAC or SAC):
{  
  If Expected-D-Day of each-command is never 
  and Proposed-plan-name of each-command is not --
  Then Let Expected-D-Day of each-command be 5 [days].
}

[ Perform a global unassignment of all forces once ]

If Move-done of JCS, Unassignment is No
Then Perform JCS-global-unassignment.\(^8\)

[ Assign forces dedicated to each command as plans are chosen ]

---
\(^6\)The variable NCL-mode describes the mode of gaming in which the RSAS is being run. In User-generated and Human-player modes, plans are selected by the user through one of the scenario-generating mechanisms, so the code that selects plans is skipped.

\(^7\)The function Start-new-plans starts the named plan running with its first function. The plan name is always taken from the variable Proposed-plan-name, whether the user or the previous code in this function chose the plan. Following execution of the function, the variable Current-plan-name holds the names of the chosen plans.

\(^8\)Since forces begin the run with default assignments, the plan first unassigns all forces so that it may assign them as subordinate plans are chosen.
Table 9
{
    Declare command : Let command be Type-command.
    Declare O-plan  : Let O-plan  be Type-AWF.
    Declare assignment-function : Let assignment-function be the function Assign-AFCENT-core-forces.
}

If   Current-plan-name of command > O-plan
    and ( Previous-plan-name of command is --
      or   Previous-plan-name of command is O-plan)
Then Perform assignment-function.
}

<table>
<thead>
<tr>
<th>command</th>
<th>O-plan</th>
<th>assignment-function</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFNORTH</td>
<td>AFNORTH0</td>
<td>(function Assign-AFNORTH-core-forces)</td>
</tr>
<tr>
<td>AFCENT</td>
<td>AFCENT0</td>
<td>(function Assign-AFCENT-core-forces)</td>
</tr>
<tr>
<td>AFSOUTH</td>
<td>AFSOUTH0</td>
<td>(function Assign-AFSOUTH-core-forces)</td>
</tr>
<tr>
<td>CENT</td>
<td>CENT0</td>
<td>(function Assign-CENT-core-forces)</td>
</tr>
<tr>
<td>KOREA</td>
<td>KOREA0</td>
<td>(function Assign-KOREA-core-forces)</td>
</tr>
<tr>
<td>LANT</td>
<td>LANT0</td>
<td>(function Assign-LANT-core-forces)</td>
</tr>
</tbody>
</table>

[End Table].

Table 10
{
    Declare force#: Let force# be Type-swingforce.
    Declare truth : Let truth  be Yes.
    Declare arena#: Let arena# be Type-arena.

    If Swingforce-assignment of force# is -- and truth is Yes
    Then Perform Assign-swingforce using force# as force, and
         arena# as arena.
}

<table>
<thead>
<tr>
<th>force#</th>
<th>truth</th>
<th>arena#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centcom</td>
<td>(Current-plan-name of CENT is CENT2)</td>
<td>AG-Iran</td>
</tr>
<tr>
<td>Centcom</td>
<td>(Current-plan-name of AFCENT &gt; AFCENT0)</td>
<td>CEUR</td>
</tr>
</tbody>
</table>

[End Table].

End.

JCS1-select-plans-from-guidance11
[
    Given guidance from the NCA, JCS1 uses the following logic to select from among the available Blue AWPs.
]

---

9 This table performs the core force assignment function for a Command when the first plan is chosen that is not a peacetime plan (one with name ending with zero).
10 This table performs the swing force assignment function to assign predefined sets of forces depending on the plans chosen.
11 The tables in this function must be changed if new AWPs are developed for any subordinate command levels. That is, rows must be added to include the new AWP names.
Define JCS1-select-plans-from-guidance:

Declare esc-guidance : Let esc-guidance be Type-military-involvement.
Declare nato-cohesion: Let nato-cohesion be Type-alliance-criteria.
Declare strategy : Let strategy be Type-ground-strategy.
Declare orient : Let orient be Type-color.
Declare EUR-plan : Let EUR-plan be Type-AWP.
Declare AFNORTH-plan : Let AFNORTH-plan be Type-AWP.
Declare AFCENT-plan : Let AFCENT-plan be Type-AWP.
Declare AF SOUTH-plan : Let AF SOUTH-plan be Type-AWP.
Declare CENT-plan : Let CENT-plan be Type-AWP.
Declare KOREA-plan : Let KOREA-plan be Type-AWP.
Declare LANT-plan : Let LANT-plan be Type-AWP.
Declare PAC-plan : Let PAC-plan be Type-AWP.
Declare SAC-plan : Let SAC-plan be Type-AWP.
Declare each-command : Let each-command be Type-command.

Let esc-guidance be Escalation-guidance of EUR.\(^\text{12}\)

Decision Table\(^\text{13}\)

\[
\begin{array}{c|c}
\text{esc-guidance} & \text{EUR-plan} \\
\hline
\text{=} & \text{=} \\
\text{None} & \text{EUR1} [\text{European Def}] \\
\text{--} & \text{EUR0} \\
\end{array}
\]

Let strategy be Ground-strategy of AFCENT.

Let nato-cohesion be Alliance-criteria of AFCENT.

Decision Table

\[
\begin{array}{c|c|c}
\text{nato-cohesion} & \text{strategy} & \text{AFCENT-plan} \\
\hline
\text{=} & \text{=} & \text{=} \\
\text{Cohesive Forward} & \text{AFCENT1} & [\text{Forward Def}] \\
\text{Cohesive Fallback} & \text{AFCENT2} & [\text{Fallback Def}] \\
\text{<Cohesive --} & \text{AFCENT3} & [\text{Incohesive Alliance}] \\
\text{-- Prompt-nuc} & \text{AFCENT4} & [\text{Prompt Nuclear Def}] \\
\text{-- --} & \text{AFCENT0} & \\
\end{array}
\]

Let esc-guidance be Escalation-guidance of CENT.

Let orient be Green's Orientation of Iran.\(^\text{14}\)

Decision Table

\[
\begin{array}{c|c}
\text{esc-guidance orient} & \text{CENT-plan} \\
\hline
\text{=} & \text{=} \\
\text{None} & \text{Blue CENT1 [Persian Gulf Defense]} \\
\text{--} & \text{CENT0} \\
\end{array}
\]

[Similar tables for other Commands have been deleted.]

\(^{12}\)Escalation-guidance, as well as Grand-strategy and Alliance-criteria, are set by the NCL.

\(^{13}\)Since there is only one EUR plan at present, it is chosen in any crisis or war situation.

\(^{14}\)The Orientation of Iran is an input to Green Agent.
Let Proposed-plan-name of EUR be EUR-plan.
Let Proposed-plan-name of AFNORTH be AFNORTH-plan.
Let Proposed-plan-name of AFCENT be AFCENT-plan.
Let Proposed-plan-name of AF SOUTH be AF SOUTH-plan.
Let Proposed-plan-name of CENT be CENT-plan.
Let Proposed-plan-name of KOREA be KOREA-plan.
Let Proposed-plan-name of LANT be LANT-plan.
Let Proposed-plan-name of PAC be PAC-plan.
Let Proposed-plan-name of SAC be SAC-plan.

End.

**JCS1-deterrence-phase**

Define JCS1-deterrence-phase:

Declare reason-for-move: Let reason-for-move be Type-wakeup-report.

If Point-in-plan of JCS <= Move-to-deterrence\(^{15}\)
Then Perform JCS1-deterrence-move.\(^{16}\)

While Point-in-plan of JCS is Deterrence:\(^{17}\)
  { 
  Let reason-for-move\(^{18}\) be the report from JCS-sleep-to-next-move
  using ((Today + 1) * 24) as time-limit.\(^{19}\)

  If reason-for-move is time-limit-expired\(^{20}\)
  Then
    | Perform JCS1-deterrence-messages.
    | Perform JCS1-deterrence-DEFCON.
    | Perform JCS1-theater-deployment.

---

\(^{15}\)The JCS1-deterrence-move function changes Point-in-plan to Deterrence, allowing the
While loop below to be entered.

\(^{16}\)Each phase of a coordination plan has an initial move to be done when the phase is
entered the first time.

\(^{17}\)After the initial move, the phase enters a While loop in which it moves at least once a
day. The variable Point-in-plan controls when the phase will be left. The function JCS-sleep-to-
next-move puts the plan to sleep for either one day or until one of a number of other conditions are
met.

\(^{18}\)A coordination plan can be awakened at any time to handle received communications or
the end of a lookahead. Thus, the sleep function returns a value indicating the reason for the
wakeup. That value is assigned to the local variable reason-for-move, and is tested later in phase
function. The reason reported back may be that time limit has expired, that an NCA-ordered
lookahead has ended, that an announcement from a Green country has been received, that the
deadline from a JCS announcement has been reached, that a Green country has taken a desired
action, or that a subordinate has notified the JCS of some event.

\(^{19}\)This causes plan JCS1 to awaken at least daily.

\(^{20}\)If reason-for-move is time-limit-expired, than the list of daily moves are performed.
These are send cables, make changes to DEFCON and mobilization levels, deploy U.S. forces
from CONUS, and assign strategic lift.
Perform Implement-mobilization.
Perform JCS-assign-lift.
}

If reason-for-move is lookahead-ends
Then Perform JCS1-lookahead-evaluation.

If reason-for-move is announcement-received
Then Perform JCS1-deterrence-announcement-response.

If reason-for-move is announced-deadline-expires
Then Perform JCS1-announcement-penalty.

If reason-for-move is announced-action-occurs
Then Perform JCS1-announcement-reward.

If reason-for-move is notification-received
Then Perform JCS1-deterrence-notification-response.
Else Perform Clear-notification-prompt.
}

End.

JCS1-deterrence-move
[
It is important here to perform the assignment of forces to SAC before
assignment to LANT. This is an artifact of the way the orders are
written.\footnote{This is a reminder to the analyst using this AWP. It might also be good to put it in a
Log-note statement, which would be written to the log during execution.}

Similarly, assignment of tacair to NORAD should be made after all
others, as all otherwise unassigned tacair is herein assigned to NORAD.
}

Define JCS1-deterrence-move:

Log-reason " Deterrence phase".
Perform JCS1-deterrence-messages.
Perform JCS1-deterrence-delegation.
Perform JCS1-theater-deployment.
Perform Implement-mobilization.
Perform JCS1-assign-lift-priority.
Perform JCS-assign-lift.

Log-decision " JCS - Deterrence phase".
Let Point-in-plan of JCS be Deterrence.

End.
JCS1-deterrence-messages

Define JCS1-deterrence-messages:

If Today is C-Day of AFCENT
Then

<table>
<thead>
<tr>
<th>Table Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>country</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
<tr>
<td>Canada</td>
</tr>
<tr>
<td>France</td>
</tr>
<tr>
<td>FRG</td>
</tr>
<tr>
<td>Italy</td>
</tr>
<tr>
<td>Netherlands</td>
</tr>
<tr>
<td>Portugal</td>
</tr>
<tr>
<td>Spain</td>
</tr>
<tr>
<td>UK</td>
</tr>
</tbody>
</table>

[End Table].
|

If Today is C-Day of KOREA
Then

<table>
<thead>
<tr>
<th>Table Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>country</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>South-Korea</td>
</tr>
<tr>
<td>Taiwan</td>
</tr>
</tbody>
</table>

[End Table].
|

End.

JCS1-assign-lift-priority23

Define JCS1-assign-lift-priority:

[ This needs to be made adaptive to situation. ]

---

22 Here, the default is not to ask Taiwan for support; however, by copying this function to an interpreted file and removing the brackets, the Cable would go to Taiwan also. A similar line could be added for the PRC.

23 Airlift and sealift assignment to theaters is based on need and priority number.
[ Set the priority value for each Blue theater. The default values are 3\textsuperscript{24} for CEUR, 2 for FEast (Korea) and Iran, and 1 for all others]}

Declare each-theater: Let each-theater be Type-arena.

For each-theater\textsuperscript{25} (CEUR or FEAST or NEUR or TF-Baltic or AG-Balkan or AG-Turkey or AG-Iran or AG-Pakistan or TF-Iceland or TF-Cuba or AG-Italy or all):

\{
  If each-theater is CEUR
  Then Let Lift-priority of each-theater be 3.
  Else If ((each-theater is FEAST) or (each-theater is AG-Iran))
  Then Let Lift-priority of each-theater be 2.
  Else [ For all other theaters ]
  Let Lift-priority of each-theater be 1.
\}

End.

\textbf{JCS1-deterrence-DEFCON}

Define JCS1-deterrence-DEFCON:

Declare each-command: Let each-command be Type-command.

For each-command:

\{  \nomarkup
  If DEFCON-ordered of each-command is Unspecified\textsuperscript{26}
  Then
  \{  \nomarkup
    Let DEFCON-ordered of each-command be DEFCON-3.
    Log-reason " ordered by JCS to DEFCON-3".
  \}
\}

Perform Implement-DEFCON.

End.

\textbf{JCS1-deterrence-delegation}

Define JCS1-deterrence-delegation:

[ Set expected D-Day if not set ]

\textsuperscript{24}"3" is the highest priority.
\textsuperscript{25}The "For" statement cycles through each of the specified theaters, setting "each-theater" to each theater in turn.
\textsuperscript{26}If the NCA has not specified DEFCON for a subordinate command, this function orders it to DEFCON-3 during deterrence phase. Users might want to change this to higher or lower defaults.
If Expected-D-Day of AFCENT is never
Then Let Expected-D-Day of AFCENT be (C-Day of AFCENT + 5).\textsuperscript{27}

End.

\textbf{JCS1-deterrence-announcement-response}

Define JCS1-deterrence-announcement-response:

Declare each-country: Let each-country be Type-country.

For each-country:
{
Let Announcement-pending of each-country, To-Blue be No.\textsuperscript{28}
}

End.

\textbf{JCS1-deterrence-notification-response}

\{
\textbf{TECHNICAL DESCRIPTION}

The notification is acted upon and forwarded to the NCA if required.
First, if the game is in a Blue lookahead, no notifications are
forwarded. Then the notification is read and specific notifications are
responded to. If the reason signifies a broken bound and the game is in
a Blue lookahead, then that bound is turned off for the originating
theater. Then the notification is forwarded if required.
\}

Define JCS1-deterrence-notification-response:

Declare forward-note: Let forward-note be Yes.
Declare sender : Let sender be Type-command.
Declare reason : Let reason be Type-reason.

Perform Clear-notification-prompt.\textsuperscript{29}

Let sender be the report from Ask-sender-of-current-notification.

[ Forward all bound-broken and selected other notifications ]

Let reason be Reason of sender.

\textsuperscript{27}If JCS has not been told when to expect D-day in AFCENT, this function tells AFCENT
to expect D-day five days after C-day. Classified versions of this function might express different
assumptions.

\textsuperscript{28}This AWP ignores announcements from non-superpower countries.

\textsuperscript{29}This notifies the sending subordinate AWP that the notification has been responded to.
Decision Table

<table>
<thead>
<tr>
<th>reason</th>
<th>forward-note</th>
</tr>
</thead>
<tbody>
<tr>
<td>termination-in-theater</td>
<td>Yes</td>
</tr>
<tr>
<td>plan-completed</td>
<td>Yes</td>
</tr>
<tr>
<td>&lt;End-of-bound-broken-reasons</td>
<td>Yes</td>
</tr>
<tr>
<td>--</td>
<td>No</td>
</tr>
</tbody>
</table>

[End Table]

If Lookahead is Yes and Lookahead-agent is Blue\textsuperscript{30} Then

Let forward-note be No.

If reason is less than End-of-bound-broken-reasons Then Perform Turn-off-bound using reason as reason, (Origin of sender) as command.

If reason is nuclear-weapon-use-bound-broken and Authorization of Respond-in-kind, JCS is Full\textsuperscript{31} Then

Let Authorization of Nuclear, (Origin of sender) be Limited-nuc.

Log-reason "JCS authorizes limited nuc use in accordance with Full Respond-in-kind authorization".

If reason is under-attack Then

Let D-Day of LANT be Today.
Let D-Day of PAC be Today.\textsuperscript{32}

Let Point-in-plan of JCS be Move-to-regional-combat.\textsuperscript{33}

If reason is under-nuclear-attack Then

\textsuperscript{30}In a lookahead, bound violations are ignored, and the JCS is generally given authorization to respond in kind to escalation, in order that the lookahead runs to a conclusion.

\textsuperscript{31}Authorization for plans to take many important actions must be specifically granted through this variable. War plans do not set authorizations for themselves. Such authorization comes from the NCL models, from the user, or from one of the scenario-generating aids playing the NCL model. The JCS can set some authorizations if authorized to do so.

\textsuperscript{32}In this rule, as written, if any U.S. command is attacked by Red forces, Blue escalates immediately to global war at sea. This is illustrative of how intertheater relationships can be expressed.

\textsuperscript{33}This plan moves to its combat phase on receipt of an under-attack notification.
Let D-Day of LANT be Today.\textsuperscript{34}
Let D-Day of PAC be Today.

Let Point-in-plan of JCS be Move-to-nuclear.
}

If reason is termination-in-theater
    and Origin of sender is AFCENT
Then Let Point-in-plan of JCS be Move-to-termination.

If Recommendation of sender is revise-expected-D-Day
Then
    If reason is time-limit-expired
        Then
            Increase Expected-D-Day of (Origin of sender) by 2 [days].

            \textbf{Log-reason} " Increasing expected D-Day of" (Origin of sender)
            "by 2 days to" (Expected-D-Day of (Origin of sender) ).
        }

Else If reason is red-poise\textsuperscript{35}
Then
    Let Expected-D-Day of (Origin of sender) be Today + 2 [days].

    \textbf{Log-reason} " Setting expected D-Day of" (Origin of sender)
    "to day" (Expected-D-Day of (Origin of sender) ).
}

If forward-note is Yes
Then Perform Forward-notification.

End.

\textbf{JCS1-regional-combat-phase}

Define JCS1-regional-combat-phase:

Declare reason-for-move: Let reason-for-move be Type-wakeup-report.

If Point-in-plan of JCS is Move-to-regional-combat
Then Perform JCS1-regional-combat-move.

While Point-in-plan of JCS is Regional-combat:
    Let reason-for-move be the report from JCS-sleep-to-next-move

\textsuperscript{34}\textit{Thus}, if U.S. forces anywhere are attacked with nuclear weapons, this is assumed to be
\textit{D-day} in the Atlantic and Pacific.
\textsuperscript{35}\textit{That is}, if Red is poised to attack.
using ((Today + 1) * 24) as time-limit.

If reason-for-move is time-limit-expired
Then
{  
  Perform JCS1-regional-combat-DEFCON.
  Perform JCS1-theater-deployment.
  Perform Implement-mobilization.
  Perform JCS-assign-lift.
}

If reason-for-move is lookahead-ends
Then Perform JCS1.lookahead-evaluation.

If reason-for-move is announcement-received
Then Perform JCS1-regional-combat-announcement-response.

If reason-for-move is announced-deadline-expires
Then Perform JCS1-announcement-penalty.

If reason-for-move is announced-action-occurs
Then Perform JCS1-announcement-reward.

If reason-for-move is notification-received
Then Perform JCS1-regional-combat-notification-response.
Else Perform Clear-notification-prompt.
}

End.

**JCS1-regional-combat-move**

Define JCS1-regional-combat-move:

Log-reason "Regional combat phase".

Perform JCS1-regional-combat-messages.

Perform JCS1-regional-combat-DEFCON.
Perform JCS1-theater-deployment.
Perform Implement-mobilization.
Perform JCS-assign-lift.

Log-decision "JCS - Regional Combat phase".
Let Point-in-plan of JCS be Regional-combat.

End.

**JCS1-regional-combat-messages**

Define JCS1-regional-combat-messages:
Table: Cable

<table>
<thead>
<tr>
<th>country</th>
<th>side cooperation</th>
<th>home-involvement</th>
<th>other-involvement</th>
<th>other-area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>Blue Combat-basing</td>
<td>In-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Kuwait</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Bahrain</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Qatar</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>UAE</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Saudi-Arabia</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Oman</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>North-Yemen</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>South-Yemen</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Blue Combat-basing</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

[End Table]

End.

**JCS1-regional-combat-announcement-response**

Define JCS1-regional-combat-announcement-response:

Declare each-country: Let each-country be Type-country.

For each-country:

{}{Let Announcement-pending of each-country, To-Blue be No.}

For each-country:

{}{If Announced-action of each-country, To-Blue is Provide-nuc-defense
Then
{}{If Authorization of Delegation, JCS is not Full or Delegated-forces of Strat-nuc-forces, JCS is No
Then Perform Notify-higher-authority using
nuc-defense-requested as reason, and
request-nuclear-authorization as recommendation.
Else
{}{If Command-over-region of (Main-region-under-country of (each-country)) is AFCENT
Then
{}{Let Authorization of Nuclear, AFCENT be Limited-nuc.
Let Point-in-plan of JCS be Move-to-nuclear.

---

36 Other, out-of-area cooperation or involvement could be requested.
37 This assumes combat is in Iran. If the regional combat were elsewhere, this rule should be revised.
If each-country is France or each-country is UK
Then
{ Table Cable

<table>
<thead>
<tr>
<th>country</th>
<th>side cooperation</th>
<th>home-involvement</th>
<th>other-involvement</th>
<th>other-area</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>UK</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>each-country</td>
<td>Blue Nuclear-release</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
}
}

Perform Clear-announcement using each-country as country, and To-Blue as channel.
}
}

End.

JCS1-regional-combat-notification-response

Define JCS1-regional-combat-notification-response:

Declare forward-note: Let forward-note be Yes.
Declare sender : Let sender be Type-command.
Declare reason : Let reason be Type-reason.

Perform Clear-notification-prompt.

Let sender be the report from Ask-sender-of-current-notification.

[ Forward all bound-broken and selected other notifications ]

Let reason be Reason of sender.

Decision Table

<table>
<thead>
<tr>
<th>reason</th>
<th>forward-note</th>
</tr>
</thead>
<tbody>
<tr>
<td>termination-in-theater</td>
<td>Yes</td>
</tr>
<tr>
<td>plan-completed</td>
<td>Yes</td>
</tr>
<tr>
<td>&lt;End-of-bound-broken-reasons</td>
<td>No</td>
</tr>
</tbody>
</table>

[End Table].

If Lookahead is Yes and Lookahead-agent is Blue
Then
{ Let forward-note be No.

If reason is less than End-of-bound-broken-reasons
Then Perform Turn-off-bound using reason as reason,
   (Origin of sender) as command.
If reason is nuclear-weapon-use-bound-broken
and Authorization of Respond-in-kind, JCS is Full
Then
{
    Let Authorization of Nuclear, (Origin of sender) be
    Limited-nuc.
    Log-reason "JCS authorizes limited nuc use in
    "accordance with Full Respond-in-kind authorization".
}
}

If reason is under-nuclear-attack
Then Let Point-in-plan of JCS be Move-to-nuclear.

If reason is termination-in-theater
    and Origin of sender is AFCENT
Then Let Point-in-plan of JCS be Move-to-termination.

If forward-note is Yes
Then Perform-Forward-notification.
End.

JCS1-global-combat-phase

Define JCS1-global-combat-phase:

Declare reason-for-move: Let reason-for-move be Type-wakeup-report.

If Point-in-plan of JCS is Move-to-global-combat
Then Perform JCS1-global-combat-move.

While Point-in-plan of JCS is Global-combat:
{
    Let reason-for-move be the report from JCS-sleep-to-next-move
    using ((Today + 1 [day]) * 24) as time-limit.

    If reason-for-move is time-limit-expired
    Then
    |
    Perform JCS1-global-combat-DEFCON.\(^{38}\)
    Perform JCS1-theater-deployment.
    Perform Implement-mobilization.
    Perform JCS-assign-lift.
    |

    If reason-for-move is lookahead-ends
    Then Perform JCS1-lookahead-evaluation.

\(^{38}\)This function is similar to those for previous phases and is not listed for this phase.
If reason-for-move is announcement-received
Then Perform JCS1-global-combat-announcement-response.  

If reason-for-move is announced-deadline-expires
Then Perform JCS1-announcement-penalty.

If reason-for-move is announced-action-occurs
Then Perform JCS1-announcement-reward.

If reason-for-move is notification-received
Then Perform JCS1-global-combat-notification-response.  
Else Perform Clear-notification-prompt.

End.

JCS1-global-combat-move

Define JCS1-global-combat-move:

Log-reason " Global combat phase".

Perform JCS1-global-combat-messages.  

Perform JCS1-global-combat-DEFCON.
Perform JCS1-theater-deployment.
Perform Implement-mobilization.
Perform JCS-assign-lift.

[ Recommend implementation of the Joint Emergency Evacuation Plan ]

If Authorization of Evacuate-cities, JCS is not Full
Then Perform Notify-higher-authority using action-request as reason,
and evacuate-cities-authorization as recommendation.

If Authorization of Evacuate-cities, JCS is Full
Then Perform Joint-Emergency-Evacuation-Plan.

Log-decision " JCS - Global Combat phase".
Let Point-in-plan of JCS be Global-combat.

End.

JCS1-nuclear-phase

Define JCS1-nuclear-phase:

---

39 This function is similar to those for previous phases and is not listed for this phase.
40 This function is similar to those for previous phases and is not listed for this phase.
41 This function is similar to those for previous phases and is not listed for this phase.
Declare reason-for-move: Let reason-for-move be Type-wakeup-report.

If Point-in-plan of JCS is Move-to-nuclear
Then Perform JCS1-nuclear-move.

While Point-in-plan of JCS is Nuclear:
{ Let reason-for-move be the report from
  JCS-sleep-to-next-move using ((Today + 1) * 24) as time-limit.

  If reason-for-move is time-limit-expired
  Then
  { Perform JCS1-nuclear-DEFCON. 42
    Perform JCS1-theater-deployment.
    Perform Implement-mobilization.
    Perform JCS-assign-lift.
  }

  If reason-for-move is lookahead-ends
  Then Perform JCS1-lookahead-evaluation.

  If reason-for-move is announcement-received
  Then Perform JCS1-nuclear-announcement-response.

  If reason-for-move is announced-deadline-expires
  Then Perform JCS1-announcement-penalty.

  If reason-for-move is announced-action-occurs
  Then Perform JCS1-announcement-reward.

  If reason-for-move is notification-received,
  Then Perform JCS1-nuclear-notification-response.
  Else Perform Clear-notification-prompt.
}

End.

JCS1-nuclear-move

Define JCS1-nuclear-move:

Log-reason " Nuclear phase".

Perform JCS1-nuclear-messages.

If Authorization of Deployment, JCS is not None
Then Perform JCS1-nuclear-deployment.

42This function is defined as a marker for further development.
Perform JCS1-nuclear-DEFCON.
Perform JCS1-nuclear-delegation.
Perform JCS1-theater-deployment.
Perform Implement-mobilization.
Perform JCS-assign-lift.

[ Recommend implementation of the Joint Emergency Evacuation Plan ]

If Authorization of Evacuate-cities, JCS is not Full
Then Perform Notify-higher-authority using action-request as reason,
   and evacuate-cities-authorization as recommendation.

If Authorization of Evacuate-cities, JCS is Full
Then Perform Joint-Emergency-Evacuation-Plan.

Log-decision " JCS - Nuclear phase".
Let Point-in-plan of JCS be Nuclear.

End.

JCS1-nuclear-messages

Define JCS1-nuclear-messages:

<table>
<thead>
<tr>
<th>country</th>
<th>side</th>
<th>cooperation</th>
<th>home-involvement</th>
<th>other-involvement</th>
<th>other-area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>In-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Denmark</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>In-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>France</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>Nuc-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>FRG</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>In-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>In-combat</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>UK</td>
<td>Blue</td>
<td>Nuclear-release</td>
<td>Nuc-combat</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

[End Table].

End.

JCS1-nuclear-deployment

JCS1-nuclear-delegation

JCS1-nuclear-announcement-response

JCS1-nuclear-notification-response

---

43This function is defined as a marker for further development.
44This function is defined as a marker for further development.
45Similar to previous phases; not listed here.
46Similar to previous phases; not listed here.
JCS1-termination-phase

Define JCS1-termination-phase:

Declare reason-for-move: Let reason-for-move be Type-wakeup-report.

If Point-in-plan of JCS is Move-to-termination
Then Perform JCS1-termination-move.

While Point-in-plan of JCS is Termination:

{ Let reason-for-move be the report from JCS-sleep-to-next-move
  using never as time-limit.

  If reason-for-move is time-limit-expired
  Then
  { Perform JCS1-termination-DEFCON.
    Perform Implement-mobilization.
    Perform JCS-assign-lift.
  } If reason-for-move is lookahead-ends
  Then Perform JCS1-lookahead-evaluation.

  If reason-for-move is announcement-received
  Then Perform JCS1-termination-announcement-response.

  If reason-for-move is announced-deadline-expires
  Then Perform JCS1-announcement-penalty.

  If reason-for-move is announced-action-occurs
  Then Perform JCS1-announcement-reward.

  If reason-for-move is notification-received
  Then Perform JCS1-termination-notification-response.
  Else Perform Clear-notification-prompt.
}

End.

JCS1-termination-move

Define JCS1-termination-move:

Log-reason "Termination phase".

Perform JCS1-termination-messages.

If Authorization of Deployment, JCS is not None
Then Perform JCS1-termination-deployment.
Perform JCS1-termination-DEFCON.
Perform JCS1-termination-delegation.
Perform Implement-mobilization.
Perform JCS-assign-lift.

Log-decision " JCS - Termination phase".
Let Point-in-plan of JCS be Termination.

End.

JCS1-termination-messages

Define JCS1-termination-messages:

If Hotline-deadline of Blue-to-Red <= 0 [No previous message pending.] Then [Then send message if necessary.]
{
    If Termination-strategy of JCS is Seek-surrender Then
    {
        Table Hotline
        request reward penalty deadline
        ----------------- -------------- ----------------- -----------------.
        Surrender Cease-fire Ultimatum-threat Ultimatum-deadline.
        [when penalty specified is an escalatory one, it is an ultimatum]
    }
    Else If Termination-strategy of JCS is Tradeoff Then
    {
        Table Hotline
        request reward penalty deadline
        ----------------- -------------- ----------------- -----------------.
        Withdraw-to-your-territory Cease-fire Ultimatum-threat Ultimatum-deadline.
    }
    Else If Termination-strategy of JCS is Cease-fire Then
    {
        Table Hotline
        request reward penalty deadline
        ----------------- -------------- ----------------- -----------------.
        Cease-fire Cease-fire Ultimatum-threat Ultimatum-deadline.
    }
}

End.

JCS1-termination-DEFCON

Define JCS1-termination-DEFCON:
Declare each-command: Let each-command be Type-command.

For each-command:
  
  If DEFCON-ordered of each-command is Unspecified
  Then
    
    Let DEFCON-ordered of each-command be DEFCON-5.
    Log-reason "each-command "ordered by JCS to DEFCON-5".
  
End.

JCS1-termination-deployment 47

JCS1-termination-delegation 48

JCS1-termination-announcement-response 49

JCS1-termination-notification-response 50

JCS1-announcement-penalty 51

JCS1-announcement-reward

JCS1-lookahead-evaluation

[ TECHNICAL DESCRIPTION

If no bounds are broken in any theater and AFCENT reports success, then report a successful lookahead. Otherwise, report failure.
]

Define JCS1-lookahead-evaluation:

Declare obj : Let obj be Type-operational-objective.
Declare key-cmd: Let key-cmd be Type-command.
Declare lookahead-func:
  Let lookahead-func be the function AFCENT1-lookahead-evaluation.

47 This function is defined as a marker for further development.
48 This function is defined as a marker for further development.
49 Similar to previous phases; not listed here.
50 Similar to previous phases; not listed here.
51 This and the remainder of the JCS1 functions are common to all phases.
[ Perform Assess-current-situation. ]

Let obj be Objective of JCS.

Decision Table

<table>
<thead>
<tr>
<th>obj</th>
<th>key-cmd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destroy-Soviet-Union</td>
<td>SAC</td>
</tr>
<tr>
<td>Defeat-Red-worldwide</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Defeat-Pact</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Defend-alliances</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Limit-coalition-losses</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Limit-US-losses</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Support-allies</td>
<td>AFCENT</td>
</tr>
<tr>
<td>Unspecified</td>
<td>AFCENT</td>
</tr>
</tbody>
</table>

[End Table].

Let lookahead-func be Lookahead-function of key-cmd.

If the report from lookahead-func is objective-met
Then Perform Notify-higher-authority using lookahead-evaluation as reason and accept-plan as recommendation.

Else Perform Notify-higher-authority using lookahead-evaluation as reason and reject-plan as recommendation.

End.

**JCS1-theater-deployment**

Define JCS1-theater-deployment:

[ Order the initial deployment of national forces as they commit to NATO ]

Table

<table>
<thead>
<tr>
<th>Declare country#</th>
<th>Let country# be Type-country.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declare command#</td>
<td>Let command# be Type-command.</td>
</tr>
<tr>
<td>Declare order-function#</td>
<td>Let order-function# be function</td>
</tr>
<tr>
<td></td>
<td>Do-nothing.</td>
</tr>
</tbody>
</table>

If the report from Ask-green-cooperation using country# as country is at least Combat-basing
and Move-done\(^{52}\) of command#, JCS-deploy is No
and Today is at least C-Day of command#

\(^{52}\)Many moves within a phase, such as the committing of specific reserve forces, should only be performed once during a phase. Because of the looping structure of the phase, the conditions for each move are tested every day. For these moves, a test such as the one above is added to their conditions for performance. Within the move, the same Move-done element is set to Yes, indicating that the move has been performed. Thereafter, the conditions for that move will never occur.
Then Perform order-function#.
}

<table>
<thead>
<tr>
<th>country#</th>
<th>command#</th>
<th>order-function#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>AFNORTH</td>
<td>(function JCS1-deploy-AFNORTH-forces)</td>
</tr>
<tr>
<td>FRG</td>
<td>AFCENT</td>
<td>(function JCS1-deploy-AFCENT-troops)</td>
</tr>
<tr>
<td>Greece</td>
<td>AFSOUTH</td>
<td>(function JCS1-deploy-AFSOUTH-forces)</td>
</tr>
<tr>
<td>Iran</td>
<td>CENT</td>
<td>(function JCS1-deploy-CENT-forces)</td>
</tr>
</tbody>
</table>

[End Table].

If Today is at least C-Day of AFCENT
Then Perform JCS1-deploy-AFCENT-tacair.

End.

**JCS1-deploy-AFCENT-troops**

Define JCS1-deploy-AFCENT-troops:

Log-reason " Deploying troops to EUCOM from CONUS."

Table Deploy-by-name-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
<th>destination</th>
<th>means</th>
</tr>
</thead>
</table>

[ List of units and deployment destinations]

[End Table].

Let Move-done of AFCENT, JCS-deploy be Yes.

End.

**JCS1-deploy-AFCENT-tacair**

Define JCS1-deploy-AFCENT-tacair:

Declare total-deployed: Let total-deployed be 1.

Let total-deployed be 0.

Table

<table>
<thead>
<tr>
<th>index</th>
<th>command</th>
<th>mob-required</th>
<th>unit</th>
<th>destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Declare index : Let index be 1.
Declare command : Let command be Type-command.
Declare mob-required: Let mob-required be Yes.
Declare unit : Let unit be "string".
Declare destination : Let destination be Type-region.

If JCS-squadron-deployed of index is No
and total-deployed < JCS-number-of-squadrons-deployed-per-day
and (Today > C-Day of command)
and (mob-required is No or Today > M-Day of command)
and (Today > D-Day of command


or JCS-number-of-squadrons-deployed of command < JCS-max-squadrons-deployed-before-D-day of command)
Then
    {  
    Perform Deploy-by-name-order using unit as unit-name,  
    US as owner, (Evaluate destination) as destination, and "-"  
    as means.

    Increase total-deployed by 1.
    Increase JCS-number-of-squadrons-deployed of command by 1.

    Let JCS-squadron-deployed of index be Yes.

Log-decision " Deploying " unit " to" destination.

| mob-
<table>
<thead>
<tr>
<th>index command</th>
<th>required unit</th>
<th>destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>===</td>
<td>=============</td>
<td>=============</td>
</tr>
</tbody>
</table>

[List of units and deployment destinations in order of deployment].

[End Table].

End.

**JCS1-deploy-AFSOUTH-forces**

Define JCS1-deploy-AFSOUTH-forces:

Log-reason " Deploying forces to AFSOUTH from CONUS.".

Table Deploy-by-name-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
<th>destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>=========</td>
<td>=======</td>
<td>=============</td>
</tr>
</tbody>
</table>

[List of units and deployment destinations]

[End Table].

Let Move-done of AFSOUTH, JCS-deploy be Yes.

End.

**JCS1-deploy-AFNORTH-forces**

Define JCS1-deploy-AFNORTH-forces:

Log-reason " Deploying forces to AFNORTH from CONUS.".

---

53The classified version of this function lists units by name.
Table Deploy-by-name-order

unit-name  owner  destination  means
-------------------------------------  -------  --------------------  ---------------.

[ List of units and deployment destinations]
[End Table].

Let Move-done of AFNORTH, JCS-deploy be Yes.

End.

JCS1-deploy-CENT-forces

Define JCS1-deploy-CENT-forces:

Log-reason " Deploying forces to CENT from CONUS."

Table Deploy-by-name-order

unit-name  owner  destination  means
-------------------------------------  -------  --------------------  ---------------.

[ List of units and deployment destinations]
[End Table].

If Swingforce-assignment of Centcom is AG-Iran54
Then

Table Deploy-by-name-order

unit-name  owner  destination  means
-------------------------------------  -------  --------------------  ---------------.

[ List of units and deployment destinations]
[End Table].

Else

Log-decision " Swingforces for CENT unavailable for AG-Iran".
Log-decision " Swingforces sent to " (Swingforce-assignment of
Centcom).

Let Move-done of CENT, JCS-deploy be Yes.

End.

54This tests whether the CENCOM package of forces, assigned in the function JCS1-plan-
selection, has been assigned to the theater AG-Iran before deploying those forces.
VI. RAND-ABEL FORCE ORDERS

Summary

AWPs and Control Plans contain many orders written as RAND-ABEL force order tables. These tables are executable RAND-ABEL code and must be correctly formatted. This section describes and specifies the format of each type of order table.

The RAND-ABEL force order tables are actually calls to lower-level utility functions which translate the table entries into CAMPAIGN, Referee\(^1\) and Flag model\(^2\) orders. Most RSAS users will have no need to examine, much less change, these utility functions.\(^3\)

These orders are arranged alphabetically, to facilitate reference to them. An example and a brief description of the use and effects of each order is given. Where the order is to the CAMPAIGN model, the name of the corresponding CAMPAIGN order generated is given. Actions set in the Flag model are also given.

Table 12 lists the RAND-ABEL orders grouped by category. The Owner column gives the declared owner of the function when it is not Global. Orders owned only by Red or Blue should be used only by those agents. Orders owned by both Red and Blue have a slightly different format for each. Orders owned by Referee affect combat in alternate theaters and must have their ownership indicated by the word "Referee's" before the order name (as shown in the examples). This points out the difference between orders to the main theater and alternate theater combat models, which are largely similar in format.

Table 13 gives the meaning and allowed values for the parameters (or column headings) of the orders, most of which are used in more than one order. Where the value is an enumeration (a name beginning with the word "Type"), the values are listed in Section XI.

---

\(^1\)Referee is used to adjudicate outcomes in theaters modeled by the CAMPAIGN-ALT (sometimes referred to as S-LAND) force model.

\(^2\)The Flag model manipulates "flag" or "marker" variables, indicating status set directly by rules, without being generated by a process simulation model.

\(^3\)These functions are located in directories Src/Interface/to-Force-C for CAMPAIGN orders, Src/Interface/to-Force-A for Referee, and Src/Force-A/Abel-force for the Flag model.
<table>
<thead>
<tr>
<th>Orders</th>
<th>Owner (if not Global)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assigning Forces to Theaters</td>
<td></td>
</tr>
<tr>
<td>Assign-air-army-order</td>
<td>Red</td>
</tr>
<tr>
<td>Assign-by-name-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Assign-naval-order</td>
<td></td>
</tr>
<tr>
<td>Assign-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Alerting Forces</td>
<td></td>
</tr>
<tr>
<td>Alert-air-army-order</td>
<td>Red</td>
</tr>
<tr>
<td>Alert-by-name-order</td>
<td></td>
</tr>
<tr>
<td>Alert-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Mobilizing Forces</td>
<td></td>
</tr>
<tr>
<td>Mobilize-order</td>
<td></td>
</tr>
<tr>
<td>Mobilize-by-name-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Deploying Forces</td>
<td></td>
</tr>
<tr>
<td>Deploy-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Deploy-air-order</td>
<td></td>
</tr>
<tr>
<td>Deploy-ground-order</td>
<td></td>
</tr>
<tr>
<td>Deploy-ground-to-km-order</td>
<td></td>
</tr>
<tr>
<td>Deploy mine-countermeasures-order</td>
<td></td>
</tr>
<tr>
<td>Deploy-naval-order</td>
<td></td>
</tr>
<tr>
<td>Deploy-by-name-order</td>
<td></td>
</tr>
<tr>
<td>Dispersing Forces</td>
<td></td>
</tr>
<tr>
<td>Disperse-against-nuclear-use-order</td>
<td></td>
</tr>
<tr>
<td>Disperse-order</td>
<td></td>
</tr>
<tr>
<td>Beginning and Ending Combat</td>
<td></td>
</tr>
<tr>
<td>Attack-order</td>
<td></td>
</tr>
<tr>
<td>Terminate-order</td>
<td></td>
</tr>
<tr>
<td>Arena-attack-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Arena-terminate-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Air Combat Guidance</td>
<td></td>
</tr>
<tr>
<td>Apportion-Fighter-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Apportion-Fbomber-order</td>
<td>Red</td>
</tr>
<tr>
<td>Apportion-Interdictor-order</td>
<td>Blue</td>
</tr>
<tr>
<td>Apportion-Mbomber-order</td>
<td>Red, Blue</td>
</tr>
<tr>
<td>Apportion-Multi-order</td>
<td></td>
</tr>
<tr>
<td>Allocate-CAS-BAI-order</td>
<td></td>
</tr>
<tr>
<td>Air-plan-order</td>
<td></td>
</tr>
<tr>
<td>Strike-order</td>
<td></td>
</tr>
<tr>
<td>Delegate-air-order</td>
<td></td>
</tr>
<tr>
<td>Define-laydown-order</td>
<td></td>
</tr>
<tr>
<td>Cover-area-order</td>
<td></td>
</tr>
<tr>
<td>Cover-barrier-order</td>
<td></td>
</tr>
</tbody>
</table>
Table 12
RAND-ABEL FORCE ORDERS (CONT'D)

<table>
<thead>
<tr>
<th>Orders</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Combat Guidance cont'd</td>
<td>Referee</td>
</tr>
<tr>
<td>Air-appointment-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Air-command-guidance</td>
<td>Referee</td>
</tr>
<tr>
<td>Air-commander-guidance</td>
<td>Referee</td>
</tr>
<tr>
<td>Attack-target-priority-order</td>
<td>Referee</td>
</tr>
<tr>
<td>BAI-axis-allocation-order</td>
<td>Referee</td>
</tr>
<tr>
<td>CAS-axis-allocation-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Ground Combat Guidance</td>
<td></td>
</tr>
<tr>
<td>Axis-envelope-order</td>
<td></td>
</tr>
<tr>
<td>Axis-mission-order</td>
<td></td>
</tr>
<tr>
<td>Axis-thrust-order</td>
<td></td>
</tr>
<tr>
<td>Gnd-force-envelope-order</td>
<td></td>
</tr>
<tr>
<td>OCL-on-off-order</td>
<td></td>
</tr>
<tr>
<td>Position-order</td>
<td></td>
</tr>
<tr>
<td>Build-defense-order</td>
<td></td>
</tr>
<tr>
<td>Gnd-force-mission-order</td>
<td></td>
</tr>
<tr>
<td>Axis-position-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Axis-priority-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Ground-aggressiveness-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Operation-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Point-axis-mission-order</td>
<td>Referee</td>
</tr>
<tr>
<td>Naval Combat Guidance</td>
<td></td>
</tr>
<tr>
<td>Engage-order</td>
<td></td>
</tr>
<tr>
<td>Strike-order</td>
<td></td>
</tr>
<tr>
<td>Task-order</td>
<td></td>
</tr>
<tr>
<td>Minelay-order</td>
<td></td>
</tr>
<tr>
<td>Strategic Nuclear Execution</td>
<td></td>
</tr>
<tr>
<td>Execute-order</td>
<td></td>
</tr>
<tr>
<td>Launch-order</td>
<td></td>
</tr>
<tr>
<td>3rd Country Postures</td>
<td></td>
</tr>
<tr>
<td>Ally-order</td>
<td>Green</td>
</tr>
<tr>
<td>Control-order</td>
<td>Green</td>
</tr>
<tr>
<td>Cooperate-order</td>
<td>Green</td>
</tr>
<tr>
<td>Restrict-combat-order</td>
<td>Green</td>
</tr>
<tr>
<td>Generic Orders</td>
<td></td>
</tr>
<tr>
<td>Initiate-action-order</td>
<td></td>
</tr>
<tr>
<td>Terminate-action-order</td>
<td></td>
</tr>
<tr>
<td>Send-force-order</td>
<td></td>
</tr>
<tr>
<td>Delay-orders</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
</tr>
<tr>
<td>Sabotage-order</td>
<td></td>
</tr>
<tr>
<td>Jamming-order</td>
<td></td>
</tr>
</tbody>
</table>
## Table 13
PARAMETERS IN RAND-ABEL FORCE ORDERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>Action being ordered</td>
<td>Type-action</td>
</tr>
<tr>
<td>actor</td>
<td>Government issuing the order</td>
<td>Type-color</td>
</tr>
<tr>
<td>AD%</td>
<td>Percentage of sorties apportioned to air defense (interception of penetrators)</td>
<td>0-100</td>
</tr>
<tr>
<td>AF%</td>
<td>Percentage of sorties apportioned to defense of airbases against enemy OCA</td>
<td>0-100</td>
</tr>
<tr>
<td>aggressiveness</td>
<td>Aggressiveness of ground forces</td>
<td>Type-3-range</td>
</tr>
<tr>
<td>AI%</td>
<td>Percentage of sorties apportioned to air interdiction mission</td>
<td>0-100</td>
</tr>
<tr>
<td>AI-AF%</td>
<td>Percentage of sorties apportioned to air interdiction against airfields</td>
<td>0-100</td>
</tr>
<tr>
<td>AI-OTH%</td>
<td>Percentage of sorties apportioned to air interdiction against targets other than airfields</td>
<td>0-100</td>
</tr>
<tr>
<td>air-air</td>
<td>Air-to-air posture</td>
<td>Type-air-air-posture</td>
</tr>
<tr>
<td>air-arena</td>
<td>CAMPAIGN-ALT theater of air combat</td>
<td>Type-air-arena</td>
</tr>
<tr>
<td>air-army</td>
<td>Soviet air army</td>
<td>Type-air-army</td>
</tr>
<tr>
<td>aircraft</td>
<td>Type of aircraft</td>
<td>Any aircraft in enumeration Type-theater-force</td>
</tr>
<tr>
<td>air-gnd</td>
<td>Air-to-ground posture</td>
<td>Type-air-gnd-posture</td>
</tr>
<tr>
<td>allocate</td>
<td>Activate CAMPAIGN-ALT air commander model to allocate</td>
<td>Yes/No</td>
</tr>
<tr>
<td>apportion</td>
<td>Activate CAMPAIGN-ALT air commander model to apportion</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Ar%</td>
<td>Percentage of sorties apportioned to area defense against enemy AI</td>
<td>0-100</td>
</tr>
<tr>
<td>arena</td>
<td>Element of military geography identifying the combat theater and side</td>
<td>Type-arena</td>
</tr>
<tr>
<td>at-govt</td>
<td>Government being targeted</td>
<td>Type-country</td>
</tr>
<tr>
<td>atk-target</td>
<td>Target of attack mission sorties</td>
<td>Type-attack-target-priority</td>
</tr>
<tr>
<td>at-speed</td>
<td>Speed of naval deployment</td>
<td>Type-naval-speed</td>
</tr>
<tr>
<td>Att%</td>
<td>Percentage of sorties apportioned to attack against airborne command and control</td>
<td>0-100</td>
</tr>
<tr>
<td>Attack%</td>
<td>Percentage of sorties apportioned to attack</td>
<td>0-100</td>
</tr>
<tr>
<td>auth</td>
<td>Type of weapon authorized</td>
<td>Type-warhead</td>
</tr>
<tr>
<td>axis</td>
<td>Element of military geography identifying the axis and side</td>
<td>Type-axis</td>
</tr>
<tr>
<td>BAI%</td>
<td>Percentage of sorties apportioned to battle area interdiction of ground forces</td>
<td>0-100</td>
</tr>
<tr>
<td>CAS%</td>
<td>Percentage of sorties apportioned to close air support</td>
<td>0-100</td>
</tr>
</tbody>
</table>
### Table 13

PARAMETERS IN RAND-ABEL FORCE ORDERS (CONT'D)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>command</td>
<td>Military command (e.g., CINC)</td>
<td>Type-command</td>
</tr>
<tr>
<td>cover-region</td>
<td>Region to be covered by MPA</td>
<td>Type-region</td>
</tr>
<tr>
<td>cover-region1</td>
<td>A region on one side of a barrier</td>
<td>Type-region</td>
</tr>
<tr>
<td>cover-region2</td>
<td>A region on one side of a barrier</td>
<td>Type-region</td>
</tr>
<tr>
<td>Cov%</td>
<td>Percentage of sorties apportioned to defense of direct support penetrators</td>
<td>0-100</td>
</tr>
<tr>
<td>days-close</td>
<td>Number of days to use in closing pincers</td>
<td>Positive integer</td>
</tr>
<tr>
<td>days-mopup</td>
<td>Number of days to use to mopup following closing pincers maneuver</td>
<td>Nonnegative integer</td>
</tr>
<tr>
<td>DCA%</td>
<td>Percentage of sorties apportioned to defensive counter air mission</td>
<td>0-100</td>
</tr>
<tr>
<td>defense-level</td>
<td>Level of defensive barriers constructed</td>
<td>Type-defense-level</td>
</tr>
<tr>
<td>DefSup%</td>
<td>Percentage of sorties apportioned to defense suppression</td>
<td>0-100</td>
</tr>
<tr>
<td>depth</td>
<td>Depth in kilometers</td>
<td>Nonnegative number</td>
</tr>
<tr>
<td>dest-axis</td>
<td>Destination axis for an envelopment</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>DS%</td>
<td>Percentage of sorties apportioned to direct support against reserve forces</td>
<td>0-100</td>
</tr>
<tr>
<td>DS-CAS%</td>
<td>Percentage of sorties apportioned to direct support against forces on the FLOT</td>
<td>0-100</td>
</tr>
<tr>
<td>duration</td>
<td>Duration of ordered action in hours</td>
<td>Nonnegative number</td>
</tr>
<tr>
<td>end-kms</td>
<td>Position in kilometers from initial FLOT to which the order is to be in effect</td>
<td>A number</td>
</tr>
<tr>
<td>enter-pincer</td>
<td>Axis from which an envelopment begins</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>expire-D+</td>
<td>Day after D-day when order ceases to be in effect</td>
<td>Positive integer</td>
</tr>
<tr>
<td>Esc%</td>
<td>Percentage of sorties apportioned to escort of deep (AI and Other Plan) penetrators</td>
<td>0-100</td>
</tr>
<tr>
<td>Escort%</td>
<td>Percentage of sorties apportioned to escort</td>
<td>0-100</td>
</tr>
<tr>
<td>force</td>
<td>Force being ordered</td>
<td>A string</td>
</tr>
<tr>
<td>frequency</td>
<td>Communications band</td>
<td>Type-frequency</td>
</tr>
<tr>
<td>from-force</td>
<td>Force from which units are to be drawn</td>
<td>A string</td>
</tr>
<tr>
<td>gnd-support</td>
<td>Priority given to ground support</td>
<td>Type-ground-support-priority</td>
</tr>
<tr>
<td>govt</td>
<td>Government</td>
<td>Type-country</td>
</tr>
<tr>
<td>group</td>
<td>Addressable group of combat aircraft</td>
<td>Type-apportionable-group</td>
</tr>
<tr>
<td>high-axis</td>
<td>Higher-numbered axis acting as a pincer</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>high-axis-start-kms</td>
<td>Position in kilometers from initial FLOT from which the order is to be in effect</td>
<td>A number</td>
</tr>
<tr>
<td>high-low-tech</td>
<td>High or low technology weaponry</td>
<td>Type-high-low</td>
</tr>
<tr>
<td>hours-delay</td>
<td>Delay for issuance of subsequent orders to CAMPAIGN</td>
<td>Nonnegative number</td>
</tr>
<tr>
<td>Parameter</td>
<td>Meaning</td>
<td>Legal Values</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>in-overlay</td>
<td>Present overlay of forces to which the order applies</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>in-region</td>
<td>Present location of forces to which the order applies</td>
<td>Type-region</td>
</tr>
<tr>
<td>insertion</td>
<td>Method of insertion of forces</td>
<td>Type-insertion</td>
</tr>
<tr>
<td>kms</td>
<td>Kilometers</td>
<td>A number</td>
</tr>
<tr>
<td>laydown</td>
<td>Targeting plan weapons laydown</td>
<td>A string, which must be recognized by CAMPAIGN</td>
</tr>
<tr>
<td>level</td>
<td>Level</td>
<td>Type-level</td>
</tr>
<tr>
<td>low-axis</td>
<td>Lower-numbered axis acting as a pincer</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>low-axis-start-kms</td>
<td>Position in kilometers from initial FLOT from which the order is to be in effect</td>
<td>A number</td>
</tr>
<tr>
<td>method</td>
<td>Launch method</td>
<td>Type-launch-method</td>
</tr>
<tr>
<td>mission</td>
<td>Mission assigned to force</td>
<td>Type-allocatable-resource (aircraft), Type-axis-mission (ground forces), Type-operation-mission (Operation order and other Referee orders) or Type (Gnd-force-mission-order)</td>
</tr>
<tr>
<td>name</td>
<td>A name, as in the name of a weapons laydown</td>
<td>A string</td>
</tr>
<tr>
<td>NR%</td>
<td>Percentage of sorties apportioned to nuclear reserve</td>
<td>0-100</td>
</tr>
<tr>
<td>OCA%</td>
<td>Percentage of sorties apportioned to offensive counterair</td>
<td>0-100</td>
</tr>
<tr>
<td>OCA-DSUP%</td>
<td>Percentage of sorties apportioned to defense suppression</td>
<td>0-100</td>
</tr>
<tr>
<td>OCL</td>
<td>Operational command level</td>
<td>Type-OCL</td>
</tr>
<tr>
<td>on-off</td>
<td>On or off</td>
<td>Type-on-or-off</td>
</tr>
<tr>
<td>option</td>
<td>Name of an option</td>
<td>A string (Air-plan-order) or Type-plan-option</td>
</tr>
<tr>
<td>order</td>
<td>A CAMPAIGN order</td>
<td>A string of legitimate CAMPAIGN orders</td>
</tr>
<tr>
<td>owner</td>
<td>Country owning the force being ordered</td>
<td>Type-country</td>
</tr>
<tr>
<td>pct</td>
<td>Percent</td>
<td>0-100</td>
</tr>
<tr>
<td>permit-deny</td>
<td>Level of cooperation by a Green country with its superpower ally</td>
<td>Type-permit-deny</td>
</tr>
<tr>
<td>plan</td>
<td>Name of list of targets for theater air or strategic weapons</td>
<td>Type-air-plan (Air-plan-order) or a string (Execute-order)</td>
</tr>
<tr>
<td>priority</td>
<td>Priority for POMCUS deployment</td>
<td>Negative number</td>
</tr>
</tbody>
</table>
Table 13
PARAMETERS IN RAND-ABEL FORCE ORDERS (CONT'D)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRA%</td>
<td>Percentage of sorties apportioned as quick reaction aircraft</td>
<td>0-100</td>
</tr>
<tr>
<td>qty</td>
<td>Quantity</td>
<td>Any positive integer</td>
</tr>
<tr>
<td>right</td>
<td>Right permitted or denied by a Green country</td>
<td>Type-right</td>
</tr>
<tr>
<td>rule</td>
<td>Rule of Engagement</td>
<td>Type-ROE</td>
</tr>
<tr>
<td>Sec%</td>
<td>Percentage of sorties apportioned to corridor-security and escort missions</td>
<td>0-100</td>
</tr>
<tr>
<td>side</td>
<td>Side (Red, Blue, or White)</td>
<td>Type-color</td>
</tr>
<tr>
<td>start</td>
<td>Starting point, in kilometers</td>
<td>Nonnegative number</td>
</tr>
<tr>
<td>start-kms</td>
<td>Position in kilometers from initial FLOT from which the order is to be in effect</td>
<td>A number</td>
</tr>
<tr>
<td>tactic</td>
<td>Tactic to be used</td>
<td>Type-axis-tactic</td>
</tr>
<tr>
<td>target</td>
<td>A CAMPAIGN-MT target class or a CAMPAIGN-ALT point axis target</td>
<td>A string or a value in enumeration Type-pt-axis-target</td>
</tr>
<tr>
<td>task</td>
<td>Naval task assigned to force</td>
<td>Type-ship-task</td>
</tr>
<tr>
<td>thru-region</td>
<td>Way-point through which forces are ordered to deploy</td>
<td>Type-region</td>
</tr>
<tr>
<td>thrust</td>
<td>Level of effort of attack on a given axis</td>
<td>Type-axis-thrust</td>
</tr>
<tr>
<td>to-arena</td>
<td>Destination to which forces are ordered</td>
<td>Type-arena</td>
</tr>
<tr>
<td>to-axis</td>
<td>Axis to which forces are ordered</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>to-command</td>
<td>Command to which forces are ordered</td>
<td>Type-command</td>
</tr>
<tr>
<td>to-force</td>
<td>Force to which forces are ordered</td>
<td>A string, which must be recognized by CAMPAIGN</td>
</tr>
<tr>
<td>to-kms</td>
<td>Destination on an axis, measured in kilometers from initial border</td>
<td>A number</td>
</tr>
<tr>
<td>to-overlay</td>
<td>Overlay to which forces are ordered</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>to-region</td>
<td>Region to which forces are ordered</td>
<td>Type-region</td>
</tr>
<tr>
<td>unit</td>
<td>Unit being ordered</td>
<td>Type-unit</td>
</tr>
<tr>
<td>unit-name</td>
<td>Name of specific military unit</td>
<td>A string, which must be recognized by CAMPAIGN</td>
</tr>
<tr>
<td>weapon</td>
<td>Weapon to be used</td>
<td>A string</td>
</tr>
<tr>
<td>zone</td>
<td>CAMPAIGN-MT zone</td>
<td>Positive number</td>
</tr>
<tr>
<td>#-%</td>
<td>Indicator of whether a quantity is the absolute number (#) or a percentage (%) of those available</td>
<td># or %</td>
</tr>
<tr>
<td>#-pincers</td>
<td>Number of pincers in an encirclement maneuver</td>
<td>Positive integer</td>
</tr>
<tr>
<td>%-axis</td>
<td>Percentage applicable to specified axis</td>
<td>0-100</td>
</tr>
<tr>
<td>%-dispersal</td>
<td>Percentage of forces to be dispersed</td>
<td>0-100</td>
</tr>
<tr>
<td>%-ready</td>
<td>Level of readiness to be achieved</td>
<td>0-100</td>
</tr>
</tbody>
</table>
Air-appointment-order

Table Referee's Air-appointment-order

<table>
<thead>
<tr>
<th>air-arena</th>
<th>aircraft</th>
<th>CAS%</th>
<th>BAI%</th>
<th>Attack%</th>
<th>Escort%</th>
<th>DCA%</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Cape-air</td>
<td>Air-air</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

This apportions aircraft from an alternate theater air-arena to each of the allowed missions. The percentages will be normalized to 100 if they sum to greater than 100, while a total percentage of less than 100 will withhold some aircraft. Sorties generated must still be allocated to targets, using the CAS-axis-allocate-order, BAI-axis-allocate-order, and Attack-target-priority-order.

<table>
<thead>
<tr>
<th>Missions</th>
<th>Target</th>
<th>Flown by</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>Close Air Support</td>
<td>Multi, SR-air-gnd</td>
</tr>
<tr>
<td>BAI</td>
<td>Battlefield Air Interdiction</td>
<td>Multi, SR/MR/LR-air-gnd</td>
</tr>
<tr>
<td>Attack</td>
<td>Deep interdiction</td>
<td>Multi, MR/LR-air-gnd</td>
</tr>
<tr>
<td>Escort</td>
<td>Escort for attack sorties</td>
<td>Multi, Air-air</td>
</tr>
<tr>
<td>DCA</td>
<td>Defensive Counter Air</td>
<td>Multi, Air-air</td>
</tr>
</tbody>
</table>

Air-commander-guidance

Table Referee's Air-commander-guidance

<table>
<thead>
<tr>
<th>air-arena</th>
<th>apportion</th>
<th>air-air</th>
<th>air-gnd</th>
<th>allocate</th>
<th>atk-target</th>
<th>gnd-support</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Cape-air</td>
<td>Yes</td>
<td>Defensive Mid-range</td>
<td>Yes</td>
<td>Air</td>
<td>Weighted</td>
<td></td>
</tr>
</tbody>
</table>

This activates (or deactivates) and gives guidance to the Referee Air Commander model, which apportions aircraft to missions and allocates sorties to targets from alternate theater air-arenas. The columns apportion and allocate control whether the model will make apportionment or allocation decisions, or both. When active, the model will override any Referee apportion or allocate orders given. The following tables describe the allowed values of guidance.

<table>
<thead>
<tr>
<th>air-air</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offensive</td>
<td>Attempt to attain air superiority in the theater</td>
</tr>
<tr>
<td>Mixed</td>
<td>Perform a combination of offensive and defensive missions</td>
</tr>
<tr>
<td>Defensive</td>
<td>Deny enemy air incursions into friendly territory</td>
</tr>
<tr>
<td>air-gnd</td>
<td>Meaning</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Deep</td>
<td>Perform all air-to-ground missions, including deep attack</td>
</tr>
<tr>
<td>Mid-range</td>
<td>CAS and BAI preferred, but selected deep targets possible</td>
</tr>
<tr>
<td>Shallow</td>
<td>Only CAS and BAI missions are allowed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>atk-target</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Airfields</td>
</tr>
<tr>
<td>Naval</td>
<td>Ports and amphibious landings</td>
</tr>
<tr>
<td>Ground-net</td>
<td>Landchokes points and moving ground forces</td>
</tr>
<tr>
<td>Logistics</td>
<td>Supplies, stockpiles, and lift</td>
</tr>
<tr>
<td>Political</td>
<td>Enemy capital</td>
</tr>
<tr>
<td>Other</td>
<td>User specified</td>
</tr>
<tr>
<td>Equal</td>
<td>All targets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>gnd-support</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority</td>
<td>OAS sorts divided among high priority axes</td>
</tr>
<tr>
<td>Weighted</td>
<td>OAS sorts allocated according to perceived need</td>
</tr>
<tr>
<td>Equal</td>
<td>OAS sorts divided equally among axes</td>
</tr>
</tbody>
</table>

**Air-plan-order**

Table Air-plan-order

<table>
<thead>
<tr>
<th>arena</th>
<th>plan</th>
<th>laydown</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR</td>
<td>OCA</td>
<td>&quot;GDR OCA-2 30% Conv Poland OCA-4 10% Conv&quot;.</td>
</tr>
</tbody>
</table>

This allows the redefinition of the targeted bombing plans of a main theater. These plans are associated with missions to which aircraft can be apportioned. The laydown string consists of a list of specific laydowns to be flown, giving for each the target region, specific laydown name, percentage of aircraft on the laydown, and their load (conventional or nuclear). See the CAMPAIGN Plan order documentation for the list of specific laydowns and their effects. Laydowns may also be defined using the Define-laydown-order. Aircraft are apportioned to these plans through the Apportion orders and fly against the targets each day.

The CAMPAIGN Plan order is generated. The available plans and components can be seen by entering the CAMPAIGN orders:

Display plan...

Display plan laydown.....

---

4 For example: Order Blue Plan CEUR OCA ....
<table>
<thead>
<tr>
<th>Blue Plans</th>
<th>Red Plans</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>AI</td>
<td>Air Interdiction</td>
</tr>
<tr>
<td>OCA</td>
<td>Other</td>
<td>Offensive Counter Air</td>
</tr>
<tr>
<td>Non-thr</td>
<td>AirArmy</td>
<td>Delegated aircraft (Blue carrier, Red air army)</td>
</tr>
</tbody>
</table>

**Alert-order**

Table Alert-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>command</th>
<th>arena</th>
<th>in-region</th>
<th>%-ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>US</td>
<td>AFCENT</td>
<td>CEUR</td>
<td>FRG</td>
<td>100</td>
</tr>
<tr>
<td>Multi</td>
<td>all</td>
<td>AFNORTH</td>
<td>all</td>
<td>Norway</td>
<td>80</td>
</tr>
</tbody>
</table>

This changes the ordered alert level of air, ICBM and SSBN units, which gives the percentage of the unit that is combat ready. Units typically can raise their alert level by several percent per hour. An ordered alert level of 0 completely withholds the unit. If arena is all, orders are generated for all arenas under that command.

Use the Task order for attack submarines and Mobilize-order for ground units. Use the Launch-order to put aircraft on airborne alert.

This generates the CAMPAIGN Alert order. In the Flag model, the Alert action is set after 12 hours.

**Alert-air-army-order (Red)**

Table Alert-air-army-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>air-army</th>
<th>in-region</th>
<th>%-ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tacair</td>
<td>USSR</td>
<td>Legnica-AA</td>
<td>all</td>
<td>100</td>
</tr>
</tbody>
</table>

This changes the ordered alert level of air-army units. See the Alert-order for details. No flag is set.

**Alert-by-name-order**

Table Alert-by-name-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
<th>%-ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;1st-TFW&quot;</td>
<td>US</td>
<td>100</td>
</tr>
</tbody>
</table>

This changes the ordered alert level of the named unit. See the Alert-order for details. No flag is set.
Allocate-CAS-BAI-order

Table Allocate-CAS-BAI-order

<table>
<thead>
<tr>
<th>mission</th>
<th>arena</th>
<th>%-axis #1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
<th>#6</th>
<th>#7</th>
<th>#8</th>
<th>#9</th>
<th>#10</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>CEUR</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

This allocates the percentage of CAS or BAI sorties in a main theater to be flown in each axis. Percentages that do not total 100 will be normalized to 100. If the Korean main theater or a sub-theater (such as CEUR-A) is given, then only the axes that fall in that theater will be considered, and the percentages will be normalized over those axes.

The CAMPAIGN Allocate order is generated. The CAMPAIGN misc display shows the current allocation.

Ally-order

Table Green's Ally-order

<table>
<thead>
<tr>
<th>govt</th>
<th>side</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Blue</td>
</tr>
</tbody>
</table>

This changes the alliance of a country between Blue, Red, or White. A country's alliance indicates only the side to which it may grant control of its forces. Allying by itself does not give control, but canceling an alliance cancels any control given. A side of White is unallied. This order is generally used only by Green Agent, according to the decided value of Green's Side of a country.

The CAMPAIGN Side order is generated. The CAMPAIGN govt display gives the current ally of a country. The Data Editor tableau set "Green/control-green.T", tableau "Global Political-Military Situation" gives the current value of Side.

Apportion-Fbomber-order (Red)

Table Apportion-Fbomber-order

<table>
<thead>
<tr>
<th>group</th>
<th>arena</th>
<th>AI-AF%</th>
<th>AI-OTH%</th>
<th>DefSup%</th>
<th>DS%</th>
<th>DS-CAS%</th>
<th>NR%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USSR</td>
<td>WTVD</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>5</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

This apportions fighter-bomber aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to USSR, allied, and air-
army air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Fighter-order (Blue)**

<table>
<thead>
<tr>
<th>group</th>
<th>arena</th>
<th>Esc%</th>
<th>AD%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>CEUR</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

This apports fighter aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to US, allied, and carrier air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Fighter-order (Red)**

<table>
<thead>
<tr>
<th>group</th>
<th>arena</th>
<th>Esc%</th>
<th>Sec%</th>
<th>Att%</th>
<th>Cov%</th>
<th>AF%</th>
<th>Ar%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USSR</td>
<td>WTVD</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

This apports fighter aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to USSR, allied, and air-army air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Interdictor-order (Blue)**

<table>
<thead>
<tr>
<th>group</th>
<th>arena</th>
<th>OCA%</th>
<th>AI%</th>
<th>OCA-DSUF%</th>
<th>BAI%</th>
<th>CAS%</th>
<th>QRA%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>CEUR</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>0</td>
</tr>
</tbody>
</table>
This apportions interdictor aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to US, allied, and carrier air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Mbomber-order (Blue)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Arena</th>
<th>OCA%</th>
<th>AI%</th>
<th>QRA%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>CEUR</td>
<td>0</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

This apportions medium bomber aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to US, allied, and carrier air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Mbomber-order (Red)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Arena</th>
<th>AI-AP%</th>
<th>AI-OTH%</th>
<th>NR%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USSR</td>
<td>WTVD</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

This apportions fighter aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportionments may be made to USSR, allied, and air-army groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Multi-order (Blue)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Arena</th>
<th>OCA%</th>
<th>AI%</th>
<th>OCA-DSUP%</th>
<th>BAI%</th>
<th>CAS%</th>
<th>QRA%</th>
<th>AD%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>CEUR</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
This apportions fighter aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportions may be made to US, allied, and carrier air groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Apportion-Multi-order (Red)**

<table>
<thead>
<tr>
<th>group</th>
<th>arena</th>
<th>AI-AF%</th>
<th>AI-OTH%</th>
<th>DefSup%</th>
<th>DS%</th>
<th>DS-CAS%</th>
<th>NR%</th>
<th>AF%</th>
<th>Ar%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USSR</td>
<td>WTVD</td>
<td>50</td>
<td>50</td>
<td>-</td>
<td>50</td>
<td>5</td>
<td>50</td>
<td>50</td>
<td>0</td>
</tr>
</tbody>
</table>

This apportions fighter aircraft to missions in a main theater, or a sub-theater of a main theater. Separate apportions may be made to USSR, allied, and air-army groups. The mission percentages are normalized to sum to 100, unless they total 0.

The CAMPAIGN Apportion order is generated. The CAMPAIGN misc display shows the current apportionment.

**Arena-attack-order**

<table>
<thead>
<tr>
<th>Table Referee's Arena-attack-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>arena</td>
</tr>
<tr>
<td>NEUR</td>
</tr>
</tbody>
</table>

This orders the forces in a given alternate theater to attack, starting ground, air, and coastal combat. The Referee adjudication model for the arena will not run until this attack order is given. The side of the arena given specifies the side attacking.

**Arena-terminate-order**

<table>
<thead>
<tr>
<th>Table Referee's Arena-terminate-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>arena</td>
</tr>
<tr>
<td>NEUR</td>
</tr>
</tbody>
</table>

This stops combat in a given alternate theater. Giving either the Blue or Red arena stops combat for both. The Referee adjudication model for the arena will no longer be run.
Assign-order

Table Assign-order

<table>
<thead>
<tr>
<th>qty</th>
<th>#-%</th>
<th>unit</th>
<th>owner</th>
<th>in-region</th>
<th>to-command</th>
<th>to-arena</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>%</td>
<td>Troops</td>
<td>FRG</td>
<td>FRG</td>
<td>AFCENT</td>
<td>CEUR</td>
</tr>
<tr>
<td>2</td>
<td>#</td>
<td>Armor</td>
<td>FRG</td>
<td>FRG</td>
<td>AFNORTH</td>
<td>TF-Baltic</td>
</tr>
</tbody>
</table>

This assigns currently unassigned ground, air, missile, and lift forces to an arena. Ground and missile forces are not affected other than to tag them for reference by the assign columns of other orders. Air forces will fly in support of their assigned arena if in range. The percent of airlift or sealift assigned to an arena is reserved to move forces there. (JCS and SHC plans automatically generate lift assignment orders each day as required.)

# in the column #-% causes qty to be interpreted as a number of units. % causes it to be interpreted as a percentage of the total pool of selected forces available at the beginning of that move. (This differs from the CAMPAIGN Assign order, in which each subsequent order refers to a percentage of the shrinking pool of assigned forces.) If arena (in “to-arena”) is “all” a default assignment is made to the main arena under that command. More ready and more powerful forces are selected for assignment first when more than one force is available to be chosen.

The CAMPAIGN Assign order is generated. The CAMPAIGN air, ground, or unit displays will show force assignments.

Assign-air-army-order (Red)

Table Assign-air-army-order

<table>
<thead>
<tr>
<th>qty</th>
<th>#-%</th>
<th>unit</th>
<th>owner</th>
<th>in-region</th>
<th>to-air-army</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>%</td>
<td>Troops</td>
<td>GDR</td>
<td>GDR</td>
<td>Legnica-AA</td>
</tr>
</tbody>
</table>

This assigns currently unassigned air forces to an air army. Air armies must be delegated to an arena through the Delegate-order. See the Assign-order for the interpretation of qty.

The CAMPAIGN Assign order is generated.
Assign-by-name-order

Table Assign-by-name-order
unit-name to-command to-arena
----------------- -------------
"1-MARDIV/1-REGT" AFNORTH NEUR

This assigns a named, unassigned force to an arena. See the Assign-order for details.

Assign-naval-order

Table Assign-naval-order
force to-force
------- -------
"BCG.70_1" "BCG.70_2"

This reassigns a vessel or task group to a task group. Task groups assigned to other task groups will participate in any deployment orders given to the parent group. Do not reassign SSBNs.

The CAMPAIGN Assign order is generated.

Attack-target-priority-order

Table Referee's Attack-target-priority-order
from-air-arena priority axis target sorties
----------------- ----- --------------- ------- -----
Kola-air 1 R-Kirkness-21 Airfield 10
Kola-air 2 R-Oslo-34 Airfield 30

This allocates Attack sorties from an alternate theater air-arena to a list of targets. Missions are flown against targets in the priority order listed, beginning with priority 1. A proportionate amount of the Escort sorties generated in the same air-arena are flown with each mission. Targets in the list are skipped if they are destroyed or in a country for which a withhold has been set, through variable Specific-target-withhold.
Attack-order

Table Attack-order

<table>
<thead>
<tr>
<th>arena</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR</td>
</tr>
</tbody>
</table>

This causes the specified main theater to attack, starting ground and air combat. Ground forces with default destinations in the arena will automatically deploy. Forces owned by invaded countries will fight whether or not they have given control to a side. A Position-order for the attacking forces that is greater than 0 must also be given for ground forces to attack.

The CAMPAIGN Attack order is generated. The following flags are raised in the main region of the arena: Conventional-warfare after 6 hours, Mobilization after 6 hours, Alert after 3 hours, Deployment after 24 hours, Poising after 3 hours.

Axis-envelop-order

Table Axis-envelop-order

<table>
<thead>
<tr>
<th>low-axis</th>
<th>high-axis</th>
<th>#</th>
<th>days</th>
<th>days</th>
<th>expire</th>
<th>pincers</th>
<th>close mopup</th>
<th>D+</th>
</tr>
</thead>
<tbody>
<tr>
<td>low-axis</td>
<td>start-kms</td>
<td>high-axis</td>
<td>start-kms</td>
<td>#</td>
<td>days</td>
<td>days</td>
<td>expire</td>
<td>pincers</td>
</tr>
<tr>
<td>CEUR-4</td>
<td>50</td>
<td>CEUR-6</td>
<td>50</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>10</td>
<td>.</td>
</tr>
</tbody>
</table>

This gives envelopment missions to one or two axes for the CAMPAIGN Ground Commander Model in a main theater. As it is guidance to the model, the model must be turned on for the arena using the OCL-on-off-order. Specific ground units must also be given envelopment missions (Gnd-force-envelop-order). This methodology is experimental and the user should refer to CAMPAIGN documentation for further details.

The CAMPAIGN Mission order is generated.

Axis-mission-order

Table Axis-mission-order

<table>
<thead>
<tr>
<th>axis</th>
<th>mission</th>
<th>start-kms</th>
<th>end-kms</th>
<th>expire-D+</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR-4</td>
<td>Defend</td>
<td>0</td>
<td>1000</td>
<td>999</td>
</tr>
</tbody>
</table>
the arena using the OCL-on-off-order. Missions in general specify the tactic for the forces on the axis while the FLOT is between the km bounds specified, until the expiration day specified.

The CAMPAIGN Mission order is generated.

<table>
<thead>
<tr>
<th>Mission</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdraw</td>
<td>Withdraw to the rear bound</td>
</tr>
<tr>
<td>Delay</td>
<td>Delay to the rear bound</td>
</tr>
<tr>
<td>Defend</td>
<td>Never attack to regain lost territory</td>
</tr>
<tr>
<td>Defend-delay</td>
<td>Defend while in prepared positions, delay if forced into hasty defense</td>
</tr>
<tr>
<td>Defend-withdraw</td>
<td>Defend while in prepared positions, withdraw if forced into hasty</td>
</tr>
<tr>
<td>Pin-attack</td>
<td>Perform pinning attacks, but follow if the enemy falls back</td>
</tr>
<tr>
<td>Support-attack</td>
<td>Attack towards ordered position, but do not attempt a breakthrough</td>
</tr>
<tr>
<td>Main-attack</td>
<td>Attack towards ordered position, attempting breakthrough</td>
</tr>
<tr>
<td>Cancel</td>
<td>Cancel queued missions except envelopments and withdrawals</td>
</tr>
</tbody>
</table>

**Axis-position-order**

<table>
<thead>
<tr>
<th>axis</th>
<th>kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis</td>
<td>1000.</td>
</tr>
</tbody>
</table>

This sets the ground objective for forces on a LOC axis in an alternate theater, measured in kms down the length of the axis. Forces on an axis will strive to move the FLOT to reach their ground objective and stop. Combat will not occur unless the attacking side is given a position ahead of the current FLOT position. An axis given a position behind the current FLOT position will always withdraw.

**Axis-tactic-order**

<table>
<thead>
<tr>
<th>tactic</th>
<th>axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attack</td>
<td>NWTVD-1.</td>
</tr>
</tbody>
</table>

This sets the combat tactic for forces on a LOC axis in an alternate theater. One side must choose an attacking tactic for FLOT movement to occur. If both choose defending tactics a static battle will result.
<table>
<thead>
<tr>
<th>Tactic</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defend</td>
<td>Do not advance unless the enemy withdraws</td>
</tr>
<tr>
<td>Delay</td>
<td>Defend, trading increased FLOT movement for lower losses</td>
</tr>
<tr>
<td>Attack</td>
<td>Advance to ordered position</td>
</tr>
<tr>
<td>Pin</td>
<td>Attack with lowered loss rates, do not advance</td>
</tr>
</tbody>
</table>

**Axis-thrust-order**

<table>
<thead>
<tr>
<th>Table Axis-thrust-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis</td>
</tr>
<tr>
<td>=====</td>
</tr>
<tr>
<td>CEUR-4</td>
</tr>
</tbody>
</table>

This sets the priority of axes for reinforcement and supply in a main theater. This is guidance to the CAMPAIGN Ground Commander Model, so that model must also be turned on for the arena using the OCL-on-off-order.

This sets the CAMPAIGN thrust parameter in the OCL table.

**BAI-axis-allocation-order**

<table>
<thead>
<tr>
<th>Table Referee's BAI-axis-allocation-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>from-air-arena</td>
</tr>
<tr>
<td>===========</td>
</tr>
<tr>
<td>Kola-air</td>
</tr>
</tbody>
</table>

This allocates the total Battlefield Air Interdiction sorties generated in an alternate theater air-arena among alternate theater LOC and point axes. Blue plans allocate to blue axis names. Percentages across the entire arena will be normalized to 100 if greater than 100.

**Build-defense-order**

<table>
<thead>
<tr>
<th>Table Build-defense-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis</td>
</tr>
<tr>
<td>=====</td>
</tr>
<tr>
<td>CEUR-4</td>
</tr>
</tbody>
</table>

This starts the building of Prepared or Fortified defenses in main theater zones, subject to build rates and the availability of resources. Construction begins the specified start distance in kms from the end of the zone closest to the enemy, but not farther forward than the ordered position of the building forces or the location of the enemy. Areas of ordered defenses cannot overlap on the same axis.
This sets the CAMPAIGN parameters fortified and prepared in the zone table. The CAMPAIGN barrier display shows constructed barriers.

**CAS-axis-allocation-order**

<table>
<thead>
<tr>
<th>Table Referee's CAS-axis-allocation-order</th>
<th>from-air-arena</th>
<th>pct</th>
<th>axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------------</td>
<td>Kola-air</td>
<td>25</td>
<td>NWTVD-1</td>
</tr>
</tbody>
</table>

This allocates the total Close Air Support sorties generated in an alternate theater air-arena among alternate theater LOC and point axes. Blue plans allocate to blue axis names. Percentages across the entire arena will be normalized to 100 if greater than 100.

**Control-order**

<table>
<thead>
<tr>
<th>Table Green's Control-order</th>
<th>govt</th>
<th>side</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Blue</td>
</tr>
</tbody>
</table>

This gives control of a country’s forces to Red or Blue. Forces owned by third countries will not be affected by orders issued by Red or Blue until that country has granted control. A side of White gives control back to the owning country, but will not withdraw forces from combat. Control may not be granted to a side that is not the ally of the country (see the Ally-order). This order is generally used only by Green Agent, according to the decided value of Green's Involvement of a country in its theater of interest. An involvement of On-call or greater causes control to be granted.

The CAMPAIGN Control order is generated. The CAMPAIGN govt display gives the current control of a country. The Data Editor tableau set “Green/control-green.T”, tableau “Global Political-Military Situation” gives the current value of Involvement.

**Cooperate-order**

<table>
<thead>
<tr>
<th>Table Green's Cooperate-order</th>
<th>govt</th>
<th>permit-denay</th>
<th>right</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Permit</td>
<td>Overfly</td>
</tr>
</tbody>
</table>
This sets the level of cooperation of a country with its ally. Orders that violate the set permissions of a country will be rejected. By default, all rights are denied to the allies of all nations except for nations with peacetime basing of foreign forces, who grant Overfly, Transit, and Basing. This order is generally used only by Green Agent, according to the decided value of Green's Cooperation level of a country with its ally.

The CAMPAIGN Permit or Deny order is generated. The CAMPAIGN govt display gives the current granted permissions of a country. The Data Editor tableau set “Green/control-green.T”, tableau “Global Political-Military Situation” gives the current value of Cooperation.

**Cover-area-order**

<table>
<thead>
<tr>
<th>pct</th>
<th>unit</th>
<th>owner</th>
<th>arena</th>
<th>in-region</th>
<th>cover-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>MPA</td>
<td>US</td>
<td>all</td>
<td>Norway</td>
<td>Norwegian-Sea</td>
</tr>
</tbody>
</table>

This specifies levels of effort for MPA (Maritime Patrol Aircraft), AWACs, or interceptors in on-station coverage in a region. MPA may only cover sea regions or choke points. They follow the ROEs (Rules of Engagement) for the region. Orders given for forces in the same region must all use specific owners (UK, US) or all use “all.” The two types may not be mixed. Combat permission must be granted by a third country before MPA may fly cover from that country, although the order will be accepted and remembered.

The CAMPAIGN Cover order is generated. The CAMPAIGN mpa-cover displays show the cover orders given to MPA.

**Cover-barrier-order**

<table>
<thead>
<tr>
<th>pct</th>
<th>unit</th>
<th>owner</th>
<th>arena</th>
<th>in-region</th>
<th>cover-region1</th>
<th>cover-region2</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Multi</td>
<td>Norway</td>
<td>all</td>
<td>Norway</td>
<td>Norway</td>
<td>Finland</td>
</tr>
</tbody>
</table>

This specifies levels of effort for AWACs or interceptors in on-station coverage between two regions. MPA may not cover barriers. The barrier is the border between the two cover-regions. Orders given for forces in the same region must all use specific owners (UK, US) or all use “all.” The two types may not be mixed.
The CAMPAIGN Cover order is generated.

Define- laydown-order

<table>
<thead>
<tr>
<th>Table Define-laydown-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>&quot;leaders&quot;</td>
</tr>
</tbody>
</table>

This allows the definition of new sets of targeting instructions (laydowns) which can be used by the Air-plan and Strike-orders. The target parameter is a single string that forms a list of targets. A target consists of a target class (defined in CAMPAIGN documentation), a targeting site option (primary/alternate/relocation/other), and a percentage of warheads on that target. The name of a laydown defined through this order can be used in the laydown columns of other orders. Laydown names previously defined in CAMPAIGN may be redefined through this order, excepting laydowns associated with SIOP/RISOPs.\(^5\)

The CAMPAIGN Laydown order is generated.

Delegate- air-order

<table>
<thead>
<tr>
<th>Table Delegate-air-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>pct</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

This orders carrier or air army aircraft to fly in support of an arena.

Task group names here affect only the flagship. Air only flies when in a region in range of the arena, as specified in the database file Force-C/D/theater.sec.

The CAMPAIGN Delegate order is generated. The CAMPAIGN delegate display shows current delegations.

\(^5\)Care must be taken in attempting to redefine a laydown. It may be impossible to delete a target from a previously defined laydown. Because of automatic normalization of percentages, results may not be those intended.
Delay-hours

<table>
<thead>
<tr>
<th>Qty</th>
<th>%</th>
<th>Unit</th>
<th>Owner</th>
<th>Command</th>
<th>Arena</th>
<th>In-region</th>
<th>In-overlay</th>
<th>To-region</th>
<th>To-overlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>%</td>
<td>Troops</td>
<td>UK</td>
<td>AFCENT</td>
<td>CEUR</td>
<td>UK</td>
<td></td>
<td>FRG</td>
<td></td>
</tr>
</tbody>
</table>

This delays the effect of all subsequent orders to the CAMPAIGN model. The delay is automatically set to 0 when any AWP ends its move.

Deploy-order

This allows the deployment of forces from a region or overlay to a region or overlay. Aircraft may only be deployed from region to region. Deployment starts both mobilization and training. Troops deploying to an overlay are automatically assigned to that arena. Deployment to an axis is to the current FLOT. Units currently in-transit will not be affected. Units move by their default method of locomotion. Distances between regions are calculated from region-center to center. Ground units within a main theater move between zones, and in an alternate theater between points. Required air and sealift must be assigned through the Assign-order. Basing permission must be granted before a deployment order to a third country will be accepted.

“All” in both to- columns deploys forces to their default destinations (given only in the ground.sec database file). # in the column #-% causes qty to be interpreted as a number of units. % causes its interpretation as a percentage of the total pool of selected forces available at the beginning of that move (this differs from the Camper Deploy order, in which each subsequent order refers to a percentage of the shrinking pool of undeployed forces). If command is specified but arena is “all” and #-% is %, then similar orders are generated for all arenas under that command, as given by the array Command-over-arena. If #-% is # then the order is given for the main arena only.

The CAMPAIGN Deploy order is generated. The Deployment flag is raised after 48 hours in the to-region, or the region under to-overlay as given by the array Region-under-overlay. No flags in regions are set if “all” is given.
Deploy-by-name-order

Table Deploy-by-name-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
<th>destination</th>
<th>means</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;2nd-Div&quot;</td>
<td>&quot;US&quot;</td>
<td>CEUR-B</td>
<td>&quot;-&quot;</td>
</tr>
</tbody>
</table>

This is similar to the Deploy order, but specific military units are named.

Deploy-mine-countermeasures-order

Table Deploy-mine-countermeasures-order

<table>
<thead>
<tr>
<th>qty</th>
<th>owner</th>
<th>to-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Blue</td>
<td>GI-Gap</td>
</tr>
</tbody>
</table>

This orders the deployment of a number of mine countermeasure assets to a sea choke region. The allowed values of owner are Blue and Red. MCM assets are not played as physical entities, but only as a number for each choke region that is incremented by this order. Each asset clears a number of square-kms per day of mines.

The CAMPAIGN mcm-deploy parameter in the choke table is generated. The CAMPAIGN mine display shows counts of MCM assets.

Deploy-naval-order

Table Deploy-naval-order

<table>
<thead>
<tr>
<th>force</th>
<th>thru-region</th>
<th>lat-lon</th>
<th>to-region</th>
<th>at-speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;BG.NIMITZ&quot;</td>
<td>--</td>
<td>&quot;51E45N&quot;</td>
<td>Norwegian-Sea Taskforce.</td>
<td></td>
</tr>
</tbody>
</table>

This deploys naval taskgroups or single vessels to a sea region, sea choke region, coastal land region, or specific lat/lon. If a taskgroup is named, all vessels in the taskgroup, wherever they are, deploy as ordered. If a single vessel is named, only that vessel deploys. "Thru-region" may specify an intermediate region through which the vessels must pass in order to more precisely specify their route. "At-speed" may be Taskforce, Max-taskforce, or Flankspeed (all vessels make their best speed). Do not deploy submarines, which deploy according to the Task-order. Deployment to a land region orders the vessels to port. Only one port is specified for each region.

The CAMPAIGN Deploy order is generated.
Disperse-order

Table Disperse-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>in-region</th>
<th>% dispersal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Troops</td>
<td>US</td>
<td>FRG</td>
<td>50</td>
</tr>
</tbody>
</table>

This orders ground forces to disperse out of casernes, air forces to disperse to dispersal bases, and nuclear weapons to disperse from storage sites. “Unit” can be any unit type under Troops, Air, or Lift, or the individual types Lift, Civil (US/USSR only), or Leadership.

The CAMPAIGN Disperse order is generated. Leadership affects only the Flag model. If in-region is all, the flag is set in all regions containing any equivalent divisions (EDs) of the appropriate color. The following flags are set after 6 hours: if unit is Leadership--Leadership-dispersal; if unit is Civil--City-evacuation; otherwise--Dispersal.

Disperse-against-nuclear-use-order

Table Disperse-against-nuclear-use-order

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>in-overlay</th>
<th>% dispersal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Troops</td>
<td>US</td>
<td>CEUR-1</td>
<td>50</td>
</tr>
</tbody>
</table>

This orders ground forces in a main theater to operate in nuclear-scared posture. The CAMPAIGN Disperse order is generated.

Engage-order

Table Engage-order

<table>
<thead>
<tr>
<th>region</th>
<th>rule</th>
<th>auth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barents</td>
<td>Attack</td>
<td>Conv.</td>
</tr>
</tbody>
</table>

This sets the naval rules of engagement in sea and choke regions. Authorization of Nuc releases nuclear weapons for use (but not for SSBNs). The default ROE is Defend. ASW begins immediately when the ROE in a region is Attack, but the Strike-order must be used to attack with air or missiles.

An ED is a measure of ground force fire power roughly equivalent to that of a modern armored division.
The CAMPAIGN Engage order is generated. The CAMPAIGN engage-rule display shows the ROE for all sea regions.

<table>
<thead>
<tr>
<th>Rule</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdraw</td>
<td>Do not return fire under any circumstances</td>
</tr>
<tr>
<td>Defend</td>
<td>Do not initiate combat</td>
</tr>
<tr>
<td>Trail</td>
<td>Close with enemy but do not initiate combat</td>
</tr>
<tr>
<td>Exclude</td>
<td>Initiate combat if the enemy is Trail</td>
</tr>
<tr>
<td>Attack</td>
<td>Seek out and attack any enemy in the region</td>
</tr>
</tbody>
</table>

**Execute-order**

```
Table Execute-order
   owner arena plan option hrs-delay
    all  CEUR  "SIOP"  "OMT"   0
```

This executes SIOP/RISOP strategic nuclear plan options. Execution messages are transmitted to forces via the C3 models. Missile and bomber forces will execute only those weapons systems which are generated (Alert-order). SSBNs that cannot immediately launch due to ranging considerations will reroute and launch when they come within range of targets.

The CAMPAIGN Execute order is generated.

**Gnd-force-mission-order**

```
Table Gnd-force-mission-order
   unit-name owner mission axis kms expire-D+
    "lst-Inf" US  Dig-in CEUR-1 99  999
```

This gives special missions to ground forces in a main theater. A force with a mission will not be deployed by the Ground Commander Model for axis reinforcement.

The CAMPAIGN Mission order is generated.

<table>
<thead>
<tr>
<th>Mission</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-drop</td>
<td>Air-drop an airborne force at the time given for expire-D+</td>
</tr>
<tr>
<td>Air-assault</td>
<td>Air-land an airmobile force at the time given for expire-D+</td>
</tr>
<tr>
<td>Dig-in</td>
<td>Deploy to the position specified and prepare deliberate defenses</td>
</tr>
<tr>
<td>Omg</td>
<td>Deploy to the specified axis and prepare for insertion as an OMG</td>
</tr>
<tr>
<td>Cancel</td>
<td>Cancel all missions that have not yet been initiated</td>
</tr>
</tbody>
</table>
Gnd-force-envelope-order

Table Gnd-force-envelope-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
<th>enter-pincer</th>
<th>dest-axis</th>
<th>expire-D+</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;lst-Inf&quot;</td>
<td>US</td>
<td>CEUR-1</td>
<td>CEUR-2</td>
<td>6</td>
</tr>
</tbody>
</table>

This orders a ground force to support an ordered envelopment in a main theater. An envelopment must also be ordered using the Axis-envelope-order. The force will deploy immediately to the pincer axis specified, and if the planned envelopment is initiated, take up blocking positions in the rear of the enemy axis specified.

The CAMPAIGN Mission order is generated.

Ground-aggressiveness-order

Table Referee's Ground-aggressiveness-order

<table>
<thead>
<tr>
<th>aggressiveness</th>
<th>arena</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>NWTVD</td>
</tr>
</tbody>
</table>

This sets the aggressiveness of ground forces in an alternate theater. Aggressiveness affects the force ratio required to attack and multiplies the defender loss rate, exchange rate, and FLOT movement rate.

Initiate-action-order

Table Initiate-action-order

<table>
<thead>
<tr>
<th>actor</th>
<th>action</th>
<th>region</th>
<th>delay</th>
<th>duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Blockade</td>
<td>GDR</td>
<td>6.0</td>
<td>hours</td>
</tr>
</tbody>
</table>

This is the order to the Flag Model to set a flag, or action, in the given region to signal the given action of the given actor. "Delay" gives the number of hours until the action will begin. "Duration" gives the number of hours that the action will be in progress. Many other force orders use this order to set flags in the Flag Model representing their effects.
Jamming-order

Table Jamming-order

<table>
<thead>
<tr>
<th>in-region</th>
<th>frequency</th>
<th>on-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>USSR-West</td>
<td>VLF</td>
<td>On</td>
</tr>
</tbody>
</table>

This initiates jamming of communications facilities. Once activated, jamming will continue until the jammer is destroyed or turned off. Only the fixed jammers at known facilities can be activated.

The CAMPAIGN Initiate order is generated. The Jamming flag is set after 3 hours. If in-region is “all,” flags are set in all regions containing EDs of the appropriate side.

Launch-order

Table Launch-order

<table>
<thead>
<tr>
<th>unit</th>
<th>in-region</th>
<th>method</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>Hawaii</td>
<td>Flush</td>
</tr>
</tbody>
</table>

This orders the flush or launch of a sustaining force of heavy bombers, tankers, or C3 aircraft. Only US and USSR owned aircraft may be launched. The flush option launches all aircraft currently alerted. If either H-bomber or Tanker is selected, both tankers and bombers are flushed. Either the C3- or H-bomber-launch flag is set after 3 hours. If in-region is “all,” flags are set in all US/USSR regions.

The CAMPAIGN Launch order is generated. See CAMPAIGN documentation for explanation of assumptions and methodology involved.

Minelay-order

Table Minelay-order

<table>
<thead>
<tr>
<th>qty</th>
<th>owner</th>
<th>high-lowtech</th>
<th>in-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>Blue</td>
<td>High</td>
<td>GI-Gap</td>
</tr>
</tbody>
</table>

This lays a quantity of mines in the given sea choke region. Allowed values of owner are Blue and Red. Mines attack only enemy ships. No minelaying assets are
explicitly played. This order only increments a number of mines in each choke region. Mines deliver an expected level of damage to each ship passing through the choke.

The CAMPAIGN mine-lay parameter of the choke table is generated. The CAMPAIGN mine display shows the mines that have been laid.

**Mobilize-by-name-order**

```
Table Mobilize-by-name-order

unit-name   owner    %-ready
----------   ------    ------
"1st-Inf"   US        100   .
```

This mobilizes the named unit. See the Mobilize-order for general details.

**Mobilize-order**

```
Table Mobilize-order

unit  owner command arena in-region %-ready
------ ------ ======= ======== ======== ------
Troops all  AFCENT CEUR FRG      80   .
```

This orders mobilization of ground forces or strategic lift. Forces will not deploy until 100% mobilized. Mobilization also causes ground forces to begin training. If arena is “all,” orders are given for all arenas under that command.

The CAMPAIGN Mobilize order is generated. The Mobilization flag is set after 24 hours. If in-region is “all,” flags are set in all regions containing EDs of the appropriate side.

**OCL-on-off-order**

```
Table OCL-on-off-order

arena  OCL on-off
------- ------ ------
CEUR   Air    On     .
```

This turns On or Off the Operational Command Level (OCL) models for main theaters for Ground or Air, by arena. The air and ground OCLs (Air Commander and Ground Commander) make daily apportionment and reinforcement decisions.
The on or off parameters of the OCL table are set in CAMPAIGN. The OCL table contains other OCL guidance parameters. The CAMPAIGN misc display shows current model guidance.

**Operation-order**

<table>
<thead>
<tr>
<th>Table Referee's Operation-order</th>
<th>operation qty unit-name mission</th>
<th>arena</th>
<th>target</th>
<th>to-axis</th>
<th>insertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>0.3 &quot;1st-Amph&quot; Occupy</td>
<td>NWTVD</td>
<td>Seaport</td>
<td>NWTVD-21</td>
<td>Heliborne</td>
</tr>
</tbody>
</table>

This orders one of several types of operations against a LOC or point axis in an alternate theater. If the operation is Regular (meaning regular forces are used) then qty is the size in divisions of the unit, used for calculating lift requirements. "unit-name" is required only for Regular operations, and should otherwise be the null string, "". Blue plans refer to Blue arenas and axes.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Insertion</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCW</td>
<td>In-place/Air/Sea</td>
<td>Unconventional Warfare teams</td>
</tr>
<tr>
<td>Chemical</td>
<td>SSM/Air</td>
<td>Chemical strikes</td>
</tr>
<tr>
<td>Nuclear</td>
<td>SSM/Air</td>
<td>Nuclear strikes</td>
</tr>
<tr>
<td>Regular</td>
<td>Air/Sea/Helibone</td>
<td>Air, amphibious, helicopter assaults</td>
</tr>
</tbody>
</table>

**Point-axis-mission-order**

<table>
<thead>
<tr>
<th>Table Referee's Point-axis-mission-order</th>
<th>mission axis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupy</td>
<td>NWTVD-21</td>
</tr>
</tbody>
</table>

This changes the mission of forces at an alternate theater point axis. Ground forces may be occupying, denying, or dispersed about a point. A target will be damaged by denying forces even if there is no enemy present. Dispersal represents forces dispersing in guerrilla groups around the point and forces a static, minimal intensity battle. All points have a default mission of Occupy. Forces arriving at a target through the Operation-order have the mission of the point set as part of the order.
Poise-order

Table Poise-order

| arena | === | CEUR |

This removes any existing peacetime restrictions on barrier construction or force posturing before combat occurs in a main theater. These restrictions are lifted automatically when an attack order is given.

The CAMPAIGN Poise order is generated. The Poising flag is set after 6 hours in the main region of the arena.

Position-order

Table Position-order

<table>
<thead>
<tr>
<th>axis</th>
<th>kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>===</td>
<td>===</td>
</tr>
<tr>
<td>CEUR 1</td>
<td>10</td>
</tr>
</tbody>
</table>

This sets the ground objective on an axis in a main theater. Forces will not advance past their ordered position, and if forward of a newly ordered position will withdraw. Distances are measured in kilometers from peacetime positions. Positive values are in Blue's territory, negative in Red's.

The CAMPAIGN Position order is generated. The CAMPAIGN misc display shows the current ordered positions.

Recall-launch-order

Table Recall-launch-order

<table>
<thead>
<tr>
<th>unit</th>
<th>===</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td></td>
</tr>
</tbody>
</table>

This recalls forces that have been launched through the Launch-order. Recalling Hbombers will recall tankers but recalling C3 will not. Because C3 tanking is only nominally modelled, this will have no effect on C3 sustainability.

The CAMPAIGN Recall order is generated.
Recall-execution-order

Table Recall-execution-order
    option
    =======.
    CF    .

This recalls the execution of strategic forces. When used to cancel an execution EAM, the recall order will check all SSBNs and missile forces, as well as all bombers on the ground. Currently, the model will not attempt to recall bombers already airborne with an execute order. Note also that cancelling an option will not cause PCL bombers carrying weapons for that option to return. A separate recall order is required. The recall order is useful for cancelling delayed executions, as well as for cancelling firing missions for SSBNs who must transit to reach their firing positions. The recall order will not, in general, work for non-delayed executions, since forces will have already executed before the recall arrives.

The CAMPAIGN Recall order is generated.

Restrict-combat-order

Table Green's Restrict-combat-order
    govt  permit-deny  area  arena  axis
    ====  =========    ====  =====  ======.
    UK    Deny        --    CEUR   all  .

This restricts where national ground forces can be employed in a main theater. Permission or denial in an arena affects all axes in that arena, hence only one of the arena and axis columns should be filled for each table line. These restrictions apply only to the Ground Commander Model. Explicit Deploy-orders are not restricted. This order is generally used only by Green Agent.

The CAMPAIGN Permit or Deny order is generated.

Sabotage-order

Table Sabotage-order
    in-region  laydown  level
    =======  =========  ========.
    USSR-W    "Transport" Partial.
This initiates sabotage activities. “In-region” may not be owned by the saboteur or any of its allies. Only laydowns with C3 target classes will have effect in CAMPAIGN.

The CAMPAIGN Initiate order is generated. Leadership, Transport, and Communications are the only laydowns recognized by the Flag model. These will set the corresponding Leadership-sabotage, Transport-sabotage, and Comm-sabotage flags after 6 hours.

**Send-force-order**

Table Send-force-order

<table>
<thead>
<tr>
<th>order</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;set airwar cewr bai-arty 0.25&quot;</td>
</tr>
</tbody>
</table>

This sends an order string as written to CAMPAIGN. This is used to give any orders for which a RAND-ABEL order has not been written; for instance, the setting of most parameters. It can also be used instead of the RAND-ABEL form of the order.

The string must be written exactly as it would appear in a Force “use” file. The proper format can be determined by consulting on-line or hardcopy Force documentation or, most reliably, by entering the order into Force interactively, to ensure that it “takes” and produces the desired results, and observing the result in the RSAS output “.com” file in the Run/O directory. In those cases, the .com file form should be copied into the Send-force-order.

**Strike-order**

Table Strike-order

<table>
<thead>
<tr>
<th>unit-name</th>
<th>weapon</th>
<th>qty</th>
<th>at-govt</th>
<th>target</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Nucart CEUR-1&quot;</td>
<td>&quot;&quot;</td>
<td>5</td>
<td>--</td>
<td>&quot;&quot;</td>
</tr>
<tr>
<td>&quot;Nimitz&quot;</td>
<td>&quot;TAIR&quot;</td>
<td>5</td>
<td>GDR</td>
<td>&quot;MAIR-major main GDR&quot;</td>
</tr>
<tr>
<td>&quot;1st-TFS&quot;</td>
<td>&quot;runway&quot;</td>
<td>5</td>
<td>GDR</td>
<td>&quot;OCA1 GDR&quot;</td>
</tr>
<tr>
<td>&quot;MX US-Npcins US&quot;</td>
<td>&quot;nuc&quot;</td>
<td>5</td>
<td>GDR</td>
<td>&quot;1st-Armv&quot;</td>
</tr>
<tr>
<td>&quot;F-111 UU US&quot;</td>
<td>&quot;pgm&quot;</td>
<td>5</td>
<td>GDR</td>
<td>&quot;THTR-cas CEUR-1&quot;</td>
</tr>
</tbody>
</table>

This orders a one-time conventional or nuclear attack against varied enemy assets. “Unit-name” may be either a specific unit name or a force type. Only alert forces can be used for strikes. If an airforce wing is specified, the unit in the wing with the greatest range is selected. Units cannot be on a mission or enroute. Only air units capable of interdiction. BA1, multi, deepstrike and bomber missions may be used for
strikes. Missiles on naval vessels can only be selected by vessel name, and vessels must be at sea. If a force type is specified, unit-name must also contain the location of the force and the government currently controlling the force, in that order. Nucarty specifies battlefield nuclear artillery. The friendly axis from which the artillery is to be fired must follow.

Weapons for aircraft can be hitech-gnd, lotech-gnd, tacnuc, stratnuc, runways, antiship, pgm, or defsup. Missile weapons are chemical, nuclear or conventional.

For target, a target class, laydown name, or unit name may be given. Nucarty targets enemy ground forces on the FLOT or flanks within the same axis, thus the null string, "", should be given. Target classes, such as MAIR-major, are followed by the site type and the region, axis, or zone. A laydown name must be followed by a region. If the weapon type to be executed is an ALCM, a release region must also be specified.

The CAMPAIGN Strike order is generated. The Gen-tac-nuc-weapon-use or Conventional-warfare flag is set after 3 hours.

**Task-order**

<table>
<thead>
<tr>
<th>pct</th>
<th>force</th>
<th>unit</th>
<th>task</th>
<th>in-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>&quot;BCG.70-1&quot;</td>
<td>Destroyer</td>
<td>Area-ASW</td>
<td>IUU-Gap</td>
</tr>
</tbody>
</table>

This specifies non-routine missions for naval task groups and alerts or changes the operational area of attack submarine groups. Attack submarine groups have a default task of ASW, and surface groups of Strike. Tasked missions are only relevant to a group's operational area and are automatically cancelled when deployment orders make any current task obsolete. The task order itself causes no automatic deployment (except for attack submarine groups which will shift their operational area if the order indicates a change).

The CAMPAIGN Task order is generated.

**Terminate-order**

<table>
<thead>
<tr>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEUR</td>
</tr>
</tbody>
</table>
This stops all combat in a main theater.

The CAMPAIGN Terminate order is generated. The Terminate flag is set after 6 hours in all regions of the arena. The following flags are terminated in the same regions: Poising, Conventional-warfare, Engagement, Bio-weapon-use, Chem-weapon-use, ASW, Strat-ASW, Demo-tac-nuc-weapon-use, Gen-tac-nuc-weapon-use, Demo-strat-nuc-weapon-use, CF-strat-nuc-weapon-use, and Gen-strat-nuc-weapon-use.

**Terminate-action-order**

<table>
<thead>
<tr>
<th>actor</th>
<th>action</th>
<th>region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Blockade</td>
<td>GDR</td>
</tr>
</tbody>
</table>

This is the order to the flag model to immediately terminate the given action of the given actor in the given region.

**Unassign-order**

<table>
<thead>
<tr>
<th>unit</th>
<th>owner</th>
<th>command</th>
<th>arena</th>
<th>in-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircav</td>
<td>US</td>
<td>AFCENT</td>
<td>CEUR</td>
<td>all</td>
</tr>
</tbody>
</table>

This unassigns the selected forces. See the Assign-order for the effects of assignment. If arena is "all," orders are given for all arenas under that command.

The CAMPAIGN Unassign order is generated.

**Unassign-by-name-order**

<table>
<thead>
<tr>
<th>unit-name</th>
<th>owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;1st-Inf&quot;</td>
<td>US</td>
</tr>
</tbody>
</table>

This unassigns the named force. See the Assign-order for the effects of assignment.

The CAMPAIGN Unassign order is generated.
VII. COMMUNICATIONS

Notifications: Communications up the Red or Blue Chain of Command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>reason</td>
<td>Reason for notification</td>
<td>Type-reason</td>
</tr>
<tr>
<td>recommendation</td>
<td>Recommendation for action</td>
<td>Type-recommendation</td>
</tr>
<tr>
<td>command</td>
<td>Red or Blue agent command</td>
<td>Type-command</td>
</tr>
</tbody>
</table>

Notifications are the message mechanism by which commands within Red and Blue Agents report to their superior commands. Thus a notification from an AFCENT analytic war plan would be received by the EUR plan and, if sent further, would be received by the JCS plan, and finally the NCA. This communication is one-way, from lower commands to higher.¹

Perform Notify-higher-authority using
Type-reason as reason,
Type-recommendation as recommendation.

The values of the enumerations Type-reason and Type-recommendation are listed in Section XI. A notification can be read using the following functions:

Let Type-command be the report from Ask-sender-of-current-notification.
Let Type-command be the report from Ask-origin-of-current-notification.
Let Type-reason be the report from Ask-reason-of-current-notification.
Let Type-recommendation be the report from Ask-recommendation-of-current-notification.

A notification has both an origin, which is the command that originated the notification, and a sender, which is the last command to forward the notification. Many notifications originate with an ACL plan (such as AFCENT) and are forwarded unaltered to the NCL. A notification is forwarded unread by this function:

Perform Forward-notification.

¹Higher commands communicate to their subordinates by issuing authorizations, other guidance, and force orders.
The function Ask-notification-received returns Yes if a command has received a notification from a lower level. Plans above the area command level use this as a wakeup rule.

Let Yes be the report from Ask-notification-received.

The function Ask-notification-response returns Yes if a superior command has responded to the notification sent by the querying command. When a notification is sent, the sending plan goes to sleep waiting for a response. This is handled automatically within the function Notify-higher-authority, so that upon sending a notification, a command will not continue until its superior command has responded.

Let Yes be the report from Ask-notification-response.

Response to a notification may require the forwarding of the notification to a higher command, the setting of guidance variables, or doing nothing. After the receiving command has completed its actions, it indicates its response to the lower command using the function Clear-notification-prompt.

Perform Clear-notification-prompt.

The last notification sent by each command can be examined in the Data Editor tableau set “User-generated/control.T”, tableau “Blue Reports” and “Red Reports.”

**Cables: Information from Red or Blue to Green Countries**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>side</td>
<td>Requests country to ally or become neutral</td>
<td>Type-color</td>
</tr>
<tr>
<td>cooperation</td>
<td>Level of aid requested</td>
<td>Type-cooperation</td>
</tr>
<tr>
<td>home-involvement</td>
<td>Level of involvement in home theater requested</td>
<td>Type-involvement</td>
</tr>
<tr>
<td>other-involvement</td>
<td>Level of involvement in another theater requested</td>
<td>Type-involvement</td>
</tr>
<tr>
<td>area</td>
<td>Other theater of interest</td>
<td>Type-area</td>
</tr>
</tbody>
</table>

Cables are the message mechanism by which the GCLs of Red and Blue Agents communicate their requests for changes in political postures, basing privileges, and control of forces. This communication is one-way from Red or Blue Agent to a third
country, and may be delayed depending on the political and military situation in the receiving country.

<table>
<thead>
<tr>
<th>Table Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>country</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
</tbody>
</table>

"Side," if Red or Blue, requests that the country ally or remain an ally; if White requests it be Neutral. "Cooperation" defines to what extent the country is aiding its superpower ally. "Involvement" defines each country's level of involvement in a theater. "Other-area" is a secondary arena where the superpower is requesting involvement of forces.

The last cable received by each country can be examined in the Data Editor tableau set "User-generated/control T".

**Hotlines: Negotiation Messages Between Red and Blue**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>Request for action</td>
<td>Type-hotline-request</td>
</tr>
<tr>
<td>reward</td>
<td>Reward for making requested action</td>
<td>Type-hotline-reward</td>
</tr>
<tr>
<td>penalty</td>
<td>Penalty for not making requested action</td>
<td>Type-hotline-penalty</td>
</tr>
<tr>
<td>deadline</td>
<td>Hours from game-start when the penalty will be carried out</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Hotlines are the message mechanism by which the GCLs of Red and Blue agents may communicate. The message below means "If you Do-not-escalate, then I Will-not-escalate, else I will escalate to Eur-demo-tac-nuc at day 10, 0 hour."

<table>
<thead>
<tr>
<th>Table Hotline</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>Do-not-escalate</td>
</tr>
</tbody>
</table>
Let Hotline-request of Type-hotline-channel be Type-hotline-request.  
Let Hotline-reward of Type-hotline-channel be Type-hotline-reward.  
Let Hotline-penalty of Type-hotline-channel be Type-hotline-penalty.  
Let Hotline-deadline of Type-hotline-channel be 1.  
Let Hotline-ringing of Type-hotline-channel be Yes.

Each variable is indexed by the channel appropriate to the direction of the communication (Blue-to-Red or Red-to-Blue).

When Hotline-ringing is Yes, a new Hotline message is present. This will cause the receiving GCL to wake up to read the message. After reading, Hotline-ringing of the appropriate channel must always be set back to No in order to remove the wakeup condition. GCLs will also wake up to inform the NCLs by notification if the request part of a Hotline message has been carried out, or the deadline has been passed. This capability has been implemented only as a simple example.

The last hotlines sent can be examined in the Data Editor tableau set “User-generated/control.T.”

**Announcements: Negotiation Messages from Green Countries**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Legal Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>country</td>
<td>Country making the announcement</td>
<td>Type-country</td>
</tr>
<tr>
<td>channel</td>
<td>Identifies message as to/from Blue/Red</td>
<td>Type-channel</td>
</tr>
<tr>
<td>action</td>
<td>Request for action</td>
<td>Type-hotline-request</td>
</tr>
<tr>
<td>reward</td>
<td>Reward for making requested action</td>
<td>Type-hotline-reward</td>
</tr>
<tr>
<td>penalty</td>
<td>Penalty for not making requested action</td>
<td>Type-hotline-penalty</td>
</tr>
<tr>
<td>deadline</td>
<td>Hours from game-start when the penalty will be carried out</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Announcements are the message mechanism by which the GCLs of Red and Blue agents and third countries modeled by Green Agent communicate “If-then-else” messages. The message below means “From FRG To-Blue: If you Provide-nuc-defense, then I will do nothing (---), else I will Cease-fire at day 10, 0 hour.”

<table>
<thead>
<tr>
<th>Table Announce</th>
<th>country</th>
<th>channel</th>
<th>action</th>
<th>reward</th>
<th>penalty</th>
<th>deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FRG</td>
<td>To-Blue</td>
<td>Provide-nuc-defense</td>
<td>---</td>
<td>Cease-fire (10 * 24).</td>
<td></td>
</tr>
</tbody>
</table>

An announcement appears in following variables:
Let Announced-deadline of Type-country, Type-channel be 1.
Let Announced-action of Type-country, Type-channel be Type-announced-action.
Let Announced-reward of Type-country, Type-channel be Type-announced-reward.
Let Announced-penalty of Type-country, Type-channel be Type-announced-penalty.
Let Announcement-pending of Type-country, Type-channel be Yes.

Each variable is indexed by the channel appropriate to the direction of the communication (To-Red, To-Blue, From-Red, or From-Blue). When Announcement-pending is Yes, a new announcement is present. This will cause Green Agent or the receiving GCL to wake up to read the announcement. After reading, Announcement-pending of the appropriate country and channel must always be set back to No in order to remove the wakeup condition. Announcements are also used in only a few simple examples.

The last announcements sent and received by each country can be examined in the Data Editor tableau set “User-generated/control T.”
VIII. QUERIES

Force queries are RAND-ABEL functions that report a data value about the state of the world from the force models. Force queries begin, with a few exceptions, with the words "Ask-force." Table 14 lists the available queries and the values reported. Queries that may only be used by one of the major agents are listed as either Blue's or Red's.

In RAND-ABEL code, the value reported by a query is either assigned to a variable:

Let flot be the report from Ask-force-overlay-data using FLOT-location as data, and CEUR-7 as overlay.

or compared to another value in an If statement:

If 100 is greater than the report from Ask-force-overlay-data using FLOT-location as data, and CEUR-7 as overlay
Then . . .

Queries are available that report data at levels of aggregation corresponding to most of the different RSAS geographies. Different queries will report data on forces on an overlay (an axis such as CEUR-7), in a region (USSR-W), in a country (USSR), assigned to an arena (CEUR), assigned to all arenas of a command (AFCENT), or in a theater (Central-Europe).

In addition to the queries reporting numbers, there are a series of queries that report the level of conflict and status of various military actions. These were developed primarily for use by the NCL models in characterizing the situation in each theater, but are also used by AWPs to determine when conflict has begun or nuclear weapons are first used and a new phase must be entered.

The ultimate conflict level in a theater or region is determined from the level of Red's, Blue's, and other's (third country's) involvement in that region, which in turn is derived from the specific military actions each has taken. Force queries exist for each of these levels.

The possible levels of action, involvement and conflict are shown in Table 15. The query functions that begin with the word "Test-" are used to test the status of actions that are modeled by the CAMPAIGN force model, otherwise the Flag model is queried.
<table>
<thead>
<tr>
<th>Query Name</th>
<th>Value Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask-force-overlay-data</td>
<td>Number</td>
</tr>
<tr>
<td>Ask-force-region-data</td>
<td></td>
</tr>
<tr>
<td>Ask-force-arena-data</td>
<td></td>
</tr>
<tr>
<td>Ask-force-country-data</td>
<td></td>
</tr>
<tr>
<td>Ask-force-theater-data</td>
<td></td>
</tr>
<tr>
<td>Ask-force-strategic-data</td>
<td></td>
</tr>
<tr>
<td>Blue's Ask-force-command-data</td>
<td></td>
</tr>
<tr>
<td>Red's Ask-force-command-data</td>
<td></td>
</tr>
<tr>
<td>Ask-force-regional-conflict-level</td>
<td>Type-conflict-level</td>
</tr>
<tr>
<td>Ask-force-theater-conflict-level</td>
<td></td>
</tr>
<tr>
<td>Ask-force-regional-involvement</td>
<td>Type-military-involvement</td>
</tr>
<tr>
<td>Ask-force-country-involvement</td>
<td></td>
</tr>
<tr>
<td>Ask-force-theater-involvement</td>
<td></td>
</tr>
<tr>
<td>Test-mobilization</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Test-alert</td>
<td></td>
</tr>
<tr>
<td>Test-deployment</td>
<td></td>
</tr>
<tr>
<td>Test-poising</td>
<td></td>
</tr>
<tr>
<td>Test-limited-combat</td>
<td></td>
</tr>
<tr>
<td>Test-conventional-warfare</td>
<td></td>
</tr>
<tr>
<td>Test-demo-tac-nuc-weapon-use</td>
<td></td>
</tr>
<tr>
<td>Test-gen-tac-nuc-weapon-use</td>
<td></td>
</tr>
<tr>
<td>Test-bomber-launch</td>
<td></td>
</tr>
<tr>
<td>Test-demo-strat-nuc-weapon-use</td>
<td></td>
</tr>
<tr>
<td>Test-CF-strat-nuc-weapon-use</td>
<td></td>
</tr>
<tr>
<td>Test-gen-strat-nuc-weapon-use</td>
<td></td>
</tr>
<tr>
<td>Ask-force-country-status</td>
<td>Type-conflict-level</td>
</tr>
<tr>
<td>Ask-force-region-status</td>
<td></td>
</tr>
<tr>
<td>Ask-force-theater-status</td>
<td></td>
</tr>
<tr>
<td>Ask-force-regional-action-status</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Ask-force-theater-action-status</td>
<td></td>
</tr>
<tr>
<td>Ask-force-arena-action-status</td>
<td></td>
</tr>
<tr>
<td>Ask-force-count</td>
<td>Number</td>
</tr>
<tr>
<td>Ask-force-count-by-region</td>
<td></td>
</tr>
<tr>
<td>Ask-force-count-sorties-by-region</td>
<td></td>
</tr>
<tr>
<td>Ask-force-count-by-country</td>
<td></td>
</tr>
<tr>
<td>Ask-force-count-totals-by-region</td>
<td></td>
</tr>
<tr>
<td>Blue's Ask-force-count-by-command</td>
<td></td>
</tr>
<tr>
<td>Red's Ask-force-count-by-command</td>
<td></td>
</tr>
</tbody>
</table>
Table 14
FORCE QUERIES PROVIDED WITH THE RSAS (CONT’D)

<table>
<thead>
<tr>
<th>Query Name</th>
<th>Value Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask-force-casualties</td>
<td>Number</td>
</tr>
<tr>
<td>Ask-force-damage-estimate</td>
<td></td>
</tr>
<tr>
<td>Ask-force-target-damage</td>
<td></td>
</tr>
<tr>
<td>Ask-force-raidcount</td>
<td></td>
</tr>
<tr>
<td>Ask-force-parameter</td>
<td></td>
</tr>
<tr>
<td>Blue’s Ask-force-SIOP-plan-option</td>
<td></td>
</tr>
<tr>
<td>Red’s Ask-force-RISOP-plan-option</td>
<td></td>
</tr>
<tr>
<td>Ask-force-sea-control</td>
<td>Type-sea-control</td>
</tr>
<tr>
<td>Ask-force-pi-axis-control</td>
<td>Type-owner</td>
</tr>
<tr>
<td>Blue’s Ask-force-US-warning-system</td>
<td>Type-warning-system-status</td>
</tr>
<tr>
<td>Blue’s Ask-force-warning-system-reporting</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Red’s Ask-force-USSR-warning-system</td>
<td>Type-warning-system-status</td>
</tr>
<tr>
<td>Red’s Ask-force-warning-system-reporting</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

Table 15
TYPES OF CONFLICT STATUS

<table>
<thead>
<tr>
<th>Action status</th>
<th>Involvement</th>
<th>Conflict level</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
<td>Peace</td>
</tr>
<tr>
<td>Preparing</td>
<td>Preparation</td>
<td>Crisis</td>
</tr>
<tr>
<td>In-progress</td>
<td>Demo-conv</td>
<td>Regional-conflict</td>
</tr>
<tr>
<td>Completed</td>
<td>Gen-conv</td>
<td>Superpower-presence</td>
</tr>
<tr>
<td></td>
<td>Demo-tac-nuc</td>
<td>Challenge</td>
</tr>
<tr>
<td></td>
<td>Tac-nuc</td>
<td>Regional-nuclear</td>
</tr>
<tr>
<td></td>
<td>Demo-strat-nuc</td>
<td>Gen-conv</td>
</tr>
<tr>
<td></td>
<td>CF-strat-nuc</td>
<td>Demo-tac-nuc</td>
</tr>
<tr>
<td></td>
<td>Strat-nuc</td>
<td>Gen-tac-nuc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Demo-strat-nuc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CF-strat-nuc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gen-strat-nuc</td>
</tr>
</tbody>
</table>

Corresponding to the actions of a given side in a region or theater is the military involvement of that side there. Table 16 shows this relationship. A given side’s involvement in a region is simply the highest level of involvement associated with any particular action occurring in that region. Similarly, a side’s involvement in a theater is the greatest involvement in any one region of that theater.

The combination of involvements for each side in a region or theater results in a particular conflict level as shown in Table 17. Note that involvement of other countries
does not result in as high a conflict level as does the same involvement of either of the principal Red and Blue sides.

At the start of an RSAS run, no actions are In-progress, the involvement of all sides is None, and there is Peace in every region of the world.

**QUERY PARAMETERS**

Since many queries use the same kinds of parameters to specify the data requested, the common parameters and their values are listed in Table 18. Where the value listed is 1.0, any real number may be used, where it is an enumeration (beginning with the word "Type") the allowed values are found under that name in Section XI.

**QUERY FUNCTIONS**

**Ask-force-arena-action-status**

This function reports whether an action by a particular side in the given arena is happening.

```
the report from Ask-force-arena-action-status
using Red     as actor,
Blockade    as action, and
WTVD        as arena
```

**Ask-force-arena-data**

This function reports data aggregated by arena. Data items not appropriate to the model of the given arena (CAMPAIGN-MT or CAMPAIGN-ALT) report a value of 0.

```
the report from Ask-force-arena-data
using Land-attrition as data, and
CEUR        as arena
```

<table>
<thead>
<tr>
<th>Allowed Data Items of Type-arena-aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg-FLOT-location</td>
</tr>
<tr>
<td>Deepest-penetration</td>
</tr>
<tr>
<td>Air-attrition</td>
</tr>
<tr>
<td>Divisions</td>
</tr>
<tr>
<td>Total-FLOT-EDs</td>
</tr>
<tr>
<td>Tacair-sorties</td>
</tr>
<tr>
<td>Multi-air-air-sorties</td>
</tr>
<tr>
<td>Interdictor-sorties</td>
</tr>
<tr>
<td>Multi-air-gnd-sorties</td>
</tr>
</tbody>
</table>
Table 16
RELATIONSHIP BETWEEN AN ACTION AND THE INVOLVEMENT OF SIDE

<table>
<thead>
<tr>
<th>Action name</th>
<th>Involvement of side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased-training</td>
<td>Preparation</td>
</tr>
<tr>
<td>Mobilization</td>
<td>Preparation</td>
</tr>
<tr>
<td>Alert</td>
<td>Preparation</td>
</tr>
<tr>
<td>Deployment</td>
<td>Preparation</td>
</tr>
<tr>
<td>Dispersal</td>
<td>Preparation</td>
</tr>
<tr>
<td>Poising</td>
<td>Preparation</td>
</tr>
<tr>
<td>Generation</td>
<td>Preparation</td>
</tr>
<tr>
<td>Blockade</td>
<td>Demo-conv</td>
</tr>
<tr>
<td>Challenging-blockade</td>
<td>Demo-conv</td>
</tr>
<tr>
<td>Tripwire-set</td>
<td>Demo-conv</td>
</tr>
<tr>
<td>Engagement</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Conventional-warfare</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Bio-weapon-use</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Chem-weapon-use</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>ECM</td>
<td>Preparation</td>
</tr>
<tr>
<td>Satellite-launch</td>
<td>Preparation</td>
</tr>
<tr>
<td>Satellite-movement</td>
<td>Preparation</td>
</tr>
<tr>
<td>ASAT</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>ASW</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Strat-ASW</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Encirclement</td>
<td>Gen-conv</td>
</tr>
<tr>
<td>Demo-tac-nuc-weapon-use</td>
<td>Demo-tac-nuc</td>
</tr>
<tr>
<td>Gen-tac-nuc-weapon-use</td>
<td>Tac-nuc</td>
</tr>
<tr>
<td>Strategic-force-dispersal</td>
<td>Preparation</td>
</tr>
<tr>
<td>Leadership-dispersal</td>
<td>Preparation</td>
</tr>
<tr>
<td>City-evacuation</td>
<td>Preparation</td>
</tr>
<tr>
<td>Transport-sabotage</td>
<td>Preparation</td>
</tr>
<tr>
<td>Comm-sabotage</td>
<td>Preparation</td>
</tr>
<tr>
<td>Leadership-sabotage</td>
<td>Preparation</td>
</tr>
<tr>
<td>C3-launch</td>
<td>Preparation</td>
</tr>
<tr>
<td>Bomber-launch</td>
<td>Preparation</td>
</tr>
<tr>
<td>Demo-strat-nuc-weapon-use</td>
<td>Demo-strat-nuc</td>
</tr>
<tr>
<td>CF-strat-nuc-weapon-use</td>
<td>CF-strat-nuc</td>
</tr>
<tr>
<td>Gen-strat-nuc-weapon-use</td>
<td>Strat-nuc</td>
</tr>
<tr>
<td>Jamming</td>
<td>Preparation</td>
</tr>
<tr>
<td>UCW</td>
<td>Preparation</td>
</tr>
<tr>
<td>Special-operation</td>
<td>Demo-conv</td>
</tr>
<tr>
<td>Termination</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 17
CONFLICT LEVEL BASED ON MILITARY INVOLVEMENT OF ALL SIDES

<table>
<thead>
<tr>
<th>Red Involvement</th>
<th>Blue Involvement</th>
<th>Other Involvement</th>
<th>Conflict Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strat-nuc</td>
<td>Strat-nuc</td>
<td>Strat-nuc</td>
<td>Gen-strat-nuc</td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Gen-strat-nuc</td>
</tr>
<tr>
<td>--</td>
<td>Strat-nuc</td>
<td>Regional-nuclear</td>
<td></td>
</tr>
<tr>
<td>CF-strat-nuc</td>
<td>CF-strat-nuc</td>
<td>CF-strat-nuc</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>Demo-strat-nuc</td>
<td>Demo-strat-nuc</td>
</tr>
<tr>
<td>Demo-strat-nuc</td>
<td>Demo-strat-nuc</td>
<td>Regional-nuclear</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>Demo-strat-nuc</td>
<td>Gen-strat-nuc</td>
<td></td>
</tr>
<tr>
<td>Tac-nuc</td>
<td>Tac-nuc</td>
<td>Gen-tac-nuc</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>Gen-tac-nuc</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>Tac-nuc</td>
<td>Regional-nuclear</td>
<td></td>
</tr>
<tr>
<td>Demo-tac-nuc</td>
<td>Demo-tac-nuc</td>
<td>Demo-tac-nuc</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>Demo-tac-nuc</td>
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</tr>
<tr>
<td>Gen-conv</td>
<td>Gen-conv</td>
<td>Regional-nuclear</td>
<td></td>
</tr>
<tr>
<td>Gen-conv</td>
<td>Preparation</td>
<td>Challenge</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>Gen-conv</td>
<td>Challenge</td>
<td></td>
</tr>
<tr>
<td>Gen-conv</td>
<td>--</td>
<td>Superpower-presence</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>Gen-conv</td>
<td>Superpower-presence</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>Regional-conflict</td>
<td></td>
</tr>
<tr>
<td>Demo-conv</td>
<td>Demo-conv</td>
<td>Superpower-presence</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>Demo-conv</td>
<td>Superpower-presence</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>--</td>
<td>Crisis</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>--</td>
<td>Crisis</td>
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</tr>
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<td>Preparation</td>
<td>Crisis</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>Preparation</td>
<td>Crisis</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Peace</td>
</tr>
</tbody>
</table>

Ask-force-casualties

This function reports civilian casualties from prompt nuclear effects in the given country.

the report from Ask-force-casualties using FRG as country
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Allowed Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
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</tr>
<tr>
<td>actor</td>
<td>Type-actor</td>
</tr>
<tr>
<td>arena</td>
<td>Type-arena</td>
</tr>
<tr>
<td>assigned-arena</td>
<td>Type-arena</td>
</tr>
<tr>
<td>command</td>
<td>Type-command</td>
</tr>
<tr>
<td>country</td>
<td>Type-country</td>
</tr>
<tr>
<td>minimum-status</td>
<td>Type-weapon-status</td>
</tr>
<tr>
<td>order</td>
<td>&quot;string&quot;</td>
</tr>
<tr>
<td>overlay</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>owner</td>
<td>Type-country</td>
</tr>
<tr>
<td>plan-option</td>
<td>Type-plan-option</td>
</tr>
<tr>
<td>pt-axis</td>
<td>Type-overlay</td>
</tr>
<tr>
<td>region</td>
<td>Type-region</td>
</tr>
<tr>
<td>side</td>
<td>Type-color</td>
</tr>
<tr>
<td>site</td>
<td>Type-site</td>
</tr>
<tr>
<td>status</td>
<td>Type-what-to-count</td>
</tr>
<tr>
<td>target</td>
<td>Type-force-target</td>
</tr>
<tr>
<td>theater</td>
<td>Type-theater</td>
</tr>
<tr>
<td>unit</td>
<td>Type-unit</td>
</tr>
<tr>
<td>warheads-detected</td>
<td>Type-warheads-detected</td>
</tr>
<tr>
<td>warning-system</td>
<td>Type-US-warning-system</td>
</tr>
<tr>
<td>weight</td>
<td>Type-weighting</td>
</tr>
</tbody>
</table>

**Ask-force-command-data**

This function reports data aggregated by command by summing the data for all of the arenas under the given command. Data items not appropriate to the model of each arena (CAMPAIGN-MT or CAMPAIGN-ALT) report a value of 0.

the report from Ask-force-command-data
using Divisions as data, and
HCFFE as command

<table>
<thead>
<tr>
<th>Allowed Data Items of Type-command-aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg-FLOT-location</td>
</tr>
<tr>
<td>Deepest-penetration</td>
</tr>
<tr>
<td>Air-attrition</td>
</tr>
<tr>
<td>Divisions</td>
</tr>
<tr>
<td>Total-FLOT-EDs</td>
</tr>
<tr>
<td>Tacair-sorties</td>
</tr>
<tr>
<td>Multi-air-air-sorties</td>
</tr>
<tr>
<td>Interdictor-sorties</td>
</tr>
<tr>
<td>Multi-air-gnd-sorties</td>
</tr>
</tbody>
</table>
**Ask-force-count**

This function counts and reports numbers of specified forces.

the report from Ask-force-count
using Troops as unit,
   Red as side,
   USSR as owner,
   USSR-Cen-Asia as region,
   STVD as assigned-arena,
   Mobilized as minimum-status, and
   normal# as weight

The weight parameter may be either normal#, sorties# (count potential sorties for aircraft only), or attrition#.

**Ask-force-count-by-command**

This function reports data about forces aggregated to the command level by summing data for forces assigned to each arena under the given command.

the report from Ask-force-count-by-command
using Troops as unit,
   USSR as owner,
   Poland as region,
   HCFW as assigned-command, and
   Mobilized as minimum-status

**Ask-force-count-by-country**

This function reports data about forces aggregated by country by summing data for forces in all regions belonging to the given country.

the report from Ask-force-count-by-country
using POMCUS as unit,
   Blue as side,
   US as owner,
   FRG as country, and
   Deployed as minimum-status

**Ask-force-count-by-region**

This function reports data about forces. It is the same as the Ask-force-count query but without all of its parameters.
the report from Ask-force-count-by-region
  using SSBN as unit,
    Red as side,
    USSR as owner,
    Mid-Atlantic as region, and
    Normal as minimum-status

Ask-force-count-sorties-by-region
  This function reports the number of sorties that can be generated by the given air
forces.

the report from Ask-force-count-sorties-by-region
  using Tacair as unit,
    Blue as side,
    US as owner,
    FRG as region, and
    Executed as minimum-status

Ask-force-count-totals-by-region
  This function reports data about forces. It is the same as the Ask-force-count
query but without all of its parameters.

the report from Ask-force-count-totals-by-region
  using Troops as unit,
    Red as side,
    USSR as owner, and
    GDR as region

Ask-force-country-data
  This function reports data aggregated by country.

the report from Ask-force-country-data
  using Red as side,
    Poised-EDs as data, and
    GDR as country

Ask-force-country-involvement
  This function reports the involvement of the given side in this country.

the report from Ask-force-country-involvement using
  FRG as country, and
  Blue as side.
**Allowed Data Items of Type-country-aggregation**

<table>
<thead>
<tr>
<th>Deployed-EDs</th>
<th>Poised-EDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conv-COF</td>
<td></td>
</tr>
<tr>
<td>Combat-afld-damage</td>
<td>Other-afld-damage</td>
</tr>
<tr>
<td>Missile-silo-damage</td>
<td>Naval-base-damage</td>
</tr>
<tr>
<td>Seaport-damage</td>
<td>Com-control-damage</td>
</tr>
<tr>
<td>Commo-damage</td>
<td>Nuc-power-gen-damage</td>
</tr>
<tr>
<td>Ground-base-damage</td>
<td>Nuc-prod-damage</td>
</tr>
<tr>
<td>Nuc-storage-damage</td>
<td>Ammo-prod-damage</td>
</tr>
<tr>
<td>Ammo-storage-damage</td>
<td>Arms-prod-damage</td>
</tr>
<tr>
<td>Arms-storage-damage</td>
<td>POL-prod-damage</td>
</tr>
<tr>
<td>POL-storage-damage</td>
<td>Other-prod-damage</td>
</tr>
<tr>
<td>Carriers</td>
<td>Other-surface</td>
</tr>
<tr>
<td>Attack-subs</td>
<td>SSBNs</td>
</tr>
<tr>
<td>Carrier-damage</td>
<td>Other-surface-damage</td>
</tr>
<tr>
<td>Attack-sub-damage</td>
<td>SSBN-damage</td>
</tr>
<tr>
<td>Transiting-Carriers</td>
<td>Transiting-Other-surface</td>
</tr>
<tr>
<td>Transiting-Attack-subs</td>
<td>Transiting-SSBNs</td>
</tr>
</tbody>
</table>

**Ask-force-country-status**

This function reports the conflict status in the given country, as established by the CAMPAIGN model only, not incorporating flagged actions.

The report from Ask-force-country-status

Using France as country

**Ask-force-damage-estimate**

This function reports an estimate of damage to the given target from a launch under attack.

The report from Ask-force-damage-estimate

Using USSR as attacking-country, US-SE as region, PLDR-natl as target, and main as site

**Ask-force-overlay-data**

This function reports data aggregated by CAMPAIGN overlay (axis or reserve in a main theater, point or LOC axis in an alternate theater).

The report from Ask-force-overlay-data

Using FLOT-location as data, and CEUR-7 as overlay
Allowed Data Items of Type-overlay-aggregation

<table>
<thead>
<tr>
<th>FLOT-location</th>
<th>FLOT-rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divisions</td>
<td>Avg-pct</td>
</tr>
<tr>
<td>Total-EDs</td>
<td>Combat-EEDs</td>
</tr>
<tr>
<td>FLOT-EEDs</td>
<td>Land-attrition</td>
</tr>
<tr>
<td>Air-attrition</td>
<td>Nuc-attrition</td>
</tr>
<tr>
<td>Conv-COF</td>
<td>Ground-goal</td>
</tr>
</tbody>
</table>

Ask-force-parameter

This function reports the value of a CAMPAIGN parameter. The order string should be the same that would be typed to the Force window to set the parameter, but without the initial "set" or the final number.

```
the report from Ask-force-parameter
using "landwar CEUR min-density" as order
```

Ask-force-pt-axis-control

This function reports the controlling side of an alternate theater point axis.

```
the report from Ask-pt-axis-control
using B-Athens-24 as pt-axis
```

Ask-force-raidcount

This function reports the number of incoming enemy missiles detected by the warning systems of the given country.

```
the report from Ask-force-raidcount
using US as country, and
ICBM-warheads as warheads-detected
```

Ask-force-region-data

This function reports data aggregated by region.

```
the report from Ask-force-region-data
using Blue as side,
Mobilized-EDs as data, and
Italy as region
```
<table>
<thead>
<tr>
<th>Allowed Data Items of Type-region-aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total-EDs</td>
</tr>
<tr>
<td>Deployed-EDs</td>
</tr>
<tr>
<td>Conv-COF</td>
</tr>
<tr>
<td>Combat-afl.d-damage</td>
</tr>
<tr>
<td>Missile-silo-damage</td>
</tr>
<tr>
<td>Seaport-damage</td>
</tr>
<tr>
<td>Commo-damage</td>
</tr>
<tr>
<td>Ground-base-damage</td>
</tr>
<tr>
<td>Nuc-storage-damage</td>
</tr>
<tr>
<td>Ammo-storage-damage</td>
</tr>
<tr>
<td>Arms-storage-damage</td>
</tr>
<tr>
<td>POL-storage-damage</td>
</tr>
<tr>
<td>Carriers</td>
</tr>
<tr>
<td>Attack-sub</td>
</tr>
<tr>
<td>Carrier-damage</td>
</tr>
<tr>
<td>Attack-sub-damage</td>
</tr>
<tr>
<td>Transiting-Carriers</td>
</tr>
<tr>
<td>Transiting-Attack-sub</td>
</tr>
</tbody>
</table>

**Ask-force-region-status**

This function reports the conflict status in the given region, as established by the CAMPAIGN simulation only, not incorporating flagged actions.

```
the report from Ask-force-region-status
using USSR-W as region
```

**Ask-force-regional-action-status**

This function reports whether a side has initiated an action in the region.

```
the report from Ask-force-regional-action-status
using Red as actor,
    Poising as action, and
    GDR as region
```

**Ask-force-regional-conflict-level**

This function reports the conflict level in the given region.

```
the report from Ask-force-regional-conflict-level
using FRG as region
```
**Ask-force-regional-involvement**

This function reports the level of involvement of a particular side in the given region, as determined from the actions taken in the region.

```plaintext
the report from Ask-force-regional-involvement
  using South-Korea as region, and
    Blue    as side
```

**Ask-force-RISOP-plan-option**

This function reports the number of warheads for the requested RISOP plan option and status.

```plaintext
the report from Ask-force-RISOP-plan-option
  using LUA-1    as plan-option, and
    Available as status
```

**Ask-force-sea-control**

This function reports the controlling side of a sea region.

```plaintext
the report from Ask-force-sea-control
  using Mid-Atlantic as region
```

**Ask-force-SIOP-plan-option**

This function reports the number of warheads for the requested SIOP plan option and status.

```plaintext
the report from Ask-force-SIOP-plan-option
  using LUA-1    as plan-option, and
    Available as status
```

**Ask-force-strategic-data**

This function reports data on strategic forces.

```plaintext
the report from Ask-force-strategic-data
  using Blue    as side, and
    Launched-ICBMs as data
```
<table>
<thead>
<tr>
<th>Allowed Data Items of Type-strategic-aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st-strike-capability</td>
</tr>
<tr>
<td>2nd-strike-capability</td>
</tr>
<tr>
<td>Air-defense-attrition</td>
</tr>
<tr>
<td>Alerted-H-bombers</td>
</tr>
<tr>
<td>Alerted-ICBMs</td>
</tr>
<tr>
<td>Alerted-SLBMs</td>
</tr>
<tr>
<td>Ammo-prod-damage</td>
</tr>
<tr>
<td>Ammo-storage-damage</td>
</tr>
<tr>
<td>Arms-prod-damage</td>
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<tr>
<td>Arms-storage-damage</td>
</tr>
<tr>
<td>Available-warheads</td>
</tr>
<tr>
<td>Com-control-damage</td>
</tr>
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<td>Combat-aflid-damage</td>
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<td>Commo-damage</td>
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<tr>
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<tr>
<td>Executed-ICBMs</td>
</tr>
<tr>
<td>Executed-SLBMs</td>
</tr>
<tr>
<td>Ground-base-damage</td>
</tr>
<tr>
<td>LUA-capability</td>
</tr>
</tbody>
</table>

**Ask-force-target-damage**

This function reports the damage to the given target.

```
the report from Ask-force-target-damage
PLDR-natl as target,
USSR as country, and
US-SE as region
```

**Ask-force-theater-action-status**

This function reports whether a side has initiated an action in the theater.

```
from Ask-force-theater-action-status
using Blue as actor,
Tripwire-set as action, and
Southwest-Asia as theater
```

**Ask-force-theater-conflict-level**

This function reports the conflict level in the theater, which is the greatest level in any of its constituent regions.

```
the report from Ask-force-theater-conflict-level
using Atlantic as theater
```
Ask-force-theater-data

This function reports data aggregated by theater by summing data for all of the arenas under the given theater. Data items not appropriate to the model of each arena (CAMPAIGN-MT or CAMPAIGN-ALT) report a value of 0.

the report from Ask-force-theater-data
using Red as side,
Tnuc-attrition as data, and
Central-Europe as theater

<table>
<thead>
<tr>
<th>Allowed Data Items of Type-theater-aggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-attrition</td>
</tr>
<tr>
<td>Available-warheads</td>
</tr>
<tr>
<td>Avg-FLOT-location</td>
</tr>
<tr>
<td>Avg-FLOT-rate</td>
</tr>
<tr>
<td>Conv-COF</td>
</tr>
<tr>
<td>Damaged-warheads</td>
</tr>
<tr>
<td>Deepest-penetration</td>
</tr>
<tr>
<td>Deployed-EDs</td>
</tr>
<tr>
<td>Divisions</td>
</tr>
<tr>
<td>EMT</td>
</tr>
<tr>
<td>Land-attrition</td>
</tr>
<tr>
<td>Attack-sub-damage</td>
</tr>
<tr>
<td>Attack=subs</td>
</tr>
<tr>
<td>Carrier-damage</td>
</tr>
<tr>
<td>Carriers</td>
</tr>
<tr>
<td>Military-damage</td>
</tr>
<tr>
<td>Mobilized-EDs</td>
</tr>
<tr>
<td>Nuc-COF</td>
</tr>
<tr>
<td>Nuc-weapons</td>
</tr>
<tr>
<td>Other-damage</td>
</tr>
<tr>
<td>Poised-EDs</td>
</tr>
<tr>
<td>Strategic-damage</td>
</tr>
<tr>
<td>Total-EDs</td>
</tr>
<tr>
<td>Total-warheads</td>
</tr>
<tr>
<td>Used-warheads</td>
</tr>
<tr>
<td>Other-surface</td>
</tr>
<tr>
<td>Other-surface-damage</td>
</tr>
<tr>
<td>SSBN-damage</td>
</tr>
<tr>
<td>SSBNs</td>
</tr>
</tbody>
</table>

Ask-force-theater-involvement

This function reports the involvement of the given side in the theater, which is the greatest of the involvements in its constituent regions.

the report from Ask-force-theater-involvement
using Middle-East as theater, and
Blue as side

Ask-force-theater-status

This function reports the conflict status of the given theater, which is the greatest of those of its constituent regions. This conflict status is established by the CAMPAIGN simulation only, not incorporating flagged actions.

the report from Ask-force-theater-status
using Central-Europe as theater
Ask-force-US-warning-system

This function reports the status of the given US warning system (Up, Down or Unknown).

the report from Ask-force-US-warning-system
using DSP-E as warning-system

Ask-force-USSR-warning-system

This function reports the status of the given USSR warning system (Up, Down, or Unknown).

the report from Ask-force-USSR-warning-system
using SOV-BWARN as warning-system

Ask-force-warning-system-reporting

This function reports whether the warning system of the given country is reporting incoming missiles.

the report from Ask-force-warning-system-reporting
using US as country, and
    DSP-E as warning-system

Test-alert

This function reports Yes if a side's troops are on alert in the region (at whatever level of alert).

the report from Test-alert
    using Red as actor, and
    USSR-Moscow as region

Test-bomber-launch

This function reports Yes if the action Bomber-launch is in progress.

the report from Test-bomber-launch
    using Blue as actor, and
    US-NFlaIns as region

Test-CF-strat-nuc-weapon-use

This function reports Yes if the action CF-strat-nuc-weapon-use is in progress.

The threshold is variable.
the report from Test-CF-strat-nuc-weapon-use
using Red as actor, and
US-NE as region

Test-conventional-warfare
This function reports Yes if combat is occurring in the region.

the report from Test-conventional-warfare
using Red as actor, and
Iran-NW as region

Test-demo-strat-nuc-weapon-use
This function reports Yes if the action Demo-strat-nuc-weapon-use is in progress.
The threshold is variable.

the report from Test-demo-strat-nuc-weapon-use
using Blue as actor, and
USSR-W as region

Test-demo-tac-nuc-weapon-use
This function reports Yes if the action Demo-tac-nuc-weapon-use is in progress.
The threshold is variable.

the report from Test-demo-tac-nuc-weapon-use
using Blue as actor, and
Poland as region

Test-deployment
This function reports Yes if troops are being deployed by the given side in the region.

the report from Test-deployment
using Blue as actor, and
Iran-SW as region

Test-gen-strat-nuc-weapon-use
This function reports Yes if the action Gen-strat-nuc-weapon-use is in progress.
The threshold is only a very rough guess.

the report from Test-gen-strat-nuc-weapon-use
using Blue as actor, and
USSR-Moscow as region
Test-gen-tac-nuc-weapon-use

This function reports Yes if the action Gen-tac-nuc-weapon-use is in progress.
The threshold is only a very rough guess.

the report from Test-gen-tac-nuc-weapon-use
using Red as actor, and
FRG as region

Test-limited-combat

This situation characterization function returns Yes if limited combat is occurring
in the region given by a "Limited" status in the Campaign model.

the report from Test-limited-combat
using Red as actor, and
Iran-NW as region

Test-mobilization

This function reports Yes if the side is mobilizing troops in the region.

the report from Test-mobilization
using Red as actor, and
USSR-W as region

Test-poising

This function reports Yes if the side's troops have poised in the region.

the report from Test-poising
using Red as actor, and
Czechoslovakia as region
IX. FLAGS

Flag Model Overview

The Flag Model is a RAND-ABEL force model available to the Red and Blue agents. Using a simple set of arrays, it keeps track of the status of a set of actions by region and actor. When one of the list of actions is ordered, a flag is raised (or single value set) to indicate that the action is taking place. No detailed modeling takes place. To add a new action, simply add the action name to the enumerated list of actions, found in Section XI, Type-action. Current values of Type-action range from Alert to CF-strat-nuc-weapon-use. The RSAS decision agents often use this mechanism to indicate actions for which no detailed force model exists, or is even possible. Some of these actions cover capabilities of other force models. Actions such as Conventional-combat are only modeled by CAMPAIGN in certain regions of the world. The Flag Model allows these actions to be captured worldwide. The model keeps the following statuses for each action.

<table>
<thead>
<tr>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>The action has never been ordered.</td>
</tr>
<tr>
<td>Preparing</td>
<td>The action has been ordered but has not yet started.</td>
</tr>
<tr>
<td>In-progress</td>
<td>The action is currently proceeding.</td>
</tr>
<tr>
<td>Completed</td>
<td>The action has completed.</td>
</tr>
</tbody>
</table>

Actions are also differentiated by the actor ordering them, either Red, Blue, or White (neither Red or Blue). Thus a Blockade ordered by Red in West-Berlin is distinct from one ordered by Blue.

The Flag Model can be found in the file Src/Force-A/Abel-force/flag.A, and its data dictionary declarations in the file Dict/flag.D beneath that.

Flag Model Interface

The interface to the Flag Model consists of the orders Initiate-action-order and Terminate-action-order, and the query Ask-force-flag-status.

Table | Initiate-action-order
|------|-----------------
| actor action region delay duration |
| Red  Blockade GDR 6.0 [hours] never |
Table Terminate-action-order

<table>
<thead>
<tr>
<th>actor</th>
<th>action</th>
<th>region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Blockade</td>
<td>GDR</td>
</tr>
</tbody>
</table>

If the report from Ask-force-flag-status using Red as actor, Blockade as action, and GDR as region is In-progress Then . . . .

These functions are part of the Force interface and may be used by Red and Blue agent writers. Some existing force orders and queries also refer to the Flag Model either entirely, or where other force models do not meet their complete capability.
X. LIBRARY OF BLUE AND RED PROCEDURES

This section lists the names of library functions representing standard operating procedures that might be called upon by any number of AWPs. The procedures are grouped by side and command; to the right of the names are brief descriptions of functions performed.

LIBRARY OF BLUE PROCEDURES

Procedures in AWP/Blue/Jcs/library.A

Implement-DEFCON
Checks by Command if DEFCON-ordered is changed; if so, performs <Command>-implement-DEFCON.

JCS-implement-DEFCON
Orders actions appropriate to DEFCON level. Worldwide alert. Not specifically implemented.
Determines if US forces should be withdrawn from NATO control or commitment. Not implemented.
Performs Implement-CRAF-III. Mobilizes airlift.
Performs Requisition-merships. Mobilizes sealift.

NORAD-implement-DEFCON
Orders actions appropriate to DEFCON level.
Performs Alert-NORAD. Alerts and disperses U.S. and Canadian fighters.

REDCOM-implement-DEFCON
Orders actions appropriate to DEFCON level.
No specific actions implemented.

SOUTH-implement-DEFCON
Orders actions appropriate to DEFCON level.
Performs SOUTH-maximum-alert. Alerts air.

JCS-mobilization
Orders U.S. national mobilization.
Performs 100K-Eur-mobilization-order. Mobilizes lift and C3 for Europe.
Performs Full-mobilization-order. Mobilizes all U.S. forces.
Performs Demobilization-order. Not implemented; orders mobilization, not demobilization.
Procedures in AWP/Blue/Eur/library.A

EUR-implement-DEFCON
Performs EUR-alert-UCW-forces. Rules commented out; pending Force implementation of special forces.
Performs EUR-alert-TNF. Rules commented out; pending Force implementation of alert for these forces.
Performs EUR-disperse-TNF. Disperses TNF.
Performs EUR-disperse-tacnuc. Disperses tacnuc.
Performs EUR-disperse-tacair. Disperses tacair.
Performs EUR-maximum-alert. Alerts air.
Performs EUR-poise-forces. Poises forces in Norway and FRG.
Performs EUR-evacuation. Not implemented.

Implement-NATO-alert
Performs NATO-simple-alert-order. Alerts ECM and tacair; requests NATO allies on-call.
Performs NATO-reinforced-alert-order. Alerts air; mobilizes troops.
Mining not implemented. Disperses air.
Performs NATO-general-alert-order. No specific actions implemented.

NATO-withhold-alert-order
Alerts air in AFCENT.

Procedures in AWP/Blue/Afcent/library.A

In the following function names, angle brackets surrounding a class descriptor, such as <ally>, indicate that the actual function name contains the name of a member of the class, such as Belgium.

US-deploy-to-AFCENT
Deploys ground and air forces in AFCENT.
Performs AFCENT-deploy-REFORGER and AFCENT-deploy-POMCUS.

<Ally>-deploy-to-AFCENT
Deploys ground and air forces. One function for each NATO ally, including France.

AFCENT-cover-missing-<ally>
Deploys forces to cover for missing ally. One function for each of several NATO allies.

AFCENT-test-ally-return
Adjusts return of missing ally.

AFCENT-deploy-returning-<ally>
Deploys forces of returning ally. One function for each of several NATO allies.

AFCENT-move-relieved-forces
Redeploys forces previously covering for missing ally.

AFCENT-support-Austria-move
Orders defense into Austria, builds defenses, and deploys forces.
IGB-barrier-order Builds barrier at IGB.
<River>-barrier-order Prepares defenses at specified river.
UK-CAS-deployment-move Deploys CAS from UK to Netherlands and Belgium.
AFCENT-preemptive-air-move Orders preemptive air.
AFCENT-init-forward-air-defense-order Orders initial forward air defense.
AFCENT-widen-air-defense-order Attacks Poland and Czechoslovakia unless prohibited.
AFCENT-nuclear-dispersal-order Alerts and disperses forces.
AFCENT-demonstrative-nuclear-use-move Attacks airfields in western USSR if authorized. AFAPS against FLOT in UK Corps sector.
AFCENT-wake-at-combat Reports yes if Pact attacks.
NORTHAG-counterattack-order Orders counterattack in NORTHAG. Lacks encircle order.
CENTAG-attack-into-CZ-order Orders attack into Czechoslovakia.
AFCENT-deploy-Crested-Cap Deploys Crested Cap.
AFCENT-deploy-REFORGER Deploys REFORGER.
AFCENT-deploy-POMCUS Deploys POMCUS.
AFCENT-deploy-<named force> Deploys named force.
AFCENT-forward-defense-priority-order Establishes axes for main priority.
AFCENT-commit-<named force> Deploys to axis specified when called.
AFCENT-Ems-Rhine-prep Constructs defenses along Ems-Rhine lines.
AFCENT-initial-air-orders Employs air forces primarily in defensive counter air role.
AFCENT-rerole-mulus-to-attack Shifts ground attack aircraft to ground attack roles, leaving air defense air in that role.
AFCENT-early-reinforce-order Commits NATO forces.
AFCENT-delayed-reinforce-order Reinforces if ally is missing.
AFCENT-initial-defense-move
Determines when and where to commit forces.

AFCENT-adjust-priority

AFCENT-battlefield-nuclear-use-move
Orders battlefield nuclear use.

AFCENT-theater-nuclear-use-move
Interdicts Pact reserve ground forces.

AFCENT-massive-military-nuclear-use-move
Orders massive theater nuclear strikes against military targets.

Determine-axis-values
Determines zone on axes containing FLOT; returns characteristics of those and adjacent zones.

AFCENT-determine-axis-status
Determines FLOT and axis values.

AFCENT-fallback-decision
Determines if and where to fall back.

NORT Hag-fallback-order
Orders fallback.

CENT Hag-fallback-order
Orders fallback.

AFCENT-fallback-defense-move
Withdraws squadrons from threatened airbases. Determines when and where to commit forces for fallback defense plans.

Procedures in AWP/Blue/Afnorth/library.A

US-deploy-to-AFNORTH
Deploys forces. Dispenses air in Norway.

<Ally>-deploy-to-AFNORTH
Deploys named ally's forces.

AFNORTH-wake-at-combat
Reports Yes when combat occurs.

AFNORTH-air-adjustment-move
Allocates CAS and BAI.

Procedures in AWP/Blue/Afsouth/library.A

US-deploy-to-AFSOUTH
Deploys U.S. forces to AFSOUTH.

<Ally>-deploy-to-AFSOUTH
Deploys named ally's forces.

Procedures in AWP/Blue/Cent/library.A

<Country>-deploy-to-CENT
Deploys forces of named country in region.

CENT-wake-at-combat
Reports Yes if combat occurs.
**Procedures in AWP/Blue/Korea/library.A**

- US-deploy-to-KOREA: Deploys U.S. ground forces to Korea.
- S-Korea-deploy-to-KOREA: Deploys Korean army to battle positions.
- KOREA-forward-defense-order: Activates OCL and disperses air.
- KOREA-init-forward-air-defense-order: Orders initial forward air operations.
- KOREA-widen-air-defense-order: Widens air war in Korea.
- KOREA-ground-support-air-order: Orders ground support.
- KOREA-forward-defense-priority-order: Main effort on axes 1 and 2.
- KOREA-nuclear-dispersal: Disperses fixed percentage of forces.
- KOREA-poise-order: Issues poise order.
- KOREA-wake-at-combat: Reports Yes if combat occurs.
- KOREA-maximum-alert: Alerts air.

**Procedures in AWP/Blue/Pac/library.A**

- US-deploy-to-PAC: Deploys naval forces to Pacific.
- PRC-deploy-ground-to-PAC: Normal PRC deployment to defend.
- PAC-wake-at-combat: Reports Yes if combat occurs.
- PAC-maximum-alert: Alerts air and SSBNs.

**Procedures in AWP/Blue/Lant/library.A**

- US-deploy-to-LANT: Deploys U.S. forces to Atlantic.
- <Ally>-deploy-to-LANT: Deploys forces of named ally.
- LANT-wake-at-combat: Reports Yes if combat occurs.
- LANT-maximum alert: Alerts air and SSBNs.
Procedures in AWP/Blue/Sac/library.A

SAC-first-stage-alert  Alerts forces.
SAC-disperse-forces  Disperses forces.
SAC-mobilize-reserves  Mobilizes tankers.
SAC-second-stage-alert  Alerts forces slightly higher than first stage.
SAC-bomber-rebase-move  Rebases and disperses some bombers and tankers inland.
SAC-launch-move  Flushes C3 and B-52s.
SAC-wake-to-launch  Reports Yes if launch is authorized or on tactical warning.
SAC-tactical-warning-wake  Reports Yes on tactical warning.
SAC-targeting-strategy-change-wake  Reports Yes if targeting strategy changes.

LIBRARY OF RED PROCEDURES

Procedures in AWP/Red/Dprk/library.A

N-Korea-deploy-to-DPRK  Deploys North Korean forces to DPRK battle positions.
DPRK-ground-attack-order  Orders ground attack in DPRK.
DPRK-air-attack-order  Allocates and apportions aircraft against Blue air and airfields. Orders air dispersal.
DPRK-naval-attack-order  Orders ROE of attack.
DPRK-air-reallocation-move  Allocates and apportions aircraft.
DPRK-nuclear-dispersal-order  Alerts and disperses forces.

Procedures in AWP/Red/Hcffe/library.A

USSR-deploy-to-HCFFE  Deploys naval and air forces in support of HCFFE.
USSR-deploy-ground-to-HCFFE  Normal deployment against NW PRC.
HCFFE-naval-attack-order  Orders ROE of attack; MPA cover.
Procedures in AWP/Red/Hcfs/library.A

USSR-deploy-to-HCFS
Deploys forces by name and to ordered position.

HCFS-ground-attack-order
Sets medium aggressiveness and attacks in Western Turkey and Iran.

HCFS-air-attack-order
Apportions and allocates aircraft against Iranian air and airfields. Use of chemicals if authorized.

Procedures in AWP/Red/Hcfsw/library.A

HCFSW-deterrence-move
Allocate air to air defense.

USSR-deploy-to-HCFSW
Deploys naval and air forces to battle positions in the Mediterranean and Black Seas.

<NSWP>-deploy-to-HCFSW
Deploys named country's forces to battle positions.

Bulgaria-deploy-against-Greece
Deploys entirely to Greek border.

HCFSW-ground-attack-order
Attacks in Italy and Greece; attacks in Yugoslavia if not withheld.

HCFSW-air-attack-order
Activates Air-command-model against airfields in Italy and Greece.

HCFSW-naval-attack-order
Orders conventional attack of naval forces in E Med; mines all chokepoints.

HCFSW-USSR-ground-deploy-to-Thrace
Attempts deployment of more forces.

Procedures in AWP/Red/Hcfw/library.A

USSR-deploy-to-HCFW
Deploys USSR forces to HCFW battle positions.

USSR-deploy-to-HCFW-no-Austria
Deploys USSR forces to HCFW battle positions. No deployment against Austria.

<NSWP>-deploy-to-HCFW
Deploys named country's forces to HCFW battle positions.

HCFW-determine-missing-ally
Determines which allies are missing.
HCFW-cover-missing-<ally> Deploys forces.
HCFW-ally-returning Checks by ally if involvement is at least On-call; if so, performs HCFW-return-<ally>.
HCFW-return-<ally> Deploys forces of returning ally.
Redeploy-Warsaw-MD-order Deploy Warsaw MD to HCFW battle positions.
HCFW-revert-to-tactical-defensive Holds current FLOT position.
Performs HCFW-air-defense-move.
HCFW-ground-attack-order Orders ground attack on axes WTVD 1-9. Attacks into Austria if targeting is authorized.
HCFW-GCM-on Activates the Ground-commander model.
HCFW-air-attack-order Allocates and apportions aircraft against Blue air and airfields. Orders air dispersal in GDR, Poland and Czechoslovakia.
HCFW-naval-attack-order Orders Baltic Fleet to attack.
HCFW-air-reallocation-move Alerts Fighter-bombers in USSR-W. Deploys Fighter-bombers in USSR-W to GDR. HCFW commits airpower to strikes against NATO forward troops.
HCFW-nuclear-dispersal-order Alerts and disperses forces.
HCFW-commit-<force>-to-<axis> Commits named force.
HCFW-set-D-Day Sets D-Day to be Today + 2. Performs Notify-higher-authority.
HCFW-have-we-reached-France Determines if forces have reached France.
HCFW-assess-NATO-defense-posture Assesses if NATO is still following its peacetime command structure of deployment.
HCFW-battlefield-nuclear-use-move Conducts battlefield nuclear strikes against NATO.
HCFW-depth-of-front-nuclear-use-move Conducts limited nuclear strikes against NATO.
Procedures in AWP/Red/Nwcom/library.A

NWCOM-deterrence-move  Apportions air to air defense.
NWCOM-ground-attack-order  Sets aggressiveness as High and attacks in Finland.
NWCOM-air-attack-order  Activates Air-commander model against airfields in Norway.
NWCOM-naval-attack-order  Orders conventional attack of Blue US-Europe SLOCs.

Procedures in AWP/Red/Shc/library.A

<Command>-<level>-alert-order  Orders specified alert level in specified command and cables allies.
HCFW-Austria-cancel  Cancels deployment to attack Austria.
HCFW-Austria-initiate  Initiates deployment to attack Austria.
<command>-mobilization-order  Orders full mobilization of command.
SHC-global-unassignment  Unassigns all Soviet forces.
Assign-<command>-core-forces  Assigns forces used by all plans.
Assign-swingforces  Assigns forces swung between commands.
Assign-lift  Assigns airlift and sealift.

Procedures in AWP/Red/Snf/library.A

SNF-launch-move  Orders launch of C3 and bombers but does not commit them to execution.
SNF-generation-move  Generates bombers, tankers, SSBNs, and C3.
SNF-bomber-rebase-move  Rebasizes half of the bomber and tanker force to Arctic staging bases.
SNF-wake-to-launch  Reports Yes on tactical warning or combat authorization.
SNF-targeting-strategy-change-wake  Reports Yes if targeting strategy has changed.
XI. ENUMERATIONS

Enumerations are ordered sets of values, whose names, by RAND convention, include the prefix “Type.” Rule writers need to know the declared values of enumerations to test on them in If-Then statements. The following is a list of useful enumerations presented in alphabetical order.

**Type-action**

The list of possible flag actions that can be taken by a side (Red, Blue or White) in a region. In cases of ambiguity, such as for Deployment, the region is the destination, rather than the origin. Countries that have not sided with Red or Blue are considered White. See also the Initiate-action order.¹

<table>
<thead>
<tr>
<th>ASW</th>
<th>Launch-for-survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airborne-alert</td>
<td>Leadership-dispersal</td>
</tr>
<tr>
<td>Alert</td>
<td>Leadership-sabotage</td>
</tr>
<tr>
<td>Bio-weapon-use</td>
<td>Limited-combat</td>
</tr>
<tr>
<td>Blockade</td>
<td>Major-presence</td>
</tr>
<tr>
<td>Bomber-launch</td>
<td>Mining-harbors</td>
</tr>
<tr>
<td>Bombing-resupply</td>
<td>Mobilization</td>
</tr>
<tr>
<td>C3-launch</td>
<td>National-emergency</td>
</tr>
<tr>
<td>CF-strat-nuc-weapon-use</td>
<td>Navy-out-to-sea</td>
</tr>
<tr>
<td>Challenging-blockade</td>
<td>Nuc-weapon-dispersal</td>
</tr>
<tr>
<td>Chem-weapon-use</td>
<td>Occupying-capital</td>
</tr>
<tr>
<td>City-evacuation</td>
<td>Poising</td>
</tr>
<tr>
<td>Civil-war</td>
<td>Return-of-SAC-tankers</td>
</tr>
<tr>
<td>Comm-sabotage</td>
<td>Satellite-launch</td>
</tr>
<tr>
<td>Conventional-warfare</td>
<td>Satellite-movement</td>
</tr>
<tr>
<td>Demo-strat-nuc-weapon-use</td>
<td>Selective-mob</td>
</tr>
<tr>
<td>Demo-tac-nuc-weapon-use</td>
<td>Setting-up-bastions</td>
</tr>
<tr>
<td>Deployment</td>
<td>Special-operation</td>
</tr>
<tr>
<td>Diplomats-withdrawn</td>
<td>SSBN-dispersal</td>
</tr>
<tr>
<td>Dispersal</td>
<td>Strategic-ASAT</td>
</tr>
<tr>
<td>ECM</td>
<td>Strategic-force-dispersal</td>
</tr>
<tr>
<td>Encirclement</td>
<td>Tactical-ASAT</td>
</tr>
<tr>
<td>Engagement</td>
<td>Termination</td>
</tr>
<tr>
<td>Gen-strat-nuc-weapon-use</td>
<td>Terrorism</td>
</tr>
<tr>
<td>Gen-tac-nuc-weapon-use</td>
<td>Token-presence</td>
</tr>
<tr>
<td>Generation</td>
<td>Trailing-SSBNs</td>
</tr>
<tr>
<td>Ground-forces-dispersal</td>
<td>Transport-sabotage</td>
</tr>
<tr>
<td>H-bomber-maximum-alert</td>
<td>Tripwire-set</td>
</tr>
<tr>
<td>Increased-QRA</td>
<td>UCW</td>
</tr>
<tr>
<td>Increased-training</td>
<td>Unusual-alert</td>
</tr>
<tr>
<td>Inti-assist-request</td>
<td>Unusual-exercise</td>
</tr>
<tr>
<td>IRBM-dispersal</td>
<td>Unusual-satell-activity</td>
</tr>
</tbody>
</table>

¹This and other orders are listed alphabetically in the Table of Contents.
Type-action-status

The possible states for a given action. See also the Ask-force-flag-status query.

None
Preparing
In-effect
Terminated

Type-air-air-posture

Guidance to the Referee Air Commander Model. See also the Air-commander-guidance order.

Offensive
Mixed
Defensive

Type-air-arena

The alternate theater air arenas, or theaters of air combat.

CEUR-air
FEAST-air
N-Cape-air
S-Scan-air
Kola-air
Denmark-air
Austria-air
Cz-Hun-air
S-Italy-air
Rom-Bulg-air
W-Turk-air
E-Turk-air
Iran-air
Arabia-air
AG-Pakistan-air
TF-Iceland-air
TF-Cuba-air
AG-PRC-NE-air
TF-Taiwan-air
TF-Kuril-air
TF-Aleutian-air
WTVD-air
FETVD-air
Mid-Scan-air
Finn-air
Lenin-air
E-German-air
Yugo-air
N-Italy-air
Greece-air
Odessa-air
Mid-Turk-air
Caucasus-air
Iraq-air
Turkistan-air
Fr-Pakistan-air
Op-Iceland-air
Op-Cuba-air
Fr-PRC-NE-air
Op-Taiwan-air
Op-Kuril-air
Op-Aleutian-air

Type-air-arena-force

Forces other than tactical aircraft counted for alternate theater air-arenas.

SAM
AWAC
Tanker
Type-air-army

The names of air armies. Only Red air forces may be assigned to air armies.

Legnica-AA
Irkutsk-AA
Vinnetsa-AA

Smolensk-AA
Moscow-AA

Type-airforce

Aircraft classes in alternate theaters. See also the Air-apportionment-order.

Air-air
MR-air-gnd
Multi

SR-air-gnd
LR-air-gnd

Type-air-gnd-posture

Guidance to the Referee Air Commander model. See also the Air-commander-guidance order.

Deep
Mid-range
Shallow

Type-air-plan

Theater bombing plans. See also the Air-plan order.

AI
OCA
Non-thtr
Other
AirArmy

Type-air-strategy

Air strategy for a command.

Air-superiority
Air-to-ground

Type-alliance-criteria

Determines whether the alliance is cohesive or not and indicates to the plans whether that should be considered in plan selection. Unspecified means alliance cohesion is not to be considered.
Problems
Cohesive

Type-allocatable-resource
Theater resources that may be allocated to axes. See also the Allocate-CAS-BAI-order.

BAI
CAS

Type-announced-action
The action promised as part of a message to or from a Green Agent third country. See also the communication Announce.

Allow-transit
Cease-preparations
Not-nuc-homeland
Provide-military-assistance
Surrender
Withdraw-to-your-territory

Cease-fire
Not-attack-homeland
Provide-conv-defense
Provide-nuc-defense
Withdraw-from-my-territory

Type-announced-penalty
The penalty promised as part of a message to or from a Green Agent third country. See also the communication Announce.

Attack-your-forces
Cease-cooperation
Commit-forces
Nuc-your-territory
Surrender

Attack-your-territory
Cease-defending-you
Escalate
Prepare-forces

Type-announced-reward
The reward promised as part of a message to or from a Green Agent third country. See also the communication Announce.

Allow-basing
Allow-transit
Cease-preparations
Disengage
Not-attack-your-homeland
Provide-military-assistance
Surrender
Withdraw-to-my-territory

Allow-nuc-use
Cease-fire
Commit-forces
Not-attack-your-forces
Not-escalate
Provide-nuc-defense
Withdraw-from-your-territory
Type- apportionable-group

Groupings of aircraft that can be apportioned separately. See also the main theater air apportionment orders.

US USSR Other All

Non-thtr AirArmy Both

Type-area

Broad geographic theaters used by Green Agent.

NEurope SEurope CAMerica Africa SWAsia All

CEurope NAmerica SAMerica MEast FEast

Type-area

An arena is essentially a command and control concept, representing a military theater to which forces can be assigned and in which conflict can occur (the word theater is used interchangeably with arena). Each arena is an overlay of military geography (zones and axes for CAMPAIGN-MT arenas or main theaters, and LOC and point axes for CAMPAIGN-ALT arenas or alternate theaters) defined only for places in the world where the RSAS must adjudicate ground combat. Each arena has a Red and Blue name, representing each command and the overlay elements each side controls. Arenas CEUR through FETVD are CAMPAIGN-MT arenas, and NEUR through Op-Aleutian are CAMPAIGN-ALT arenas.

CEUR-A through FETVD-D are sub-theaters, representing commands covering only some of the axes in a theater (CEUR-A, for instance, represents NORTHAG). Intercon through Med do not represent arenas of ground combat, but exist so that forces may be assigned to them.

CEUR FEAST NEUR TF-Baltic AG-Balkan AG-Turkey AG-Iran

WTVD FETVD NWTVD Op-Baltic Fr-Balkan Fr-Turkey Fr-Iran
AG-Arabia
AG-Pakistan
TF-Iceland
TF-Cuba
AG-Italy
AG-PRC-NE
TF-Taiwan
TF-Kuril
TF-Aleutian

CEUR-A
CEUR-B
CEUR-C

FEAST-A
FEAST-B
FEAST-C

Intercon
Space
Pac
Lant
Med
All

Type-arena-aggregation

The measures of forces that are aggregated by arena (such as CEUR) and command (such as AFCENT). See also the Ask-force-arena-data query.

Avg-FLOT-location
Deepest-penetration
Air-attrition
Divisions
Total-FLOT-EEDs
Tcair-sorties
Multi-air-air-sorties
Interdictor-sorties
Multi-air-gnd-sorties

Avg-FLOT-rate
Land-attrition
Tnuc-attrition
Total-EDs
Conv-COF
Fighter-sorties
Cas-sorties
M-bomber-sorties
Nuc-weapons

Type-arena-force

Forces other than ground forces counted for alternate theaters.

Airlift
Chemical
Patrol-craft-A
Patrol-craft-B

Sealift
Truck
UCW
Type-attack-target-priority

Guidance to the Referee Air Commander model. See also the Air-commander-guidance order.

Air
Ground-net
Political
Equal

Naval
Logistics
Other
None

Type-authorization (Blue)

The authorizations that can be given a command. Not all authorizations are valid for each command. See also the AWP input Authorization.

Alert
Biological
Combat
Deployment
Jamming
Special-operation
Open-ocean-ASW
USSR-target
Reserve-commitment
Move-satellite
Evacuate-cities
Airborne-alert
Sanctuary
Combat-initiation
Preemptive-air

Nuclear
Chemical
Deep-attack
Dispersal
Poise
Termination
UCW
Bastion-target
Launch-satellite
Disperse-leadership
Respond-in-kind
Preempt-air
Release
Delegation
Mobilization

Type-authorization (Red)

The authorizations that can be given a command. Not all authorizations are valid for each command. See also the AWP input Authorization.

Alert
Biological
Combat
Deployment
Jamming
Special-operation
US-target
Reserve-commitment
Launch-satellite
Disperse-leadership
Respond-in-kind
Sanctuary
Combat-initiation
SNA-strike

Nuclear
Chemical
Deep-attack
Dispersal
Poise
Termination
Blue-engagement
Mobilization
Move-satellite
Evacuate-cities
Airborne-alert
Release
Delegation
**Type-authorization-level (Blue)**

The levels that can be set for the authorizations in Type-authorization. Most levels are valid for only one authorization. See also the AWP input Authorization.

<table>
<thead>
<tr>
<th>NA</th>
<th>200000-mob</th>
<th>Conventional</th>
<th>Honored</th>
<th>Max-relative</th>
<th>Demo-nuc</th>
<th>Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-mob</td>
<td>Demobilize</td>
<td>Chemical</td>
<td>Nuclear</td>
<td>Occasional</td>
<td>ASAP</td>
<td>Full</td>
</tr>
<tr>
<td>Conventional</td>
<td></td>
<td>Hot-pursuit</td>
<td></td>
<td></td>
<td>Limited-nuc</td>
<td>Limited</td>
</tr>
<tr>
<td>Honored</td>
<td></td>
<td>Max-readiness</td>
<td></td>
<td></td>
<td></td>
<td>Limited</td>
</tr>
<tr>
<td>Max-relative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limited-nuc</td>
<td>Limited</td>
</tr>
<tr>
<td>Demo-nuc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limited-nuc</td>
<td>Limited</td>
</tr>
<tr>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limited-nuc</td>
<td>Limited</td>
</tr>
</tbody>
</table>

**Type-authorization-level (Red)**

The levels that can be set for the authorizations in Type-authorization. Most levels are valid for only one authorization. See also the AWP input Authorization.

<table>
<thead>
<tr>
<th>NA</th>
<th>Increased-alert</th>
<th>Full-combat-alert</th>
<th>Full-mob</th>
<th>Convention</th>
<th>Honored</th>
<th>Max-relative</th>
<th>Limited-nuc</th>
<th>Nominal</th>
<th>Limited</th>
<th>Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat-of-war-alert</td>
<td>Withhold-alert</td>
<td>Demobilize</td>
<td>Chemical Nuclear</td>
<td>Hot-pursuit</td>
<td>Max-readiness</td>
<td>ASAP</td>
<td>Occasional</td>
<td>Limited-nuc</td>
<td>Limited</td>
<td>Full</td>
</tr>
</tbody>
</table>

**Type-AWP (Blue)**

Individual AWP names. The 0 suffix is used for peacetime plans, which do little other than report bound violations up the chain of command. The X suffix denotes stub plans available for use as interpreted plans with corresponding functions already declared in the AWP Dict directory. The RAND-ABEL plan names appear in all capital letters; corresponding file names are all lower case.

| JCS0 | EUR0 | SAC0 | AFNORTH0 | AFCENT0 | AFSOUTH0 | CENT0 | LANT0 | JCS1 | EUR1 | SAC1 | AFNORTH1 | AFCENT1 | AFSOUTH1 | CENT1 | LANT1 | JCSX | EURX | SACX | AFNORTHX | AFCENT2 | AFSOUTH2 | CENT2 | LANTX | AFCENT3 | AFCENT4 | AFSOUTHX | AFCENTX |
Type-AWP (Red)

Individual AWP names. X-plans are stubs available for use as interpreted plans.

<table>
<thead>
<tr>
<th>PAC0</th>
<th>PAC1</th>
<th>PACX</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOREA0</td>
<td>KOREA1</td>
<td>KOREAX</td>
</tr>
<tr>
<td>Any</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Type-AWP-move (Blue)

Used by AWPs to mark moves done that are only to be done once.

- Bahrain-deploy
- Canada-deploy
- France-deploy
- Greece-deploy
- Italy-deploy
- Nether-deploy
- Norway-deploy
- Pakistan-deploy
- Qatar-deploy
- S-Korea-deploy
- Spain-deploy
- UAE-deploy
- UK-deploy
- UK-cover
- Nether-cover

- Assured-destruction-nuclear
- Battlefield-nuclear
- CVBG-to-E-Med
- Commit-GE-7th
- Early-reinforce
- Finn-Wedge-air-def
- Invalo-border-air-def
- JCS-deploy
- NORTHAG-fallback
- Rebase
- Support-Austria
- Theater-nuclear
- Belgium-deploy
- Denmark-deploy
- FRG-deploy
- Iran-deploy
- Kuwait-deploy
- N-Yemen-deploy
- Oman-deploy
- Portugal-deploy
- Saudi-Arabia-deploy
- S-Yemen-deploy
- Turkey-deploy
- US-deploy
- Belgium-cover
- Banak-evac
- CENTAG-fallback
- Commit-GE-10th
- Demo-nuc-use
- Ems-neck-barrier
- IGB-barrier
- Invalo-border-gnd-def
- Massive-military-nuclear
- Preemptive-air-strike
- Rhine-barrier
- Support-Norway
- Weslek-barrier
Type-AWP-move (Red)

Used by AWP's to mark moves done that are only to be done once.

Bulgaria-deploy  Czech-deploy
GDR-deploy      Hungary-deploy
N-Korea-deploy  Poland-deploy
USSR-deploy

Adjust-attack  Air-assault
Ally-missing   Amphib-assault
Atk-Erzurum    Atk-Sarikamis
Battlefield-nuclear  Commit-13th-Army
Commit-2nd-GA   Commit-5th-GTA
Commit-7th-TA   Commit-CGF
Commit-GDR-III-MD  Commit-reserves
Depth-of-front-nuclear  Generation
Poles-deploy-to-axis-2  Rebase
Set-D-Day

Type-axis-mission

Missions that can be given to a main theater axis. See also the Axis-mission-order.

Withdraw  Delay
Defend    Defend-delay
Defend-withdraw  Fin-attack
Support-attack  Main-attack
Cancel

Type-axis-position

Positions ground forces that can take on an alternate theater LOC axis.

On-FLOT
Assembly
All

Type-axis-tactic

Tactics that can be given an alternate theater LOC axis. See also the Axis-tactic-order.

Defend  Delay
Attack   Pin
Type-axis-thrust

Levels of effort that can be assigned to main theater axes. See also the Axis-thrust-order.

Main-effort
High-priority
Low-priority

Type-bound (Blue)

Requirements that can be set for AWPs to report the condition occurrence to its superior plan. See also the section AWP Inputs, Bounds.

- Enemy-mobilizing
- Enemy-dispersing
- Enemy-poising
- Evacuating-cities
- Side-switching
- Enemy-escalation
- Combat-occuring
- Chemical-weapons-use
- Nuclear-weapon-use
- Breakthrough-achieved
- De-facto-cease-fire
- Enemy-breakthrough
- FLOT-location
- Insufficient-force-ratio
- Excessive-naval-attrition
- Insufficient-reserves

- Enemy-deploying
- Enemy-generating
- Ultimatum-received
- Strategic-forces-dispersed
- Alliance-incohesion
- Enemy-jamming
- Blue-engaged
- Biological-weapon-use
- Berlin-blockade
- Cease-fire-offered
- Redline-crossed
- Advance-halted
- FLOT-velocity
- Excessive-troops-attrition
- Excessive-air-attrition

Type-bound (Red)

Requirements that can be set for AWPs to report the condition occurrence to its superior plan. See also the section AWP Inputs, Bounds.

- Enemy-mobilizing
- Enemy-dispersing
- Enemy-poising
- Evacuating-cities
- Side-switching
- Enemy-escalation
- Combat-occuring
- Biological-weapon-use
- Berlin-blockade-broken
- Breakthrough-achieved
- De-facto-cease-fire
- Enemy-breakthrough
- FLOT-location
- Insufficient-force-ratio
- Excessive-naval-attrition

- Enemy-deploying
- Enemy-generating
- Ultimatum-received
- Strategic-forces-dispersed
- Alliance-incohesion
- Enemy-jamming
- Chemical-weapons-use
- Nuclear-weapon-use
- Blue-presence-in-Iran
- Cease-fire-offered
- Redline-crossed
- Advance-halted
- FLOT-velocity
- Excessive-troops-attrition
- Excessive-air-attrition
Insufficient-reserves

**Type-combat-tempo**

Tempo can be continual, Blitzkrieg, or single spasm strike.

- **Protracted** [Continual and protracted]
- **Blitz** [Blitzkrieg]
- **Spasm** [Single, spasm strike]

**Type-command (Blue)**

The commands making up the Blue Agent. Each AWP is associated with one of these commands.

- NCA
- EUR
- SPACE
- NORAD
- AFNORTH
- AFSOUTH
- SOUTH
- KOREA
- All
- JCS
- SAC
- FORCECOM
- LANT
- AFCENT
- CENT
- PAC

**Type-command (Red)**

The commands making up the Red Agent. Each AWP is associated with one of these commands.

- DEFC
- HCFR
- NWCOM
- HCFSW
- HCFFE
- All
- SHC
- SNF
- HCFW
- HCFS
- DPRK

**Type-command-aggregation**

The measures of forces that are aggregated by arena (such as CEUR) and command (such as AFCENT). See also the Ask-force-command-data query.

- Avg-FLOT-location
- Deepest-penetration
- Air-attrition
- Divisions
- Total-FLOT-BEDs
- Tacair-sorties
- Multi-air-air-sorties
- Interdictor-sorties
- Multi-air-gnd-sorties
- Avg-FLOT-rate
- Land-attrition
- Nuc-attrition
- Total-EDs
- Conv-COF
- Fighter-sorties
- Cas-sorties
- M-bomber-sorties
- Nuc-weapons
Type-conflict-level

The level of conflict in a region. See also the Ask-force-regional-conflict-level query.

Termination
Crisis
Superpower-intervention
Regional-nuclear
Demo-tac-nuc
Demo-strat-nuc
Gen-strat-nuc

Peace
Nonsuperpower-conflict
Demo-conv
Gen-conv
Gen-tac-nuc
CF-strat-nuc

Type-cooperation

Notes to what extent a Green Agent country is aiding its superpower ally. See also the communication Cable and the Cooperate-order.

Uncooperative
Transit
Nuclear-release

Normal
Combat-basing

Type-country

The countries represented in the RSAS.

Afghanistan  Ecuador  Kuwait  Saudi-Arabia
Albania  Egypt  Laos  Somalia
Algeria  El-Salvador  Lebanon  South-Africa
Argentina  Ethiopia  Libya  South-Korea
Australia  FRG  Malaysia  South-Yemen
Austria  Finland  Mexico  Spain
Bahrain  France  Mongolia  Sri-Lanka
Bangladesh  GDR  Morocco  Sudan
Belgium  Greece  Netherlands  Sweden
Belize  Guatemala  Nicaragua  Switzerland
Bolivia  Guyana  North-Korea  Syria
Brazil  Haiti  North-Yemen  Taiwan
Bulgaria  Honduras  Norway  Thailand
Burma  Hungary  Oman  Tunisia
Cambodia  Iceland  Pakistan  Turkey
Canada  India  Panama  UAE
Chile  Indonesia  Paraguay  UK
Colombia  Iran  Peru  US
Costa-Rica  Iraq  Philippines  USSR
Cuba  Ireland  Poland  Uruguay
Czechoslovakia  Israel  Portugal  Venezuela
Denmark  Italy  PRC  Vietnam
Djibouti  Japan  Qatar  Yugoslavia
Dominican-Republic  Jordan  Romania  all
Type-country-aggregation

The measures of forces that are aggregated by country. See also the Ask-force-country-data query.

- Ammo-prod-damage
- Arms-prod-damage
- Attack-sub-damage
- Carrier-damage
- Com-control-damage
- Commo-damage
- Deployed-EDs
- Missile-silo-damage
- Nuc-power-gen-damage
- Other-prod-damage
- Other-surface-damage
- POL-prod-damage
- Seaport-damage
- SSBNs
- Transiting-Attack-sub
- Transiting-other-damage
- Transiting-SSBNs

Ammo-storage-damage
Arms-storage-damage
Attack-sub
Carriers
Combat-afl-damage
Conv-COF
Ground-base-damage
Mobilized-EDs
Nuc-prod-damage
Other-surface
Poised-EDs
POL-storage-damage
SSBN-damage
Total-EDs
Transiting-Carriers
Transiting-Other-surface

Type-deception-strategy

Deception strategy for a command.

- Cover
- Decoy

Type-DEFCON (Blue)

Blue Defense Condition levels. See also the AWP input DEFCON.

- DEFCON-5
- DEFCON-4
- DEFCON-3

DEFCON-2
DEFCON-1

Type-defense-level

The level of defenses in a main theater zone. See also the Build-defense-order.

- Prepared
- Fortified
Type-delegated-authority
Level of NCL delegation of authority to the GCL.

Full
Nominal
Limited

Type-delegation-condition
Conditions for the use of delegated authority. Tac-warn through Rideout-delayed refer to SAC only.

Upon-attack
Upon-need
Strat-warn
Tac-war

Assessment
Confined
Rideout-prompt
Rideout-delayed

Type-delegation-withhold
Circumstances under which NCL delegation of authority to the GCL is withheld.

Immediate
Upon-event
Time-limited

Type-forces-controlled
Types of forces over which NCL control is delegated to commands.

Recce-intel
UCW
Combat-RPV
Naval
Tacair

Ground-and-air
ICBM
NATO-SLBM
Strat-nuc-forces

Type-frequency
See the Jamming-order.

VLF
MF
UHF

LF
HF

Type-general-target-withhold (Blue)
Target withholds organized by country or alliance status.

Allies
Czech
Neutrals
Romania
Noncombat           Hungary
Poland              Yugoslavia

**Type-general-target-withhold (Red)**

Target withholds organized by country or alliance status.

Allies           UK
Neutrals         Netherlands
Noncombat         Belgium
France            Greece

**Type-global-authorization (Blue)**

The authorizations for global action. See also the AWP input Global-authorization.

Membership-requisition
CRAF
NATO-alert

**Type-global-authorization-level (Blue)**

The levels set for the authorizations in Type-global-authorization. See also the AWP input Global-authorization. Withhold-alert means stood-down.

Full                None
III                 II
Simple-alert        Reinforced-alert
General-alert       Withhold-alert

**Type-gnd-force-mission**

The missions that can be given a ground force. See also the Gnd-force-mission-order.

Air-drop            Air-assault
Cancel              Dig-in
OMG

**Type-ground-strategy (Blue)**

Ground strategy for a command.

Forward
Fallback
Prompt-nuc
**Type-ground-strategy (Red)**

Ground strategy for a command.

- Isolate-US
- Northern-focus
- Multi-front

**Type-ground-support-priority**

Guidance to the Referee Air Commander model. See also the Air-commander-guidance order.

- Priority: Equal
- Weighted: None

**Type-high-low**

- Value: High
- Low

**Type-hotline-channel**

The two channels available for messages between Red and Blue Agents. See also the communication Hotline.

- Blue-to-Red
- Red-to-Blue

**Type-hotline-penalty**

The penalties promised as part of a message between Red and Blue Agents. See also the communication Hotline.

- Superpower-intervention
- Eur-demo-conv
- Regional-gen-conv
- Eur-gen-conv
- Eur-demo-tac-nuc
- Eur-demo-strat
- Eur-gen-strat
- IC-gen-nuc

- Regional-demo-conv
- IC-demo-conv
- Regional-nuclear
- IC-gen-conv
- Eur-gen-tac-nuc
- Eur-CF-strat
- IC-CF-nuc

**Type-hotline-request**

The requests made as part of a message between Red and Blue Agents. See also the communication Hotline.
Do-not-escalate
Withdraw-from-my-territory
Surrender

Cease-fire
Withdraw-to-your-territory

Type-hotline-reward
The rewards promised as part of a message between Red and Blue Agents. See also the communication Hotline.

Will-not-escalate
Withdraw-from-your-territory
Surrender

Cease-fire
Withdraw-to-my-territory

Type-insertion
The type of lift used for an operation in an alternate theater. See also the Operation-order.

In-place
Sea
SSM

Heliborne
Air

Type-involvement
Defines a Green Agent country’s level of involvement in each theater. See also communication Cable.

Disengaged
Partial-alert
Mobilized
In-combat

Normal
Full-alert
On-call
Nuc-combat

Type-launch-method
See the Launch-order.

Flush
Sustain

Type-level
See the Sabotage-order.

Slight
Major

Partial
Total
Type-military-involvement

The level of military involvement by a side in a region. See also the involvement queries.

<table>
<thead>
<tr>
<th>Termination</th>
<th>Preparation</th>
<th>Gen-conv</th>
<th>Tac-nuc</th>
<th>CF-strat-nuc</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Demo-conv</td>
<td>Demo-tac-nuc</td>
<td>Demo-strat-nuc</td>
<td>Strat-nuc</td>
</tr>
</tbody>
</table>

Type-missing-ally (Blue)

Used by AFCENT AWPs to mark allies that are late granting control.

<table>
<thead>
<tr>
<th>None</th>
<th>Belgium</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>Netherlands</td>
</tr>
<tr>
<td>UK</td>
<td>Too-many</td>
</tr>
</tbody>
</table>

Type-missing-ally (Red)

Used by HCFW AWPs to mark allies that are late granting control.

<table>
<thead>
<tr>
<th>None</th>
<th>Too-many</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDR</td>
<td>Poland</td>
</tr>
<tr>
<td>Czech</td>
<td></td>
</tr>
</tbody>
</table>

Type-mob-duration

Desired duration of mobilization for a command.

<table>
<thead>
<tr>
<th>Short</th>
<th>Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long</td>
<td></td>
</tr>
</tbody>
</table>

Type-naval-speed

Naval taskgroup deployment speeds. See also the Deploy-naval-order.

<table>
<thead>
<tr>
<th>Taskforce</th>
<th>Max-taskforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flankspeed</td>
<td></td>
</tr>
</tbody>
</table>

Type-naval-strategy (Blue)

Naval strategy for a naval command.

| Forward |
**Type-naval-strategy (Red)**

Naval strategy for a command.

Forward
Interdict
Bastion
Shoot-first

**Type-OCL**

The main theater Operational Command Level models. See also the OCL-on-off-order.

Air
Ground

**Type-on-off**

A binary variable.

On
Off

**Type-operation**

The operations ordered in an alternate arena. See also the Operation-order.

UCW
Chemical
Nuclear
Regular

**Type-operation-mission**

The missions given to alternate theater point axes specifying the tactics of the forces there. See also the Axis-mission-order and Operation-order.

Denial
Occupy
Disperse

**Type-operational-objective (Red)**

Objectives for a command. Only part of the entire list is applicable to each command.
Type-overlay

The axes and points that make up the military geography of the main and alternate theaters. CEUR, WTVD, FEAST, and FETVD are main theaters and have reserve areas and numbered axes. The alternate theaters have LOC axes and geographically named point axes. Only axes for CEUR/WTVD and AG-Italy/Fr-Italy are shown as examples.

CEUR-1
CEUR-4
CEUR-7
CEUR-10
CEUR-A-res
CEUR-res

WTVD-1
WTVD-4
WTVD-7
WTVD-10
WTVD-A-res
WTVD-D-res
WTVD-res

Type-overlay-aggregation

The measures of forces that are aggregated by overlay (e.g., axis CEUR-1). See also the Ask-force-overlay-data query. EEDs are effective equivalent divisions.

FLOT-location
FLOT-rate
Divisions  Avg-pct
Total-EDs  Combat-EEDs
FLOT-EDs  Land-attrition
Air-attrition  Thuc-attrition
Conv-COF  Ground-goal

**Type-permit-deny**

See the Cooperate-order and Restrict-combat-order.

Permit
Deny

**Type-plan-point (Blue)**

The possible phases and transitions between phases in all AWPs.

Top-of-plan  Move-to-deterrence
Deterrence  Move-to-defense
Defense  Move-to-counterattack
Counterattack  Move-to-nuclear
Nuclear  Move-to-post-nuclear
Post-nuclear  Move-to-termination
Termination

**Type-plan-point (Red)**

The possible phases and transitions between phases in all AWPs.

Top-of-plan  Move-to-preparation
Preparation  Move-to-conventional
Conventional  Move-to-initial-assault
Initial-assault  Move-to-defensive-pause
Defensive-pause  Move-to-deliberate-assault
Deliberate-assault  Move-to-prepared-assault
Prepared-assault  Move-to-planned-assault
Planned-assault  Move-to-adjusted-assault
Adjusted-assault  Move-to-nuclear
Nuclear  Move-to-post-nuclear
Post-nuclear  Move-to-termination
Termination

**Type-pt-axis-target**

The possible targets at an alternate theater point.

Capital  Seaport
Airfield  Keypoint
Stockpile  Landchoke
Road
all
### Type-reason (Blue)

The reasons that a Blue AWP may use in a report to its superior plan. See also the communication Notify-higher-authority.

<table>
<thead>
<tr>
<th>Blue Reasons</th>
<th>Blue Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>under-attack</td>
<td>under-nuclear-attack</td>
</tr>
<tr>
<td>attack-in-secondary-arena</td>
<td>campaign-limit-expired</td>
</tr>
<tr>
<td>mobilization-limit-expired</td>
<td>time-limit-expired</td>
</tr>
<tr>
<td>no-appropriate-guidance</td>
<td>termination-in-theater</td>
</tr>
<tr>
<td>ready-to-attack</td>
<td>plan-completed</td>
</tr>
<tr>
<td>insufficient-EMT</td>
<td>insufficient-forces</td>
</tr>
<tr>
<td>surviving-enemy-capability</td>
<td>unfavorable-exchange-ratio</td>
</tr>
<tr>
<td>receipt-of-cable</td>
<td>approaching-endurance-limits</td>
</tr>
<tr>
<td>loss-of-political-control</td>
<td>minimal-reserve-force</td>
</tr>
<tr>
<td>lookahead-evaluation</td>
<td>EW-ineffective</td>
</tr>
<tr>
<td>launch-impossible</td>
<td>BENELUX-noninvolvement</td>
</tr>
<tr>
<td>French-noninvolvement</td>
<td>losing-war</td>
</tr>
<tr>
<td>cable-request</td>
<td>discrepancy-report</td>
</tr>
<tr>
<td>nuc-defense-requested</td>
<td>naval-losses-of-30%</td>
</tr>
<tr>
<td>carrier-loss</td>
<td>action-request</td>
</tr>
<tr>
<td>red-poise</td>
<td>inability-to-defend</td>
</tr>
<tr>
<td>2nd-ech-commit</td>
<td>deteriorating-situation</td>
</tr>
<tr>
<td>alliance-incohesion</td>
<td></td>
</tr>
</tbody>
</table>

### Type-reason (Red)

The reasons that a Red AWP may use in a report to its superior plan. See also the communication Notify-higher-authority.

<table>
<thead>
<tr>
<th>Red Reasons</th>
<th>Red Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>under-attack</td>
<td>under-nuclear-attack</td>
</tr>
<tr>
<td>campaign-limit-expired</td>
<td>time-limit-expired</td>
</tr>
<tr>
<td>phaseline-not-reached</td>
<td>envelopment-not-possible</td>
</tr>
<tr>
<td>no-appropriate-guidance</td>
<td>termination-in-theater</td>
</tr>
<tr>
<td>ready-to-attack</td>
<td>plan-completed</td>
</tr>
<tr>
<td>objective-met</td>
<td>insufficient-EMT</td>
</tr>
<tr>
<td>insufficient-forces</td>
<td>surviving-enemy-capability</td>
</tr>
<tr>
<td>unfavorable-exchange-ratio</td>
<td>receipt-of-cable</td>
</tr>
<tr>
<td>approaching-endurance-limits</td>
<td>loss-of-political-control</td>
</tr>
<tr>
<td>minimal-reserve-force</td>
<td>lookahead-evaluation</td>
</tr>
<tr>
<td>EW-ineffective</td>
<td>launch-impossible</td>
</tr>
<tr>
<td>Blue-tripwire-impeding-progress</td>
<td>discrepancy-report</td>
</tr>
<tr>
<td>action-request</td>
<td>reached-france</td>
</tr>
<tr>
<td>suspending-attack</td>
<td>setting-D-Day</td>
</tr>
<tr>
<td>alliance-incohesion</td>
<td></td>
</tr>
</tbody>
</table>

### Type-recommendation (Blue)

The recommendations that a Blue AWP may use in a report to its superior plan. See also the communication Notify-higher-authority.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>no-recommendation</td>
<td>change-plan</td>
</tr>
</tbody>
</table>
awaiting-guidance
accept-plan
objective-unmet
reinforce-main-axes
reject-plan
NATO-ally-on-call
evacuate-cities-authorization
enlistment-requisition-authorization
combat-authorization
termination-authorization
augment-air
extend-deadline
objective-met
terminate-plan
reinforce-command
change-to-fallback-defense
revise-expected-D-Day
CRAF-authorization
dispersal-authorization
nuclear-authorization
consider-nuclear-use
unable-to-defend

**Type-recommendation (Red)**

The recommendations that a Red AWP may use in a report to its superior plan.

See also the communication Notify-higher-authority.

<table>
<thead>
<tr>
<th>no-recommendation</th>
<th>change-plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>awaiting-guidance</td>
<td>extend-deadline</td>
</tr>
<tr>
<td>accept-plan</td>
<td>objective-met</td>
</tr>
<tr>
<td>objective-unmet</td>
<td>terminate-plan</td>
</tr>
<tr>
<td>reinforce-main-axes</td>
<td>reject-plan</td>
</tr>
<tr>
<td>combat-authorization</td>
<td>nuclear-authorization</td>
</tr>
<tr>
<td>termination-authorization</td>
<td></td>
</tr>
</tbody>
</table>

**Type-region**

The geographic (as opposed to political) regions modelled by the RSAS.

<table>
<thead>
<tr>
<th>Canada-E</th>
<th>Canada-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>Hawaii</td>
</tr>
<tr>
<td>Belize</td>
<td>Costa-Rica</td>
</tr>
<tr>
<td>El-Salvador</td>
<td>Guatemala</td>
</tr>
<tr>
<td>Mexico</td>
<td>Nicaragua</td>
</tr>
<tr>
<td>Argentina</td>
<td>Bolivia</td>
</tr>
<tr>
<td>Colombia</td>
<td>Ecuador</td>
</tr>
<tr>
<td>Paraguay</td>
<td>Peru</td>
</tr>
<tr>
<td>Venezuela</td>
<td></td>
</tr>
<tr>
<td>USSR-Cen-Asia</td>
<td>USSR-Far-East</td>
</tr>
<tr>
<td>USSR-Siberia</td>
<td>USSR-SW</td>
</tr>
<tr>
<td>USSR-Kamchatka</td>
<td>USSR-Kurils</td>
</tr>
<tr>
<td>Albania</td>
<td>Bulgaria</td>
</tr>
<tr>
<td>Hungary</td>
<td>Poland</td>
</tr>
<tr>
<td>Yugoslavia-S</td>
<td>Azores</td>
</tr>
<tr>
<td>Austria</td>
<td>Belgium</td>
</tr>
<tr>
<td></td>
<td>Denmark</td>
</tr>
<tr>
<td></td>
<td>Zealand</td>
</tr>
<tr>
<td>USSR-Leningrad</td>
<td>USSR-Moscow</td>
</tr>
<tr>
<td>USSR-Urals</td>
<td>USSR-W</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>GDR</td>
</tr>
<tr>
<td>Romania</td>
<td>Yugoslavia-N</td>
</tr>
<tr>
<td>Country</td>
<td>Country</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Finland</td>
<td>France¹</td>
</tr>
<tr>
<td>Greenland</td>
<td>Iceland</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Norway-N</td>
</tr>
<tr>
<td>Sweden-N</td>
<td>Sweden-S</td>
</tr>
<tr>
<td>Israel</td>
<td>Jordan</td>
</tr>
<tr>
<td>Turkey-E</td>
<td>Turkey-W</td>
</tr>
<tr>
<td>Iran</td>
<td>Iraq</td>
</tr>
<tr>
<td>North-Yemen</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Saudi-Arabia-W</td>
<td>South-Yemen</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Burma</td>
</tr>
<tr>
<td>India</td>
<td>Indonesia</td>
</tr>
<tr>
<td>Okinawa</td>
<td>Laos</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Mongolia</td>
</tr>
<tr>
<td>PRC-SE</td>
<td>PRC-W</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Thailand</td>
</tr>
<tr>
<td>Algeria</td>
<td>Central-Africa</td>
</tr>
<tr>
<td>Egypt</td>
<td>Ethiopia</td>
</tr>
<tr>
<td>Sahel</td>
<td>Somalia</td>
</tr>
<tr>
<td>Tunisia</td>
<td>West-Africa</td>
</tr>
<tr>
<td>New-Zealand</td>
<td>Guam</td>
</tr>
<tr>
<td>Arctic-A</td>
<td>Arctic-P</td>
</tr>
<tr>
<td>W-Atlantic</td>
<td>Mid-Atlantic</td>
</tr>
<tr>
<td>Caribbean</td>
<td>Eq-Atlantic</td>
</tr>
<tr>
<td>North-Sea</td>
<td>W-Mediter</td>
</tr>
<tr>
<td>Black-Sea</td>
<td>Persian-Gulf</td>
</tr>
<tr>
<td>Indian-East</td>
<td>Indian-West</td>
</tr>
<tr>
<td>Okhotsk-Sea</td>
<td>Bering</td>
</tr>
<tr>
<td>NE-Pacific</td>
<td>SE-Pacific</td>
</tr>
<tr>
<td>GI-Gap</td>
<td>IUK-Gap</td>
</tr>
<tr>
<td>English-Channel</td>
<td>Skagerrak-St</td>
</tr>
<tr>
<td>Horn-Passage</td>
<td>Hope-Passage</td>
</tr>
<tr>
<td>Suez-Canal</td>
<td>Babmandb</td>
</tr>
<tr>
<td>Sunda-St</td>
<td>Malacca-St</td>
</tr>
<tr>
<td>Makassar-St</td>
<td>Korea-St</td>
</tr>
<tr>
<td>NW-Pac-Basin</td>
<td>Sidra-Gulf</td>
</tr>
<tr>
<td>White-Sea</td>
<td>PTG-Bay³</td>
</tr>
<tr>
<td>La-Perouse-St</td>
<td>Tsugaru-St</td>
</tr>
</tbody>
</table>

**Type-region-aggregation**

The measures of forces that are aggregated by region. See also the Ask-force-region-data query.

---

²Does not include the Mediterranean coast.
³The Mediterranean coast of France.
⁴Does not include Hokkaido.
⁵Peter the Great Bay.
Total-EDs
Deployed-EDs
Conv-COF

Combat-aflk-damage
Missile-silo-damage
Seaport-damage
Commo-damage
Ground-base-damage
Nuc-storage-damage
Ammo-storage-damage
Arms-storage-damage
FOL-storage-damage

Carriers
Attack-sub
Carrier-damage
Attack-sub-damage
Transiting-Carriers
Transiting-Attack-sub

Mobilized-EDs
Poised-EDs

Other-aflk-damage
Naval-base-damage
Com-control-damage
Nuc-power-gen-damage
Nuc-prod-damage
Ammo-prod-damage
Arms-prod-damage
FOL-prod-damage
Other-prod-damage

Other-surface
SSBNs
Other-surface-damage
SSBN-damage
Transiting-Other-surface
Transiting-SSBNs

Type-right
See the Cooperate-order.

Overfly
Transit

Basing
Nuclear

Type-ROE
The rules of engagement set in sea regions. See also the Engage-order.

Withdraw
Trail
Attack

Defend
Exclude

Type-sea-control
Who controls the sea regions and choke points. See also the Ask-force-sea-control query.

Red
Blue

Contest
Unknown

Type-season
The variable Season is set to the season appropriate to the northern hemisphere.
Spring
Summer
Winter
Fall

Type-self-defense

Rules of engagement for self-defense by command.

Engage-if-able  Limit-self-defense
Engage-if-provoked Report-only
Engage-hostile-only

Type-ship-task

The tasks that can be given to naval forces. See also the Task-order.

ASW-area  ASW-barrier
Amphib-support  Mine
SLOC-attack  SLOC-defense
Strike  Strategic

Type-land-mission

The combat missions for aircraft in alternate theaters. See also the Air-apportionment-order.

CAS  Escort
BAI  DCA
Attack

Type-special-action-authorization

Directed  Authorized  Prohibited

Type-strategic-aggregation

The strategic measures that are aggregated for each superpower. See also the Ask-force-strategic-data query.

1st-strike-capability  Launched-ICBM-warheads
2nd-strike-capability  Launched-ICBMs
Air-defense-attrition  Launched-SLBM-warheads
Alerted-H-bombers  Launched-SLBMs
Alerted-ICBMs  Launched-bomber-warheads
Alerted-SLBMs  Lost-H-bombers
Ammo-prod-damage  Lost-ICBMs
Ammo-storage-damage  Lost-SLBMs
Arms-prod-damage  Missile-silo-damage
Arms-storage-damage  Naval-base-damage
Available-warheads  Nuc-power-gen-damage
Com-control-damage  Nuc-prod-damage
Combat-aflf-damage  Nuc-storage-damage
Comm-damage  Operational-H-bombers
Damaged-warheads  Operational-ICBMs
EMT  Operational-SLBM
Exchange-ratio Other-aflf-damage
Executed-H-bombers Other-prod-damage
Executed-ICBMs POL-prod-damage
Executed-SLBM PGL-storage-damage
Ground-base-damage Seaport-damage
LUA-capability Total-warheads
Launched-H-bombers Used-warheads

**Type-target-withhold (Blue)**

Specific target withholds.

Urban-occupied Attack-assessment
Urban-NSWF Sov-Eur-forces
Urban-Soviet Sov-regional-forces
Leadership

**Type-target-withhold (Red)**

Specific target withholds.

Urban-NATO Attack-assessment
Urban-US US-Eur-forces
Leadership US-regional-forces

**Type-targeting-strategy**

Strategic weapon targeting strategy for SAC/SNF.

CF CMV
CP CMVC

**Type-termination-strategy (Blue)**

Termination strategy for a command.

Seek-surrender Cease-fire
Tradeoff  Surrender

**Type-termination-strategy (Red)**

Termination strategy for a command.

Seek-surrender Cease-fire
Tradeoff  Surrender
**Type-theater**

Geographic theaters used by the National Command Level.

- IC
- Northern-Europe
- Southwest-Asia
- Far-East
- Atlantic
- Other-naval
- Central-Europe
- Southern-Europe
- Middle-East
- Pacific
- Other-land

**Type-theater-aggregation**

The measures of forces that are aggregated by theater. See also the Ask-force-theater-data query.

- Air-attrition
- Available-warheads
- Avg-FLOT-location
- Avg-FLOT-rate
- Conv-COF
- Damaged-warheads
- Deepest-penetration
- Deployed-EDs
- Divisions
- EMT
- Land-attrition
- Military-damage
- Mobilized-EDs
- Nuc-COF
- Nuc-weapons
- Other-damage
- Poised-EDs
- Strategic-damage
- Tnuc-attrition
- Total-EDs
- Total-warheads
- Used-warheads
- Other-surface
- Other-surface-damage
- SSBN-damage
- SSBNs

**Type-theater-priority**

- Primary
- Secondary

**Type-unit**

- all
- Troops
- TKD
- MRD
- Airborne
- Aircav
- Marine
- MPS
- Armor
- Mech
- Infantry
- Airmobile
- Arty
- Amphib
- POMCUS
<table>
<thead>
<tr>
<th>Type-warhead</th>
<th>Conv</th>
<th>Conventional</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Chem</td>
<td>Chemical</td>
</tr>
<tr>
<td></td>
<td>Nuc</td>
<td>Nuclear</td>
</tr>
<tr>
<td></td>
<td>None</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Type-weapons-level</th>
<th>Peace</th>
<th>Limited</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conventional</td>
<td>Chemical</td>
</tr>
<tr>
<td></td>
<td>Nuclear</td>
<td>all</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type-weapon-status</th>
<th>Normal</th>
<th>Mobilized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alerted</td>
<td>Deployed</td>
</tr>
<tr>
<td></td>
<td>Poised</td>
<td>Launched</td>
</tr>
<tr>
<td></td>
<td>Executed</td>
<td>all</td>
</tr>
</tbody>
</table>
Type-weighting
Weighting scheme for the Ask-force-count query.

normal#
sorties#
attrition#

Type-what-to-count
The classes of strategic weapons that can be counted through queries.

<table>
<thead>
<tr>
<th>Available</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damaged</td>
<td>Used</td>
</tr>
</tbody>
</table>

Type-3-range

Low
Med
High

Type-#-%
Used in orders to indicate whether the quantity of forces is an absolute number or a percentage of applicable forces.

# %
Appendix

ELEMENTS OF THE RAND-ABEL LANGUAGE

The intent in developing RAND-ABEL was for it to be readable and understandable by people who have substantive domain knowledge (such as knowledge of military strategy), but who need not be computer programmers. Other languages, such as RAND’s ROSIE, are also highly readable, but RAND-ABEL executes faster. Though easy to read, good RAND-ABEL code for the RSAS is not especially easy to write because it has features such as strong typing and because the RSAS has a complex control structure. In practice, many RSAS users function quite well by copying existing RAND-ABEL rules (code) and modifying them, rather than writing new RAND-ABEL from scratch. The modifications can be quite extensive so long as basic control structure is unchanged.¹

Names

RAND-ABEL names of functions, variables, and enumerations must not contain embedded blanks; hyphens are used in place of blanks. The underscore (underscore), while legal in RAND-ABEL names, should not be used, to avoid difficulties in the Data Editor. Those CAMPAIGN functions written in C, rather than in RAND-ABEL, make extensive use of the underscore rather than the hyphen; this is one way, generally, to distinguish between names used by RAND-ABEL and C. By convention, names that are used in more than one function begin with a capital letter and are called “global,” and names used in only one function begin with a lower case letter and are called “local.”

Declarations

To establish the name of a function or variable, it must be declared. Declaration statements for global names make up the Data Dictionary and are collected in files ending with the extension “.D” in directories named “Dict.” Documentation on the use of these names is also found in these files.²


²Data Dictionary declarations may also be examined by use of the Cross Reference Tool, accessed from the Control Panel of the RSAS. Given the name of a global variable or function, this tool can give the declaration, accompanying description, file where declared, and files where
Local names are declared at the top of the function in which they are used.

The Declare Statement is of the form:

Declare this-function: Perform this-function.
Declare this-variable: Let this-variable be 1.0.
Declare that-variable: Let that-variable of Type-country be 1.0.

The use of “Perform” in the above example identifies this-function as a function. The use of “Let” in the second example identifies this-variable as a variable, and the “1.0” declares that the values of this-variable are floating point numbers. The use of “of country” declares that-variable as an array variable. Enumerations may also be used as array indexes.

**Enumerations**

In addition to simple data types such as integers, RAND-ABEL allows the definition of enumerated data types that are ordered lists of arbitrary words. By convention, all enumeration names begin with “Type-”:

```
Define Type-warning:
   None
   Ambiguous
   Clear
```

Defined enumerated data types may be used in the declarations of functions and variables.

```
Declare Blue-warning: Let Blue-warning be Type-warning.
```

The variable Blue-warning could then take on the values of the enumeration Type-warning.

**Functions**

All RAND-ABEL programs consist of functions. Every function begins with a Define statement and ends with an End statement:

```
Define This-function:
End.
```
Define statements must end with colons. End statements (and most other RANDABEL statements) end with periods.

Once declared and compiled, a function can be modified and interpreted, provided its name is not changed.

Ownership

Every global function, variable, and enumeration has an owner; in the RSAS, these are Blue, Red, Green, Control, Referee, and Global. The default owner is stated at the top of each file with the Owner statement:

Owner: Blue.

Functions, variables, and enumerations may have the same name if they are of different owners. The Blue and Red Agents have many elements with the same names, since they are structured similarly. Names of one owner may be referenced in the code of another by prefacing the name with the possessive owner, as in "Red's Authorization." This is not necessary with names owned by Global.

Perform Statements

Functions that do not return values are executed (called) by means of the Perform statement. The Perform statement causes transfer of control to the named function. When that function completes executing, control is returned to the original function, and the next statement is executed.

In the example:

Define This-function:

    Perform That-function.
    Perform Another-function using Some-value as some-parameter.

End.

This-function calls functions That-function and Another-function. Here, Another-function is a function taking a parameter, some-parameter.

Statements between the Define and End statements are indented, to improve readability.

Let Statements

Let statements assign values to variables. In the following example:
Define This-function:

    Declare perceived-threat: Let perceived-threat be Type-threat.

    Let Point-in-plan of AFCENT be Deploying.
    Let perceived-threat be Unspecified.

End.

A Let statement is used to assign value Deploying to the AFCENT element of the global variable Point-in-plan, and to assign value Unspecified (which is the default value for global variables) to the local variable perceived-threat.

Report Statements

Functions that return values are called by using the Report statement, as in the following example:

Define This-function:

    Declare perceived-threat: Let perceived-threat be Type-threat.

    Let perceived-threat be the report from Recce using New-satellite as sensor.

End.

Comments

Nonexecutable comments in RAND-ABEL are enclosed by brackets. They may be on separate lines or may be included within executable statements.

[ This-function does nothing but call That-function ]
Define This-function:

[ That-function is called by This-function ]

Perform [that is, execute] That-function.
End.

If brackets appear on different lines, it helps readability to align them vertically, as shown above.

A special use of brackets is to put aside otherwise executable statements, so they can still be examined but will not be executed:
Define This-function:

Perform That-function.
[
  [ For Analytic Case B, unbracket the next statement ]
  Perform Another-function.
]
End.

Such use of comments is called "commenting out" or "bracketing out" code.

Log Statements

Log statements write information into logs, which can be examined during or after an RSAS run. In many cases they are preferred to comments, in that they both document the code and record an audit trail during execution. There are three levels of logging, which can be specified by the RSAS user by agent or command: decisions-only, decisions-and-reasons, everything. The blank-separated list of items is written in the log file on a single line. A quoted string is written as given, while a variable name is replaced with its value. Examples of Log statements:

Define This-function:

  Log-decision "Deploying on day" Today.
  Log-reason " because of perceived threat".
  Log-note " this action should be repeated".

Perform That-function.
End.

If this were executed when Today was game day 5 and log-level was set to decisions-and-reasons, the following entry would appear in the log:

Deploying on day 5
  because of perceived threat

Log statements are written for the human reader, not the computer. Accordingly, they should be concise but need not rigidly adhere to a standard syntax.

If-Then and If-Then-Else Statements

Conditional logic is expressed similarly to the way it appears in other languages. Conditional logic may be nested. An example:
Define This-function:

Declare perceived-threat: Let perceived-threat be Type-threat.

If Today is at least 5
Then Let Point-in-plan be Deploying.
Else
|
Perform That-function.

Let perceived-threat be the report from Recce using New-satellite as sensor.
If perceived-threat > None
Then Log-note "New satellite observed threat".
|
End.

The braces delimit several statements conditional on the Else; indentation improves readability.

**Decision Tables**

A decision table is a tabular form of conditional logic. The following RAND-ABEL decision table

<table>
<thead>
<tr>
<th>Decision Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>&gt;=5</td>
</tr>
<tr>
<td>--</td>
</tr>
<tr>
<td>--</td>
</tr>
</tbody>
</table>

is equivalent to the following If-Then-Else statement:

If Today >= 5
Then Let action be Deploy
Else If perceived-threat > None
Then Let action be Deploy-faster
Else Let action be Do-nothing.

The If part appears to the left of the slash, and the Then part is to the right. The double hyphens indicate indifference. Decision tables are executed row by row. When conditions match the values to the left of the slash, the action(s) to the right are executed, and the table is exited. It is good programming practice to end each decision table with a default action, to be executed if none of the rows above it execute.
The periods at the end of the row of equal signs and at the end of the last row are required. An alternative way of ending with a period is to use the following as a final row:

[End Table].

where End Table is commented out and only the period is executed.

For Statements

For statements iterate a block of statements for each of the values of an enumeration. The iterated enumeration is the data type of the index variable, given after the word For, which takes on the particular value of the enumeration in each iteration. The colon is required.

Define This-function:

Declare each-country: Let each-country be Type-country.

For each-country:
{ Let Involvement of each-country be Eur-gen-conv. }
End.

Assuming that the enumeration Type-country had the values US, UK, Belgium, then this would be the equivalent of the statements:

Let Involvement of US be Eur-gen-conv.
Let Involvement of UK be Eur-gen-conv.
Let Involvement of Belgium be Eur-gen-conv.

While Statements

While statements repeat a block of statements for as long as the conditions following the word While remain true. The colon is required.

Define This-function:

Let Point-in-plan be Preparing:

While Point-in-plan is Preparing:
| Perform Sleep-until-tomorrow.
If the report from Recce using New-satellite as sensor is High
Then Let Point-in-plan be Deploying.

End.

Other Tables

Tables other than decision tables do not have slashes. A common use of other tables is to represent orders, as in the following:

<table>
<thead>
<tr>
<th>Table</th>
<th>Position-order</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis</td>
<td>kms</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
</tr>
<tr>
<td>WTVD-1</td>
<td>95</td>
</tr>
<tr>
<td>WTVD-2</td>
<td>491</td>
</tr>
<tr>
<td>WTVD-3</td>
<td>481</td>
</tr>
<tr>
<td>WTVD-4</td>
<td>590</td>
</tr>
<tr>
<td>WTVD-5</td>
<td>521</td>
</tr>
</tbody>
</table>

which orders forces to advance toward specified positions on axes. Forms for more general tables are in the RAND-ABEL Reference Manual.


Bennett, Bruce Wm., *RSAS 4.0 Summary*, RAND, WD-4049-1-NA, August 1989, available to RSAS users.


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