SEAS Help System

for Version 6.4

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The SEAS Help System

The SEAS Help System includes introductory material, background material, and reference material, in addition to a specific help section for every type of SEAS window. The table above is a hyperlinked Table of Contents for the SEAS Help System. It is organized into four main chapters: Introduction, Topics, Viewers, and Glossary. Each of these chapters is divided into multiple sections; clicking on a section title moves the SEAS Help System to that section. This Table of Contents is repeated at the top of every page in the SEAS Help System, providing quick and easy access to other sections at all times.

When running SEAS, the Help System can be invoked by pushing the Help button, the one at the top right of each page with a “?” on it. The table above appears at the top of every page in the SEAS Help System and is a hyperlinked Table of Contents for the SEAS Help System; clicking on a section title in this Table of Contents moves the SEAS Help System to that section, providing quick and easy access to all sections at all times.

The buttons immediately below the SEAS logo move one back and forward through the history of help pages that the user has recently visited. Clicking on the envelope at the top right opens a new e-mail message addressed to the SEAS development team (you must have Internet access to send messages to the SEAS team); this team welcomes questions and suggestions from SEAS users. The text entry space and Search button, immediately below the envelope, search the SEAS Help system for the text entered before pushing the Search button (Internet access is required for this feature). The print button prints the help page being viewed; the close button dismisses the SEAS Help System.
INTRODUCTION

About SEAS: A Corporate Memory for Analysis

SRI International

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• If we are to recognize future opportunities/crises, then we need to relate them to the opportunities/crises of the past and how they were recognized/missed
• We need to understand
  o How the current situation is like/unlike previous situations
  o How the indication and warning signs are similar/dissimilar
  o How previous opportunities/crises were recognized or missed
  o How previous opportunities/crises evolved and thereby how the present situation might evolve
  o How previous situations were leveraged, mitigated, exacerbated, or missed
• We need a corporate memory of analytic products and methods
  o Not just an historical data repository

SEAS (a.k.a Structured Evidential Argumentation System or SRI Early Alert System) is designed to aid analysts in predicting potential opportunities/crises. It is implemented as a web server that supports the construction and exploitation of a corporate memory filled with analytic products, methods, and their interrelationships, indexed by the situations to which they apply. Objects from this corporate memory are viewed and edited through the use of a standard browser client, with the SEAS server producing ephemeral HTML based upon the contents of the SEAS knowledge base that constitutes corporate memory. The foundation of this corporate memory is an ontology of arguments and situations that includes three main types of formal objects: argument templates, arguments, and situation descriptors. Roughly speaking, an argument template records an analytic method as a hierarchically structured set of interrelated questions, an argument instantiates an argument template by answering the questions posed relative to a specific situation in the world, and situation descriptors characterize the type of situations for which the argument templates were designed and the specific situations that arguments address. SEAS emphasizes the use of simple and regular inference structures as the foundation of its argument templates, making the reasoning easy to follow and making it possible for analysts to independently author new templates. When authoring an argument template, the analyst first selects an inference structure and then tailors the questions and multiple-choice answers to fit. Argument templates include discovery tools, recommended methods of acquiring information pertaining to the questions posed by the template. An analyst wanting to record an argument, selects an appropriate template given the situation, uses the discovery tools to retrieve potentially relevant information, selects that information to retain as part of the argument and records its relevance to the questions at hand, answers the multiple-choice questions by selecting those answers that bound what is known, and records the rationale for the answers selected. This structured argumentation methodology encourages a careful analysis by reminding the analyst of the full spectrum of indicators to be considered, eases argument comprehension by allowing the analyst to "drill down" along the component lines of
reasoning to discover the basis and rationale of others’ arguments, and invites and facilitates argument comparison by framing arguments within common structures.

- Today, analytic products are recorded in text (a message, web page, or document) making them difficult to rapidly find, comprehend, compare, and explain
- We want to avoid the problems previously encountered when automated tools were developed to aid analysts
  - Reducing the analyst’s role to that of data entry
  - Incomprehensible explanations of the lines of reasoning
  - Analytic methods that cannot be modified by the analysts
- Through **Structure Argumentation** we intend to aid analysts in developing, recording, communicating, explaining, and comparing analytic arguments
  - We are looking to facilitate the analyst’s reasoning, not automate it

## SEAS Cycle for Corporate Memory Management

1. Query corporate memory by describing the current situation; choose descriptive terms from a hierarchical catalog of predefined types
2. Retrieve arguments and templates produced by others to understand their thinking regarding this type of situation
3. Create an argument by recording your answers to questions posed by a template and attach supporting evidence
4. Unknown answers become information acquisition targets; invoke discovery tools from the template to find answers
5. Publish your argument so that others can review your thinking
6. Create, modify, and publish new templates that capture your analytic methods

## SEAS Architecture

SEAS is built upon a foundation composed of the following systems:

**ALP, Gister, Grasper, & Ocelot/Perk**

- Artificial Intelligence Center, SRI International, 333 Ravenswood Avenue, Menlo Park, CA
The high level architecture of SEAS is pictured above. SEAS consists of the SEAS Server connected to the SEAS Corporate Memory. The SEAS Server is a web server that takes in HTTP and produces HTML based upon the contents of Corporate Memory.

TIP: Click on the components in this image to go to their corresponding web site.
The SEAS server is built on top of the AllegroServe web server developed by Franz Inc. This is an HTTP server written in Common Lisp. Since our other components are written in Common Lisp (e.g., Ocelot [PLK], Gister [LGS, Low], and Grasper [KLSW]) this provided an ideal basis for the development of the SEAS Server. The HTML Generator creates HTML pages on the fly upon request, utilizing the ALP (Active Lisp Pages) scripting environment for creating dynamic pages and Grasper for creating graphical depictions of SEAS arguments and templates; GD is used to produce images of the Grasper graphical depictions. AllegroServe parses the HTTP requests and calls upon the HTML Generator to create pages that are then returned to the requesters by AllegroServe. The pages are generated by consulting the SEAS Corporate Memory Manager which in turn consults the SEAS Corporate Memory stored in the Ocelot KBMS. It connects to a KBMS via the OKBC API [CFFKR]. If the request changes the answer to some question in an argument, the Gister Engine is invoked to update related answers in that argument in the KB. The Ocelot/Perk knowledge base management system is a KB management system server with OKBC as its API. It optionally connects to the DBMS Server via SQL; otherwise Ocelot stores the KB as a file in the system file.

What happens when the user clicks on a light to answer a question?

1. AllegroServe receives an HTTP command from the Browser client, calls
2. SEAS HTML Generator: interprets the command as a change in the answer to an argument question, calls
3. SEAS Corporate Memory Manager: updates the answer to the question in the KB, calls
4. Ocelot KBMS: changes slot value in KB frame that represents question answer, calls
5. Perk Storage System: moves KB frame to and from memory from DB, calls
6. DBMS: retrieves and updates DB to reflect changes in KB frames
7. Gister Engine: called by SEAS Corporate Memory Manager to calculate related answers in the argument
8. SEAS Corporate Memory Manager: updates related answers, as dictated by Gister Engine, using Ocelot, PERK, and DBMS
9. Grasper: called by SEAS HTML Generator to produce summary graphics (e.g., starburst) based on KB contents
10. SEAS HTML Generator: produces HTML that portrays argument in KB
11. AllegroServe: sends HTML back to the client

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Although their code does not appear in gd 2.0.4, the authors wish to thank David Koblas, David Rowley, and Hutchison Avenue Software Corporation for their prior contributions.
How to Get Started Using SEAS

If you are new to SEAS, read the immediately following suggestions about how to get started. If you are familiar with prior versions of SEAS, review the SEAS Release Notes below.

1. Read some of the following help pages to become acquainted with SEAS terminology and concepts
   - About SEAS to become acquainted with the design goals and use cycle of SEAS
   - Elements of Structured Argumentation
   - Glossary of Terms to become acquainted with SEAS terminology (remember to refer back to this whenever you encounter a term that you do not understand)
   - How To to become familiar with the basic operation of SEAS
   - SEAS Object Manager to learn how to retrieve and open arguments and templates
   - Frequently Asked Questions to learn from others
   - Consider printing this page, by pushing the print button at the top of this page, for reference while performing the recommended activities

2. In the SEAS Object Manager
   1. Read about find and opening arguments in the How To page of the help system
   2. Click on the expand (i.e., "+") button adjacent to Multi-Dimensional Arguments
   3. Invoke the Hierarchical Viewer/Editor on one of the arguments by clicking on the icon adjacent to it

3. In the Hierarchical Viewer/Editor
   0. Push the Help button to learn the basics about the Hierarchical Viewer/Editor when viewing a multi-dimensional argument
   1. Click on one of the labels in the starburst graphical depiction to move to the corresponding uni-dimensional argument
   2. Push the Help button to learn the basics about the Hierarchical Viewer/Editor when viewing a uni-dimensional argument and/or read about browsing in the How To page of the help system
   3. Use the Navigation buttons and the navigation map to explore this uni-dimensional argument
   4. Retrieve a multi-dimensional argument and copy it, thus creating an unpublished argument for which you are the author; read how in the How To page of the help system
   5. Navigate down to the primitive questions
   6. Read about editing arguments in the How To page of the help system
   7. Change the answers to some of the questions
   8. Enter the Rationale for your changes
   9. Add an Exhibit
   10. Promote that Exhibit to Evidence
   11. Change the situation descriptor associated with some of the component arguments
   12. Return to the SEAS Object Manager and delete the argument you just created

4. In the SEAS Object Manager
   0. Retrieve a uni-dimensional template and copy it, thus creating an unpublished template for which you are the author
   1. Navigate through this template
   2. Read about editing arguments in the How To page of the help system
   3. Change some of the Questions, Amplifications, and Answers
   4. Add a Discovery Tool
   5. Return to the SEAS Object Manager and create a new argument based upon the template you just created
   6. Review the Publishing help page
7. Give others read and write access to your argument and template by making them members of the Audience and Authors.

5. Create a multi-dimensional template and argument, then add and remove component templates and arguments: learn how in the How To page of the help system

6. Design a template
   0. Review the Style Guide for SEAS Templates in the help system
   1. Create a template for use by you and others
   2. Record the type of situations for which this template is intended to be used
   3. Give access to others
   4. Publish your template

7. Develop your own arguments
   0. Use your template as the basis for your own arguments
   1. Make a colleague a coauthor and work collaboratively on an argument
   2. Publish your results.

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**SEAS Release Notes**

*Note: There are two different versions of SEAS available for distribution. The GOTS version of SEAS, known simply as SEAS, is available for US government use free of any license fees. High SEAS, the COTS version, is available for license and has associated fees. High SEAS differs from SEAS in the following ways (although some High SEAS capabilities are still under development):*

- *High SEAS runs on Windows, Linux, OS X, and Solaris, while SEAS runs only on Solaris*
- *High SEAS has security features not found in SEAS including encrypted communications*
- *High SEAS has a web page archiving facility not found in SEAS*
- *High SEAS is capable of supporting larger user communities than SEAS*

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**New in SEAS 6.4**

*released September 10, 2004*

**Responses to Memos Supports Dialogs**

SEAS now allows one to respond to a memo. In so doing, a new memo is created on the same topic. When a memo is opened for reading, all memos on the same topic (to which the reader has access) are displayed, allowing the reader to review the dialog pertaining to that topic.

**Library of Exemplar Template Questions and Multiple-Choice Answers**

To help speed the creation of templates and improve their quality, a library of exemplar template questions and associated multiple-choice answers is provided. When entering the multiple-choice answers associated with a given question in a template, there is the option to directly choose a multiple-choice answer set from the library, to reverse the association of choices with the colored light scale, and to propagate those choices to all other questions in the template.
Propagate Publication and Situation Information from a Collection to its Items

When entering or editing the publication information or the situation information associated with a collection, there is now the option to propagate that information to the items in that collection. This greatly speeds making coordinated changes to this information across items in a collection.

HTML Tags can be Incorporated into the Text You Enter

Now as you enter text to be incorporated into SEAS arguments/templates, you can choose to include HTML tags in that text (e.g., to make text bold, italic, underlined, colored, etc.) and they will influence the way that that text appears.

Discovery Tools for Collections

Discovery tools can now be attached to collections in the same way that they are attached to templates or arguments (in addition to being included as items in collections). If those attached are auto-populating discovery tools, when triggered, the resulting new exhibits are automatically added as items in the collections. All such auto-populating discovery tools attached to a collection can be simultaneously triggered by pushing the discovery button associated with that collection.

Directly Open Exhibit/Evidence or the Documents on which they are Based

Now when exhibits or evidence are displayed in collections or in the SEAS manager, clicking on the associated icon will open the dialog pertaining to the exhibit/evidence, while clicking on the citation will open the document on which that exhibit/evidence is based. This allows direct access to the underlying documents.

Alternatives Collections

A new type of collection has been added, one that captures the idea that its items are in competition with one another to be designated the best. This type of collection can be used to organize arguments that represent differing opinions on a common topic. One of those can also be designated as the "best". If all such items are based upon a common template, then a consensus argument, utilizing the same template, can be automatically produced through a "join". The resulting argument arrays the answers given by each of the arguments as elements of evidence in support of the joint answer. If an automated fusion method is chosen to perform the join, then the consensus answers are automatically entered in the resulting argument.

New Options in the Summary Viewer

The summary viewer parameters now include an option to include a graphic depicting the summarized argument/template at the top of the summary. In addition there is an option to directly answer questions within the summary viewer, rather than having to go to the hierarchical viewer/editor to do so.

Preferred Viewer/Editor

Now you can designate the hierarchical viewer/editor, the summary viewer/editor, or the table viewer as your preferred viewer. Whenever an argument or template is opened from a collection or from the SEAS manager, it is opened in the preferred viewer.

AML Export/Import
SEAS export/import capabilities have been extended to handle all of the new features of SEAS 6.4. In addition, files used as the basis for exhibits/evidence are included in the exports/imports allowing arguments and their supporting exhibit/evidence files to be moved from one SEAS server to another.

New in SEAS 6.3

released December 16, 2003

Ability to Weight Answers or Evidence

SEAS 6.3 lets you decide which answers or evidence to weight more heavily in a conclusion through the use of weighted fusion methods. This gives you the opportunity to fine tune your analysis. You can also use this method to discount evidence that may be less reliable.

Ability to add Memos on Exhibits, Evidence, & Discovery Tools

With SEAS 6.3 you can place memos on finer grained objects (e.g., exhibits, evidence, discovery tools) facilitating discussion about more specific SEAS objects.

Moving items between Collections

The Collection Manager now includes a one-step operation to move an item out of another collection and into the current collection.

Create a Version with One-click

SEAS 6.3 allows you to easily capture the current version of your argument or template and continue working. With one-click versioning, you can create a new version of an argument or template and have it automatically saved in an appropriate collection, all in one step. SEAS keeps track of the versions so you will always know which is the most recent.

The Option to Copy Answer Choices from one Question to all Other Questions

With a single click, you can now copy all the answer choices from one question in a template to every other question in that template. If you use a consistent style of questions/choices, it's only necessary to type the choices once.

Ability to Parse HTML and RSS files for Exhibits

With SEAS 6.3 you can use a Web URL as a discovery tool and it will find the hypertext links, ask which pages you are interested in, and create exhibits from the ones designated. This feature is available for HTML or RSS pages.

Comparing and Merging SEAS Arguments/Templates
SEAS 6.3 introduces a powerful new feature that allows you to compare SEAS arguments and SEAS templates side by side. You can also copy any component part of an object (question, answer, rationale ...) from one object to another. There is no longer a need to cut and paste when copying answers, questions, or other parts of a template or argument.

Print SEAS Arguments and Templates without SEAS Icons

Now when you print a SEAS argument or template you can get a printout with only your data. No SEAS buttons or icons will appear.

AML Export/Import

SEAS export/import capabilities have been extended to handle all of the new features of SEAS objects in 6.3.

Configure User Timeout

Through the SEAS System Administration Interface, the system administrator can now configure a User Timeout variable. The timeout variable refers to the length of time before a non-active user is automatically logged out of SEAS.

New in SEAS 6.2

released April 23, 2003

The 6.2 release of SEAS is a minor release, but contains important changes since 6.0. Please read all 6.x Release Notes, included here. If you are upgrading from 5.1, we recommend loading 6.2 directly.

Ability to See from the SEAS Manager which Templates, Arguments, and Collections have Memos and Flags

Within the SEAS Manager you can now see which objects have visible memos and signal flags. The types of memos that are visible are determined by the current parameter settings.

Creating new Arguments and Templates within a SEAS collection

With SEAS 6.2, you can create and add new objects to a collection through a single operation. After creating a collection, click on the New Collection In symbol.

Adding Discovery Tools to Arguments

In SEAS 6.2 you can now add discovery tools to SEAS arguments as well as templates.

Improved Speed

SEAS 6.2 has improved speed for many operations, including the start-up sequence, copying SEAS objects, and modifying large templates and arguments.
SEAS Administration Interface

SEAS now comes with a series of tools to help you diagnose problems and manage the knowledge-base and server, accessible through the SEAS Administration Interface.

Ability to Unpublish Templates and Arguments

Through the SEAS System Administration interface, you now can unpublish templates and arguments. There are two ways for a system administrator to unpublish a SEAS object. 1) Temporarily Unpublish will allow you to unpublish and make simple edits on a SEAS Template or Argument, but you cannot delete it. 2) Permanently Unpublish allows you to edit or delete the object, but also unpublishes all the objects that are dependent on the original object (e.g., unpublishing a template will unpublish all the arguments based on that template).

Deleting Users and Groups

The SEAS 6.2 System Administration Interface includes the ability to delete users and groups from the system.

New in SEAS 6.1

released January 28, 2003

The 6.1 release of SEAS is a minor release, but has important changes since 6.0. Please read both 6.1 and 6.0 release notes, included here. If you are upgrading from 5.1, we recommend loading 6.1 directly.

Graphical Collection View

You can now view graphical representations (e.g., starbursts, navigation maps) of objects and full text of memos, discovery tools, and citations on one printable page. To use this feature, place the objects in a collection and the graphical view button.

Viewing and Printing Full Memo Text in Argument, Template and Collection Viewers

With the new Memo Content parameter you can set SEAS to display either full text or a synopsis for each memo. (Note: you can set parameters to suppress memo display entirely.)

New Critique Feature: Checking Arguments and Templates

With SEAS 6.1 you can set criteria to judge arguments and templates to encourage the use of best practice. This feature will add critique memos to each question where it detects a possible problem.

Editing Exhibits Directly through Collections

SEAS 6.1 fixes an earlier problem (SEAS 5.1) with editing exhibits accessed through the collections.
Improved Import and Export

SEAS 6.1 fixes earlier problems with import and export (SEAS 6.0).

Improved Support for Large Templates and Arguments

SEAS has increased the speed and processing of large Uni-Dimensional arguments or templates.

Feedback for Long Processes

SEAS 6.1 contains user messages to inform you of long processes.

Automatic Restart if SEAS Server Fails

The SEAS server can now be automatically restarted if there is a server failure. During SEAS 6.1 installation, you can install a feature that will check the SEAS server periodically and restart it if the server fails to respond.

New in SEAS 6.0

released Nov. 13, 2002

Adding and Deleting Branches

Although the SEAS team generally recommends the use of regularly structured template skeletons, in some cases irregular skeletons are appropriate. With SEAS 6.0, you can edit templates and arguments to create irregular (asymmetrical) skeletons (e.g., one branch of a template skeleton might have three supporting questions, while the others have two).

To add or delete branches:

1. Create a template with a regular skeleton.
2. Add or delete branches to create the overall structure you need.

Setting Fusion Methods and Number of Answer Choices per Question

With SEAS 6.0, you can choose the number of answer choice (i.e., the number of lights) for each question in a template. You select from 2, 3, or 5 choices (lights). You can also independently vary the fusion method used at each question, choosing Maximum, Minimum, Average, or Consensus. Collectively, the assigned fusion methods make up a template's inference method.

Support for Larger Uni-Dimensional Templates and Arguments

SEAS 6.0 supports the use of larger Uni-Dimensional templates and arguments. Large skeleton graphics are scrollable, and operations are faster.
Adding Security Markings

With SEAS 6.0, you can add a security marking to appear at the top of every template or argument page. The same security marking is used for all pages a template, argument, or collection.

New System Administration Interface

SEAS 6.0 includes a graphical user interface to support the SEAS system administrator. This interface makes it easy for the system administrator to add new users, create new groups, assign users to groups, reset user passwords, and manage accounts.

Expanded Export/Import Capabilities Using Enhanced Version of AML

With SEAS 6.0, you can export and import arguments and templates to move SEAS objects among different SEAS servers. SEAS 6.0 makes use of a new version of AML, the Argument Markup Language, that is capable of representing more of the objects used by SEAS in greater detail within XML files.

Increased Browser Compatibility

SEAS 6.0 is compatible with browsers: Internet Explorer 4.x - 6.x, Netscape 4.7 - 6.0, and Mozilla 1.0 - 1.2
How To Do Things in SEAS

If you don't find the answer to your question here, try Frequently Asked Questions.

How do I find and open an exiting SEAS argument or template?

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.
2. Browse in the SEAS Manager by clicking on + boxes, adjacent to classes of objects, to reveal the contents of those classes, beginning with Arguments, Templates, Recent Objects, or Collections, until the desired object is located. Positioning the cursor over an object and leaving it there, in the SEAS Manager, will eventually result in a popup summary of that object. If opening a class results
in a large number of objects, only an alphabetically ordered range of objects will be displayed, with down and up arrows boxes to move that range forward and back. (see Manager for more sophisticated ways of retrieving and finding objects)

3. Click on the name of an argument or template in the SEAS Manager to open it.
4. If one is in search of a template, then you can first find and open an argument, and then push the "T" button in the tool bar to open the underlying template.

**How do I browse an argument?**

1. Find and open an argument (see above).

2. If it is a multi-dimensional argument, displayed in a graphic with multiple axes emanating from a common hub like the spokes of a wheel (as depicted above) (see Multi.Arg. for a more extensive explanation), then click on the name of one of the dimensions at the end of one of the spokes (e.g., Economic, Military, Political, etc.) to drill down to that corresponding uni-dimensional argument.
3. While looking at a depiction of a uni-dimensional argument, the current base question is displayed near the top of the window. Click on one of the down arrow buttons, adjacent to one of the supporting questions listed below the base question, to drill down to that portion of the argument focused on that question. Alternatively, click on one of the circular nodes in the tree-shaped navigation map (top left hand corner of the display) that represents the hierarchy of questions in the argument, to go directly to that portion of the argument focused on that question. Placing the mouse over any of these nodes will cause the corresponding question to be summarized in a popup display. (see Uni. Arg. Derivative Question for a more extensive explanation)

4. Clicking on the right arrow button will move you to the next question to the right of the current one in the navigation map, clicking on the left arrow button to the next question to the left, clicking the up arrow button to the question above the current one, and clicking on the double up arrow button will return you to the multi-dimensional argument, if you originally entered at that level.

5. When the base question is a primitive question (i.e., one that has no supporting questions, located at the bottom of the navigation map), then the base question is displayed followed by the multiple choice answer(s) selected, the rationale given for having made that selection, the evidence supporting that answer (along with the relevance of each), and the exhibits whose relevance has yet to be determined. If a piece of evidence or an exhibit is available for display, then pushing the magnifying glass button adjacent to it will display it. (see Uni. Arg. Primitive Question for a more extensive explanation)

How do I edit an argument?
1. Find and open an argument and then browse to a primitive question (see above).

**ECONOMIC.CSA-NS.1**

2. If this argument is unpublished and you are included as an author, you will be able to edit it; otherwise "READ ONLY" will appear at the top right of this display. To see the publication information, click on the button with a book on it near the top right. (see Publication Information for a more extensive explanation)

3. If the active fusion method is set to "Manual" (found at the top of the Evidence portion of this display), then you can change the answer to the question by clicking on the circles/lights to the left of the multiple-choice answers.

4. Clicking on the pencil adjacent to the rationale will bring up a window where it can be edited.

5. Clicking on the pencil button adjacent to a piece of evidence or an exhibit will allow you to edit its information.

6. Clicking on the down or up buttons, adjacent to a piece of evidence or an exhibit, will demote evidence to an exhibit, or promote an exhibit to evidence, respectively.

7. Clicking on the trash button adjacent to an exhibit will discard it.

8. Clicking on the exhibit in-basket will allow you to add a new exhibit.

9. Clicking on the scope button adjacent to a discovery tool will launch that discovery tool as an aid to finding new exhibits.

   See Uni. Arg. Primitive Question for a more extensive explanation.

**How do I create a new empty argument?**

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.

2. In the SEAS Manager, click on the "New" button.
3. When the New SEAS Object dialog window appears, select from the pull-down menu either "Multi-dimensional Argument" or "Uni-dimensional Argument".

4. Click on the discovery button (the one with a scope on it), adjacent to the Template field, and find a template, just as you do in the SEAS Manager (see above).

5. Type in a name for the new argument.

6. Click on the "New" button; this will create the new argument and open it, with you as its author.

7. Now edit its contents (see above).

See Manager for a more extensive explanation.

How do I create a new argument by copying another?

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.

2. Find the argument in the SEAS Manager that you wish to copy (see above).

3. Push the "Copy" button followed by clicking on the argument you wish to copy.

4. When the Copy SEAS Argument dialog window appears, type in a name for the new argument.

5. Click on the "Copy" button; this will create a new argument that is a copy of the original and open it, with you as an author.

6. Now edit its contents (see above).

See Manager for a more extensive explanation.
How do I browse a template?

1. Find and open a template (see above).

2. If it is a multi-dimensional template, displayed in a graphic with multiple axes emanating from a common hub like the spokes of a wheel (as depicted above) (see Multi. Tmp. for a more extensive explanation), then click on the name of one of the dimensions at the end of one of the spokes (e.g., Economic, Military, Political, etc.) to drill down to that corresponding uni-dimensional template.
A depiction of that uni-dimensional template will appear.

**Economic.CSA-IRAQ**

3. While looking at a depiction of a uni-dimensional template, the current base question is displayed near the top of the window. Click on one of the down arrow buttons, adjacent to one of the supporting questions listed below the base question, to drill down to that portion of the argument focused on that question. Alternatively, click on one of the circular nodes in the tree-shaped navigation map (top left hand corner of the display) that represents the hierarchy of questions in the argument, to go directly to that portion of the template focused on that question. Placing the mouse over any of these nodes will cause the corresponding question to be summarized in a popup display. (see Uni.Tmp.Derivative Question for a more extensive explanation)

4. Clicking on the right arrow button will move you to the next question to the right of the current one in the navigation map, clicking on the left arrow button to the next question to the left, clicking the up arrow button to the question above the current one, and clicking on the double up arrow button will return you to the multi-dimensional template, if you originally entered at that level.

5. When the base question is a primitive question (i.e., one that has no supporting questions, located at the bottom of the navigation map), then the base question is displayed followed by the question amplification (prefaced by "Consider the following:"), the multiple choice answers, and any discovery tools. Pushing the magnifying glass button adjacent to a discovery tool will launch it. (see Uni.Tmp.Primitive Question for a more extensive explanation)
How do I edit a template?

1. Find and open a template and then browse to different questions (see above).

   Economic.CSA-IRAQ

   Base Question
   
   BUDGET CRISIS: Is a budget crisis developing or worsening?

   Question Amplification
   
   - Rising budget deficit
   - Increased external/internal borrowing
   - Fiscal spending is exceeding revenue collection

   Choices
   
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not

   Discovery Tools [3]

   - Google search for Iraq debt
   - Excite search for Iraq debt
   - ABC Country Book - Economy

2. If this template is unpublished and you are included as an author, you will be able to edit it; otherwise "READ ONLY" will appear at the top right of this display. To see the publication information, click on the button with a book on it near the top right. (see Publication Information for a more extensive explanation)

3. Clicking on the pencil adjacent to a question will bring up a window where it can be edited.
4. Clicking on the pencil adjacent to the question amplification will bring up a window where it can be edited.
5. Clicking on the pencil button adjacent to the choices will bring up a window where they can be edited.
6. Clicking on the pencil button adjacent to a discovery tool will allow you to edit its information.
7. Clicking on the trash button adjacent to a discovery tool will discard it.
8. Clicking on the discovery toolbox will allow you to add a new discovery tool.

See Uni_Tmp_Primitive Question for a more extensive explanation.
How do I create a new template by copying another?

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.
2. Find the template in the SEAS Manager that you wish to copy (see above).
3. Push the "Copy" button followed by clicking on the template you wish to copy.
4. When the Copy SEAS Argument dialog window appears, type in a name for the new template.
5. Click on the "Copy" button; this will create a new template that is a copy of the original and open it, with you as an author.
6. Now edit its contents (see above).
   See Manager for a more extensive explanation.

How do I create a new multi-dimensional template from scratch?

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.
2. In the SEAS Manager, click on the "New" button.
3. When the New SEAS Object dialog window appears, select from the pull-down menu either "Multi-Dimensional Template".
4. Type in a name for the new template and select the situation type.
5. Click on the "New" button; this will create the new template and open it, with you as its author.
6. Now add uni-dimensional templates as component templates by clicking on the Template Stapler (see Multi. Tmp. for a more extensive explanation).
   See Manager for a more extensive explanation.

How do I create a new uni-dimensional template from scratch?

1. Go to the SEAS Manager (the window that appears immediately after launching SEAS); many SEAS windows have a button with the SEAS logo on it that when pushed will bring the SEAS Manager window into view.
2. In the SEAS Manager, click on the "New" button.
3. When the New SEAS Object dialog window appears, select from the pull-down menu either "Uni-Dimensional Template".

![Create New SEAS Object](image)

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Marking</td>
<td></td>
</tr>
</tbody>
</table>

**Object Type** Uni-Dimensional Template

**Structure**

<table>
<thead>
<tr>
<th>Level</th>
<th>Questions Per Branch (Skeleton)</th>
<th>Choices</th>
<th>Fusion Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>top</td>
<td>1</td>
<td>3</td>
<td>Maximum</td>
</tr>
<tr>
<td>2nd</td>
<td>4</td>
<td>5</td>
<td>Maximum</td>
</tr>
<tr>
<td>3rd</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Situation Type** National Security Situations

4. Type in a name for the new template, type in the skeletal structure, select the inference method, and select the situation type.

5. Click on the "New" button; this will create the new argument and open it, with you as its author.

6. Now edit its contents (see above).

See Manager for a more extensive explanation.

If you didn't find the answer to your question here, try Frequently Asked Questions.
BACKGROUND TOPICS

SEAS Basic Concepts

Elements of Structured Argumentation

Our approach is based on the concept of a structured argument. A structured argument is based on a hierarchically organized set of questions that is used to assess whether an opportunity or threat of a given type is imminent. This hierarchy of questions is called the argument's template (as opposed to the argument, which answers the set of question posed by the template). The skeletal structure of this hierarchy is called the argument skeleton. Questions higher in the skeleton, called derivative questions, are answered by combining the answers to the questions immediately below them. This hierarchy of questions supporting questions may go a few levels deep before bottoming out in questions that must be directly assessed and answered; these are called primitive questions.

The figure below illustrates the skeleton of a seventeen-question argument template, with five derivative questions (1, 1.1, 1.2, 1.3, 1.4) and twelve primitive questions (1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, 1.3.1, 1.3.2, 1.3.3, 1.4.1, 1.4.2, 1.4.3). The links represent support relationships among the questions. A derivative question is supported by all the derivative and primitive questions immediately below it. For example, question 1 is answered based upon the answers to 1.1, 1.2, 1.3, and 1.4, and 1.2 is answered based upon the answers to 1.2.1, 1.2.2, and 1.2.3.

An inference method is used to automatically answer the derivative questions (light blue nodes, below) based upon the answers to primitive questions (darker blue nodes). The user answers the primitive questions in the question hierarchy, and the answers to the derivative questions are automatically calculated. An inference method pairs a fusion method with each derivative question. A fusion method combines the answers to the supporting questions to derive an answer to a derivative question. A typical fusion method might take the maximum answer as the conclusion when combining several answers assessed along a continuous scale. The same argument skeleton and fusion methods are typically used to support multiple argument templates over widely differing topics.

To complete an argument template given an argument skeleton and inference method, one associates a multiple-choice question with each node in the skeleton. To facilitate the rapid comprehension of arguments, we use a traffic light metaphor; relating choices to colored lights along a linear scale, from green at the low end to red at the high end. The questions in a template are typically yes/no or true/false;
the multiple-choice answers for primitive questions partition this range, associating an answer with each colored light. Typically, a five-light scale is used (green, yellow-green, yellow, orange, red). Here green might correspond to false, red to true, and the other three to varying degrees of certainty (see below). No multiple-choice answers are associated with derivative questions; within arguments, their answers are strictly summarized by lights indicating their degree of certainty.

The challenge in authoring an argument template is to break the problem down into a hierarchically structured set of questions (see the example above) that matches the selected argument skeleton and whose interrelationships among the answers follow the fusion methods. Therefore, it is critical that the author understands the structure of the argument skeleton and the effect of the fusion methods when fashioning the questions and multiple-choice answers that will be posed by the argument template.

1. **POLITICAL**: Is this country headed for a political crisis?
   1.1. **POLITICAL INSTABILITY**: Is political instability increasing?
      1.1.1 **INCREASINGLY UNSTABLE/WEAK GOVERNMENT**: Is the government becoming increasingly unstable or weak?
      1.1.2 **INCREASING CONFLICT OVER POLICY/ISSUE AREA**: Is increasing conflict over policy/issue areas having a destabilizing effect?
      1.1.3 **DECREASING PUBLIC CONFIDENCE**: Is decreasing public confidence in the leadership or government policies having a destabilizing effect?
   1.2. **POWER STRUGGLE**: Is there a government power struggle with potentially destabilizing consequences?
      1.2.1. **FACTIONALISM**: Is there evidence of growing factionalism within the government, bureaucracy, or legislature that is leading to or exacerbating a power struggle?
      1.2.2. **OPPOSITION CHALLENGE**: Is there a significant political opposition challenge to the government that is leading to or exacerbating a power struggle?
      1.2.3. **SUBNATIONAL GROUP INFLUENCE**: Are powerful subnational groups contributing to a government power struggle by influencing or backing specific government officials/factions?
   1.3. **GOVERNMENT RESPONSE TO SOCIO-POLITICAL Discord**: Is the government resorting to increasingly stringent measures in response to socio-political discord with potentially destabilizing consequences?
1.3.1. **REPRESSION OF POLITICAL OPPOSITION**: Is government repression of the political opposition or dissident groups occurring/increasing?

1.3.2. **REPRESSION OF SOCIAL/RELIGIOUS GROUPS**: Is government repression of social/religious groups occurring/increasing?

1.3.3. **INTERNAL SECURITY MEASURES**: Is the government instituting or strengthening internal security measures in response to armed (guerrilla/insurgency/separatist) movements or terrorist/criminal activity?

1.4. **STRUCTURAL/INSTITUTIONAL PROBLEMS**: Are there serious or worsening or institutional problems that could have destabilizing consequences?

1.4.1. **CONSTITUTIONAL CONFLICT/CRISIS**: Is there a constitutional conflict/crisis?

1.4.2. **ERODING LEGAL AUTHORITY/ADMINISTRATIVE FUNCTIONS**: Are legal authorities or administrative functions eroding?

1.4.3. **DECREASING PUBLIC CONFIDENCE**: Is public confidence in public institutions decreasing?

**Arguments** are formed by answering the questions posed by a template. Answers are chosen from the multiple choices given by the associated template. The **rationale** for each answer is recorded in text. Upon answering each question, the template's inference method is applied, deriving the answers to derivative questions. Using the traffic light metaphor, arguments can be displayed as a tree of colored nodes (see below). Nodes represent questions, and colors represent answers. The line of reasoning can be easily comprehended and the user is able to quickly determine which answers are driving the conclusion.

Information used as evidence to support the answers given in an argument are recorded as part of the argument. When information that is potentially relevant to answering a question posed is first found, it is entered as an **exhibit**. An exhibit assigns a unique identifier to the information, and records information for accessing it and a citation string for referring to it (typically consisting of some combination of title, author, and date). When the relevance of the information to the question at hand is determined, the exhibit is promoted to **evidence**. The **relevance** is recorded in two ways: as text explaining the significance and as the answer to the question that would be chosen if the answer were to be based solely upon this evidence. When evidence is present, the rationale typically explains how the collective evidence supports the answer chosen, explaining away that evidence that contradicts the answer and weaving together the supporting evidence to arrive at the stated conclusion.

A key difference between an expert and novice analyst is that the expert knows where to look for relevant information. **Discovery tools** provide a means for recording where to look for relevant information. They are typically recorded as part of the argument template, but can also be added as part of an argument. In
either case, a discovery tool is associated with a question. A typical discovery tool might invoke a query to a search engine (e.g., Google) or reference a periodical on the web. In either case, the resulting information is examined to determine what if anything should be turned into an exhibit or evidence.

All of the arguments and templates thus far discussed are uni-dimensional. That is, they each are designed to arrive at the answer to a single overall question, the one upper most in the hierarchy. Multi-dimensional arguments and template are made up of multiple uni-dimensional components, where each addresses a common topic from a different perspective. For example, the assessment of the stability of a nation state might best be addressed by several independent assessments of the leadership, social, political, military, external, and economic situations (see below).

Other elements include collection, signal flags and memos. Collections are named containers into which objects can be placed, including other collections. They are used as an organization tool, to group objects on common topics, making them easier to find when needed. Signal flags are annotations on exhibits or evidence that mark them for analyst attention. Typically these are used to signal the arrival of new information that has yet to be fully incorporated into the associated argument. Memos are annotations that can be placed on any object. Unlike signal flags, they include a textual subject and body through which a message is conveyed pertaining to the objects on which they are attached. They and signal flags are devices for communication among multiple contributing analysts.

Arguments, templates, and collections all have situation descriptors and publication information. Situation descriptors capture the situation an argument addresses, the type of situation a template is intended to address, or the situation or type of situation to which a collection pertains. They include both textual elements and elements selected from fixed taxonomies of terms that typically capture the who, what,
where, and when of situations. **Publication information** determines who has access to an object and whether or not they can modify that object.

### Using Exhibits

There are four basic types of exhibits within SEAS: citations, files, URLs, and arguments. A **citation exhibit** is used to reference a book, magazine, report, or other document that is not available online. A bibliographic reference, recorded as the exhibit's citation, is the sole means by which a user can find and read such an exhibit. The basis for a **file exhibit** is a file provided by the user that created the exhibit. That file is archived on the SEAS server for future reference, and is downloaded to any user's machine when the inspect button is pushed for such an exhibit. Citations are recorded for file exhibits, as well as all other types of exhibits, but are only used to textually identify them when they appear in arguments or collections. **URL exhibits** are typically used to reference web pages, but can be used to reference any object that is web accessible. When their inspect button is pushed, their URL is followed by the client web browser. Finally, SEAS arguments can be directly used as **argument exhibits**. Typically, a uni-dimensional argument is used as an exhibit where the question it answers is the same (or nearly the same) as the primitive question in the argument to which it is attached. When such exhibits are promoted to evidence, their symbolic relevance (i.e., the answer induced by this evidence) can be automatically inherited from the supporting uni-dimensional argument. If the ultimate answer to the uni-dimensional argument changes, so will the relevance of this evidence.

Although there are only four types of exhibits, there are more than four ways to create them. Exhibits used elsewhere can be identified for reuse. When done, it is actually a copy of the exhibit/evidence that is used; thus, if the original is changed it will not impact where it has been reused. Besides a user specifying a file on their local disk to be used as the basis for a file exhibit, they can also specify a file using a URL. Finally, a URL can be used to specify a location where references to multiple potential exhibits can be found. These potential exhibits can be selectively or collectively turned into exhibits, at the user's discretion (see **Using Discovery Tools** below).

### Using Discovery Tools

Discovery tools are recommended means of acquiring information to answer a question. They are most often associated with a template and are available for use in all arguments built upon that template. If they are directly associated with an argument, rather than its underlying template, it will generally not be available in other arguments. Of course, if that argument is copied, then copies of that discovery tool will be in the argument copies. If a discovery tool is of general use to anyone answering a question posed by a template, it is best if it part of the template. If it is not of general use, but might be of periodic use during argument development, then it is best associated with the argument.

Discovery tools are either based upon a template or a URL. If they are based upon a **template**, when triggered, they create new arguments based upon that template and add them as exhibits. Discovery tools based upon **URLs** trigger those URLs. These might constitute parameterized calls to search engines, references to web portals or pages, or calls to other web accessible tools. In their standard form, it is up to the user to examine the page or file returned, and manually create one or more exhibits based upon the returned information. Of course, copy-paste and drag-and-drop can aid in this process.

Another option is to create discovery tools that produce **Exhibits from a URL**. These assume that the URL will return references to multiple potential exhibits. If the page/file returned is in RSS, then the Items it finds in it are potential exhibits; if the page/file returned is in HTML, then the HREFs it finds are potential exhibits. When such discovery tools are triggered, the user (by default) is presented with a dialog where s/he can selectively choose which of the potentials to turn into exhibits; there is also an option for turning
these into URL or file exhibits. However, there is another option. When such a discovery tool is defined, it can be made auto-populating: that is, it can be made to skip the dialog and turn every potential found into an exhibit, without any user intervention. When such auto-populating discovery tools are present, buttons are added to the arguments that include them that when pushed, trigger all such discovery tools in the argument. Since each new exhibit is annotated with a red signal flag, the new exhibits can be easily found. Retriggering these auto-populating discovery tools will not reintroduce any potential that is already an exhibit or evidence. Therefore, it is best to retain those exhibits that have been deemed irrelevant to prevent their reintroduction the next time the auto-populating discovery tools are triggered; instead signal their irrelevance by lowering their signal flags.

Discovery tools can also be associated with some kinds of collections. When present, they serve the same role of finding potentially relevant information. Auto-populating discovery tools can be associated with collections; these automatically fill the collections with potentially relevant exhibits. When present, there is a button associated with the collection for triggers them.

**Using Collections**

Collections are named containers into which one can place SEAS objects on a common theme. That theme is partially expressed by the name given a collection and the situation descriptor associated with it. The type of the collection can be used to further expresses this theme. A sequential collection indicates that the items in the collection are linearly ordered and constitute a series. One element in the series does not replace a previous element, but adds to it, by addressing a different aspect of the theme, usually a different time period. For example, a sequential collection is an ideal way to organize monthly arguments on a common topic, where each argument assesses the situation during a different month. On the other hand, each item in a versioning collection is meant to replace the previous item, typically correcting or enhancing it. Its items too are linearly ordered, but there is typically only one item in active use, the current item, while the items that came before it are retained to ensure the integrity of earlier assessments, and as an historical record. Besides an item being designated as current, other items can be designated as the previous or next item. The next item is the one in line to become the next current item, at which time the present current item will become the previous. A versioning collection is ideal for tracking improvements and enhancements to a template over time. The initial version is established as the current one while the next one is under development. When the next one is ready to replace the current, the role of the current is changed to previous, the role of next changed to current, and a new copy of the next (now current) template is added to the collection and designated the next item. In so doing, arguments developed on earlier versions of the template are still based upon the same versions, yet the versioning collection makes it clear that there are newer versions available and which is the best to build upon at the moment. An alternatives collection captures the idea that its items are in competition with one another to be designated the best; the order in which the items are listed is of no consequence. This type of collection can be used to organize arguments that represent differing opinions on a common topic. If all such arguments are based upon a common template, then a consensus argument can be automatically produced through a join (see Joining Arguments below). A miscellaneous collection indicates that there is no additional theme and that the order in which the items are listed is of no consequence. Such a collection might be used to collect exhibits on a common topic for later use in support of arguments.

To encourage the use of sequential and versioning collections, we have added a "one click" versioning button to the viewer/editors for arguments and templates. Pushing the version button in the auxiliary toolbar will copy and save the current version of the argument or template to a sequential or versioning collection. The resulting dialog lists all of the sequential and versioning collections that include the argument or template, with a button to open each collection to see its contents.

In general, collections can be used to organize objects for easy access. Each user has a home collection that is included at the top of the SEAS Object Manager. Opening this home collection immediately reveals all
of the items the user has placed in it. If it contains other collections, then those can be opened in hierarchy, revealing their contents. In this way a user's home collection plays a similar role to a user's home directory in a computer file system, with embedded collections acting much like subdirectories. Unlike directories, collections have situation descriptors, types, publication information, and (sometimes) roles making it even easier to find and share information. Further, if signal flags are raised or visible memos attached to objects within the user's home collection, it is so annotated, as are the objects within it, making it easy to quickly navigate to those objects needing attention.

Using Memos

Memos provide a means for annotating SEAS objects with the equivalent of sticky notes, formatted as memos. These can be used to record personal reminders or as a means of communicating with other users that have access to the objects to which they are attached, or the collections that they are in. Since memos include both Authors and Audience, access to them can be further restricted to specific individuals or groups (see Publishing, Collaboration, and Access Control below). Since they can be placed on published objects, they provide a way to mark-up what are otherwise unmodifiable objects. They include fields that are filled with text, including the Subject and Body, and the Type that is selected from a list. The memo Type indicates the purpose of the memo: they can be used to leave Instructions for others on how to use arguments/templates/collections/exhibits/evidence/discovery tools, to Critique any such objects, to record overriding Assumptions, to attach a Summary, to state the Context within which this object was/should be used, to indicate what is left To-Do, to indicate that an object is For-Review by others, or to attach a miscellaneous Comment. When viewing an argument, memos attached to its underlying template are visible, meaning that memos pertaining to instructions, assumptions, and context for the template's use are visible when arguments are created based upon them.

Each user can control which of the memos they have access to are visible. The parameters associated with each of the major viewer/editors include settings for which types of memos are to be visible. Only those included are displayed. Within the Memo Manager, any given memo can be set to not Display, no matter the memo type settings. If any memo is not visible in a viewer/editor due to any of these settings, then the button that activates the Memo Manager will have blinking lines across it, indicating that some memos are being hidden from view. Within the Memo Manager, memos can be deleted. If it is an author that deletes a memo, then it is deleted for everyone; if it is a member of the audience that deletes a memo, then it is only deleted for them, with no effect on others.

Both signal flags and memos are used as a means of alerting, but they differ in several significant respects. Signal flags are meant to signal things that need to be addressed by someone (anyone); as soon as it is addressed, the flag is lowered; once lowered by one, it is lowered for all. On the other hand, memos can be used to alert a group to things that they all must do. For example, if a For-Review memo is created with a group as its Audience, then deletion of the memo by any member of the group does not delete it for the others; each member of the group must individually address it. Of course, if the group is included as Authors of the memo, deletion by any member of the group will delete it for all. Another difference is that a signal flag is visible to everyone that has access to the object to which it is attached; a memo can be further restricted to any subset of those that have access to the object. Signal flags have no type or other content and cannot be selectively filtered like memos. Memos also resemble email messages in some ways. However they differ in that they are attached to objects and they can be modified or retracted by their Authors after they are issued.

Publishing, Collaboration, and Access Control

Since SEAS is meant to be used by a community of analysts, it must address issues of privacy. When an analyst is in the early stages of argument development, they might not want their work to be accessible by
others. During development, they might want certain individuals or groups to aid the process by reviewing or contributing to the process. Even when an argument is complete, they will want to control who it is that will be allowed to see the results. Further, when an argument is used as evidence in support of another argument, then that argument serving as evidence must be guaranteed to persist in its current state to guarantee the integrity of the argument it supports.

To address these issues of access control and referencing, SEAS incorporates the concept of publishing. The concept is summarized in the following table. There are four key attributes that are related to two states of publishing: unpublished and published. The first, unique ID, is actually common to both, but it is so fundamental that we wanted to list it explicitly. All arguments, templates, and collections, no matter their publishing state, have an ID through which they can be uniquely identified. If there are multiple versions of an argument, template, or collection, each version has its own ID. Published arguments, templates, and collection are guaranteed to persist, that is, they will continue to exist; no such guarantee is made for unpublished arguments, templates, collections. As a consequence, only published objects can be reliably cited, much as only published works are (typically) included in bibliographies so that the reader has a real opportunity to obtain and read them. Unpublished arguments, templates, and collections are distinguished from published ones in that they are unstable i.e., likely to change in content. Published arguments, templates, and collections will not change. Finally, unpublished objects are distinguished from published ones in that their authors are given write access, while published ones restrict access by both their authors and audiences to reading.

<table>
<thead>
<tr>
<th></th>
<th>UNPUB</th>
<th>PUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique ID</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Stable</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Persistent</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Access</td>
<td>Authors (r/w)</td>
<td>Authors &amp; Audience (r)</td>
</tr>
</tbody>
</table>

All arguments, templates, and collections originate as unpublished works with a single author. While they remain unpublished, the author can add additional authors. Only the authors have access and they are free to make modifications as they see fit. Should more than one author attempt to change the same information at the same time in an unpublished argument or template, when the second author attempts to save their changes, they will be presented with a dialog that displays the version saved by the other author and their version, with an option to choose either one or to develop a new version by cutting and pasting between the two. When SEAS detects two authors simultaneously browsing the same unpublished argument or template, it warns the authors by displaying the collaboration warning symbol (see below). Once their draft argument, template, or collection is ready for limited external review, they might add people or organizations to the audience. It is dangerous for this audience to cite this unpublished work since it might go away or be substantially changed in the future. When an author decides that an argument, template, or collection is ready for external release, they publish it giving read access to a specified audience in addition to the authors. However, an argument can only be published if its underlying template is published. Once published, arguments, templates, and collections can be reliably cited and referenced in other arguments and collections since they are guaranteed to persist unchanged.
The following table summarizes the meaning of those symbols that are used by SEAS to communicate publishing, collaboration, and access control information.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>The unpublished symbol indicates that the associated argument or template has not been published</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>The unpublished template symbol indicates that the associated argument and it underlying template have not been published</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>The read only symbol indicates that the associated argument or template cannot be edited (i.e., it is published or the user is not an author)</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td>The collaboration warning symbol indicates that another author is currently accessing the same unpublished argument or template. Should more than one author attempt to change the same information at the same time, the last one finished will enter a dialog to resolve any conflicting changes. Clicking on this symbol will reveal the identities of the collaborators.</td>
</tr>
</tbody>
</table>

See the Help sections on Publication Information to see how to view and edit this information.

### Automated Fusion Methods and Inference Methods

Automated fusion methods are used to automatically derive an answer to a question given the answers to supporting questions or evidence. They are used to fuse answers from supporting questions to answer a derivative question. They are used to fuse evidence to answer a primitive question. An inference method assigns a fusion method to every derivative question in a template.

Automated fusion methods are defined thinking about the possible answers fitting along a linear scale, with green corresponding to the low end and red to the high end. Therefore, when combining a green answer with a red answer using the Maximum fusion method, the result is red; doing the same using the Minimum fusion method results in green. As such, the Maximum fusion method should be used in those cases when any red answer among those being combined should result in red. On the other hand, the Minimum fusion method should be used when all answers among those being combined must be red before red is the result. If the red end of the scale corresponds to problematic conditions and the green end to desirable conditions, then the use of the Maximum fusion method is performing worst-case analysis and Minimum best-case analysis. Of course, if the red end corresponds to favorable conditions and green to problematic conditions, then the situation is reversed, making Maximum best-case and Minimum worst-case. For example, if the question being addressed is the desirability of a given vacation destination, and it is to be based on whether the weather is predominantly warm and dry, assuming that the red end of the scale represents favorable responses, then Minimum should be used if a favorable destination must be both warm and dry and Maximum should be used if a destination is favorable if it is either warm or dry.
Within SEAS, the answer to any question is not limited to a single choice/light. If the available information does not allow one to definitively select a single choice/light, multiple adjacent ones can be selected. For example, if the available information only allows one to eliminate the red choice, leaving all of the others as possible correct answers, then all of the others should constitute the answer. Similarly, if the available information clearly indicates that the red choice might be correct, but does not completely eliminate the possibility that the orange choice is correct, but clearly does eliminate the yellow through green choices, then the answer should include both the orange and green choices. Following this logic, if all choices are selected as the answer, then all of the choices remain possible, doing nothing more than reaffirming the initial condition that the choices span the range of possible answers. Thus, in this case, the information on which the answer was based has conveyed no new information regarding the answer to the question. Within SEAS, this condition, when all choices remain possible, is sometimes graphically represented with all lights on and at other times with all light off. However, in no way does this affect how the fusion methods perform. The following table illustrates the application of Maximum and Minimum to a variety of combinations of two answers.

<table>
<thead>
<tr>
<th>Answer 1</th>
<th>Answer 2</th>
<th>Maximum</th>
<th>Minimum</th>
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Two other automated fusion methods available in SEAS are Average and Consensus. **Average** is the arithmetic average that you might expect. Using it to combine a green answer with a red answer results in yellow; combining yellow with red results in orange; combining yellow-green with red results in both yellow and orange since there is no single light that is half way between them. **Consensus** is similar but gives more emphasis to emphatic answers. Like average, combining green with red results in yellow as does combining yellow-green with orange. But unlike average, combining yellow with red results in red and combining yellow-green with red results in red, since red is the more emphatic answer. Consider asking two people a question: one says the answer is definitely yes while the other says they are not certain if the answer is yes or no. Under some circumstances, it might be better to go with the emphatic yes. That is the kind of reasoning that Consensus attempts to mimic. Another way for an answer to be less emphatic is to include more choices. Here too, consensus will favor the more emphatic over the less emphatic. One interesting consequence of this is that the consensus of any answer with another where all choices remain possible, results in the former answer i.e., combining an answer with the equivalent of an a non-answer results in the answer. The following table highlights some of the similarities and differences in applying Average and Consensus. Returning to our question concerning the desirability of a vacation destination, Average or Consensus should be used if it being warm partially compensates for it being wet and it being dry partially compensates for it being cold. Consensus should be used rather than Average if an emphatic answer should predominate.
In some cases, one wants to weight the answers to be fused differently. Typically this is because the credibility of the sources of the answers differs; one wants to lean more heavily toward the answer given by the more reliable source. The **Average Weighted** fusion method, performs an arithmetic average after having discounted the answers according to their associated weights; those not discounted are given full weight while those that are discounted are given proportionally less weight. This will tend to make the result drift toward the answer that is more heavily weighted. The **Consensus Weighted** fusion method treats those answers given less weight as less emphatic. As the discounting associated with a given answer increases, it becomes closer and closer to being equivalent to no answer at all, and has less and less impact on the result. Within SEAS weights/discounts are graphically depicted as circular symbols with varying degrees of blue filling them. The weight is proportional to the blue area of the circle while the discount is proportional to the white area. A filled circle represents full impact while an empty circle represents no impact. The following table combines the same answers as in the previous table, but using weights. While this table is illuminating in itself, it is even more illuminating when compared with the previous table. These weighted fusion methods should be used for the vacation destination question, rather than their unweighted counterparts, if either being warm or dry is more important than the other. A greater amount of weight should be given to the more important aspect.
Joining Arguments

If multiple analysts have each developed their own independent assessment of a given situation, each capturing their assessment in a distinct argument based upon a common template, then placing these in a common (alternatives) collection and viewing them side by side, using the graphical collection viewer, permits differences and similarities in these assessments to be easily spotted. But at times, one wants to develop an argument that merges these disparate assessments into a common overall assessment. This is accomplished by joining the arguments to produce a new argument, with the answer to each question supported by one body of evidence from each disparate opinion. Each such body of evidence captures how one analyst answered the question with the rationale they gave as the relevance. The supporting evidence for each question is combined to arrive at an overall answer for each question, using the fusion method given when the join was initiated. When weighted fusion methods are used, the weights might be assigned to each argument based upon the credibility attributed each source. Thus, examining any question in the joint argument reveals how each analyst answered the question, what weight was attributed to the opinion of each analyst (if weights are being used), and the overall answer arrived at by combining the independent opinions.

Exporting and Importing

SEAS includes an exporting/importing facility. The exporting facility can be invoked from the Hierarchical Viewer/Editor or the Collection Viewer/Editor. There are two options when exporting regarding the form of the exported material: exports can be done to HTML or to AML (the Argument Markup Language).

Exporting to HTML creates an HTML page that resembles the page from which the export was invoked. However, this page excludes many of the features that make the original page dynamic (e.g., the buttons). Once produced, the user can download this page to their client machine and import it into MS Word or other HTML savvy applications. This is meant to provide an ease means for SEAS screens to be incorporated into documents being produced by the user. There is no means within SEAS for importing HTML exports.

Exporting to AML results in an XML file being downloaded to the user's machine. Such exports serve multiple purposes. One purpose is to provide a means by which SEAS objects can be saved, independently from the SEAS server. Once so saved, they can be imported to establish those objects on different SEAS servers, or to reestablish those objects on the originating server as they once were before going through modifications. When one exports an object in AML using SEAS, the export includes all of the objects on which the that object depends. For example, if a multi-dimensional argument is exported, the resulting AML file will include representations for its uni-dimensional arguments, their exhibits, evidence, and discovery tools, the underlying templates for all of the exported arguments with their discovery tools, any memos on any of those objects, among other related objects. The idea is to include everything that is required to reestablish the exported object on import.

Another purpose for an AML export is to provide a self contained description of a SEAS object that can be viewed and understood without SEAS. With an appropriate style file, the exported object can be viewed in a browser on a machine that does not have access to SEAS.

Another intended use for an AML export is to support the interchange of objects among other structured argumentation tools that support AML. Although the detailed information used by any two structured argumentation tools will likely differ, AML is intended to capture the high level commonalities among those tools, allowing the exchange of rudimentary structures. It also allows arguments produced by different tools to be viewed in a common way through AML style sheets.
Style Guide for SEAS Argument Templates

This guide is meant to serve as an aid to authors of Seas Argument Templates. A would-be author should read over this guide before beginning to author templates and might want to review this guide in conjunction with previously authored templates in hopes of improving them. Writing good SEAS Argument Templates is not easy, but it does get easier with practice.

Authoring Philosophy and Methodology for SEAS Argument Templates

SEAS emphasizes the use of simple and regular inference structures. These structures are captured by Argument Skeletons and associated Fusion Methods. The same Argument Skeleton and Fusion Method are typically used to support multiple Argument Templates over widely differing topics. The idea is that if the Argument Template author fully understands the structure of the interrelated questions that constitute the Argument Skeleton and the light propagation scheme implemented by the Fusion Methods, then the author can write the Argument Template questions and answers to fit. The simpler the Argument Skeletons and Fusion Methods, the easier it is for the author to understand.

The challenge in authoring a SEAS Argument Template is to break the problem down into a hierarchically structured set of questions that matches the selected Argument Skeleton and whose interrelationships among the answers follow the Fusion Methods. Therefore, it is critical that the author understand the structure of the Argument Skeleton and the effect of the Fusion Methods, before beginning to fashion the questions and answers that will be posed by the Argument Template. Of course, the Argument Skeleton and Fusion Methods can be adjusted as the questions and answers emerge.

The use of Regular Argument Skeletons is encouraged i.e., skeletal trees where all branches are identically structured. Regular structures help to encourage that equal time and emphasis are placed on all aspect of an analysis. If the template author does not strive to reduce clutter and eliminate trivialities, then all of its eventual users, including those authoring and browsing arguments based upon it, will pay an additional price with every use i.e., it is a situation where the template author either pays up front or its users will pay repeatedly thereafter.

Likewise, the use of Uniform or Regular Inference Methods is encouraged. A Uniform Inference Method, where every derivative question's answer is derived through application of the same fusion method, makes for the easiest arguments to understand and lines of reasoning to follow. Regular Inference Methods, ones that employ the same fusion method across all questions at the same depth in the skeletal tree, are the next easiest to understand and follow.

This philosophy is directly opposed to that of most uncertain reasoning systems. In most systems, the author begins by determining what questions might be asked and then interrelates them through a complex set of interconnections, typically annotated with conditional probabilities. As a result, the updating scheme is often complex and difficult to follow for those not versed in probability theory. While this "strong model" approach can be very effective when properly applied, we believe that the SEAS "weak model" approach is easier to understand and use. Its effectiveness is directly related to the author's ability to adapt to these simple and regular fusion structures, writing questions and answers that properly function within these constraints.

There are two distinct ways of approaching the structuring of a SEAS Argument Template: top-down and bottom-up. Using the top-down approach, one starts with the central question and attempts to break it down into a small set of supporting questions, each of approximately the same significance; then one breaks down each of those questions, attempting to break each into the same number of equally significant
questions; this continues until questions are produced that can be directly answered or until the number of overall questions has become too numerous to include in a single template. In this latter case, the author might elect to limit the depth of the original template and then capture those elements that fell below that depth limit in their own templates; each of these cascaded templates would share its root question with one of the primitive questions in the original template. The relationship of these cascaded templates to the original template can be captured by adding these to the original template as discovery tools. As such, when an analyst is developing an argument based upon the original template and is confronted with one of its primitive questions, he/she can either elect to directly answer the stated question or invoke one of these discovery tools to further breakdown the question. The advantage of this approach is that the analyst determines which of these discovery tools to employ, thus choosing where and where not to spend their time.

Using the bottom-up approach, one starts by enumerating the detailed conditions that should lead to warning. Once these are enumerated, one begins to cluster these into coherent collections of roughly equal size and significance. One then clusters the clusters, again striving for clusters of equal size and significance, and continues this process until a single cluster remains. Each cluster should give rise to a question in the resulting template, with the nesting of the clusters captured as supporting questions.

In practice, neither the top-down nor bottom-up approach is employed in its pure form. Instead, both are typically employed at different times, one after the other, until a satisfactory result is achieved. Once the overall skeletal structure has been established, then the author's attention should turn to writing the detailed questions and answers for the template. Finally, the author should establish the situation descriptor for the new template that describes the type of situations for which the template is intended to be used.

**Elements of Style for SEAS Argument Templates**

The following are characteristics of good argument templates. Although it will not always be possible to adhere to these elements of good style, an argument template author should strive to do so.

<table>
<thead>
<tr>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit the overall size of a template to reduce the minimum time required to record an argument. Break large templates into multiple cascaded templates where the primitive questions in some higher level templates are the root question for some lower level templates. This allows the user to invoke the lower level templates (through discovery tools) when desirable and to ignore them when not, thus allowing the user to choose where to spend their time and how much time to spend in total.</td>
</tr>
<tr>
<td>Use a regular skeletal structure. In so doing, you help to guarantee that equal time and emphasis will be placed on each aspect of the analysis during argument creation and argument comprehension.</td>
</tr>
<tr>
<td>Since SEAS is geared to performing early warning, the preferred fusion methods are geared to propagating warning conditions up the hierarchy of questions, no matter the answer to other questions. That is, the fusion methods most commonly used resemble a mathematical maximization or minimization, rather than averaging. The argument template author needs to keep the fusion methods well in mind when developing a template's questions and answers. For early warning, each question should be associated with a warning condition. The answers must correlate with a level of warning represented by the red-to-green scale.</td>
</tr>
<tr>
<td>Use simple words as much as possible; avoid jargon. This helps to guarantee that questions and answers are properly understood.</td>
</tr>
</tbody>
</table>
### Questions

Questions and answers should not depend too heavily on the context established by other questions, answers, or the situation description. Each should be as self-contained as possible to avoid misunderstandings.

Questions and answers should be phrased in such a way that any two analysts sharing a common understanding of a situation would choose the same answers in response to the same questions. Otherwise perceived differences of opinion will appear to exist where none do.

**Questions**

Each question should cover only one subject.

Questions should be in a Yes/No or True/False form. Otherwise the lights do not summarize the answers.

Don't pose categorical questions. Turn them into True/False questions by asking if the categorical assessment implies a threat. E.g., not "What are the intentions of this leader?" but "Do this leader's intentions pose a threat?". The categories can still be directly included within the multiple choice answers to help the user objectively assess the degree of threat imposed by each category.

Don't ask questions about how much the user knows regarding the answer to a question. Instead, ask the question directly and if the user's knowledge is limited, then that user should select a range of answers indicating which remain possible given their limited knowledge. Otherwise, the user's lack of knowledge is not properly captured; the inability of a user to eliminate possible answers is the way SEAS encodes and understands ignorance.

Questions should pertain directly to the subject of the analysis rather than the availability of evidence or state of knowledge of the analyst. "Is this group supported by organized crime?" is better than "Is there evidence that this group is supported by organized crime?". The presence of evidence supporting does not imply the absence of evidence refuting (i.e., there may still be no clear answer to the question); the absence of evidence supporting does not imply that the answer is false, particularly when no evidence was sought.

Whenever possible, write questions that can be answered with objective or numerical criteria rather than with subjective criteria, which tend to be vague. "Are import levels greater than 30% of export levels?" is better than "Are import levels excessive?". When subjective answers are used, it is entirely possible for two analysts to choose different answers, although they are both in complete agreement about the situation. Thus differences in subjectively defined terms potentially end up masquerading as a material differences where none exist.

If the question asks about a possible future occurrence, state an unambiguous time frame. "In the next 12 months" is better than "this year".

Define your terms; be specific. "Will the stock market decline in value by over 50%?" is better than "Will the stock market crash?"

### Answers

Answers should be as concrete as possible, making it easier for the user to recognize the correct answers. The best answers correspond to things that can be directly and unambiguously observed.

Answers should be mutually exclusive. Otherwise, multiple answers might be selected despite the fact that the analyst knows the answer precisely; the selection of multiple answers is meant to convey a lack of knowledge.
Answers corresponding to a numerical range should cover the allowable range and not overlap. This guarantees that exactly one answer applies when there is sufficient knowledge.

Answers should be parallel to one another, have the same sentence structure, and as many of the same words as possible. This makes the differences in the answers easy to spot.

Answers should include only one dimension. For example, don't vary both the amount of change and the likelihood of change in one set of response categories.

Answers should all deal with the same tense. For example, don't have some of the answers deal with the present and some deal with the future. If the objective is early warning, the questions are probably best posed using future tense.

When a subjective certainty scale must be used, the following has been found to be less ambiguous than others.

- Yes, almost certainly
- Likely
- Even, about as likely as not
- Unlikely
- No, almost certainly not

**Example Applications of SEAS Elements of Style**

Following are a number of examples highlighting the application of some of the above elements of style. Each consists of a poor example followed by an improved good example. Be sure to also see the examples in the Q&A Library, a miscellaneous collection of exemplar questions/answers.

<table>
<thead>
<tr>
<th>POOR</th>
<th>GOOD</th>
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<tbody>
<tr>
<td>What are the tactics of this group?</td>
<td>Have the actions of this group posed a threat to the security of the US within the last 12 months?</td>
</tr>
<tr>
<td>Is there evidence that the stock market will crash?</td>
<td>Will the stock market's value drop by more than 50% within the next 12 months?</td>
</tr>
<tr>
<td>Is unemployment expected to become a serious destabilizing factor?</td>
<td>Is the rate of unemployment expected to substantially exceed the established norm for this country within the next 12 months?</td>
</tr>
<tr>
<td>- Highly likely</td>
<td>- The unemployment rate will exceed 50% of the established norm</td>
</tr>
<tr>
<td>- Likely</td>
<td>- The unemployment rate will exceed 45% but remain at or below 50% of the established norm</td>
</tr>
<tr>
<td>- Possible</td>
<td>- The unemployment rate will exceed 35% of the established norm</td>
</tr>
<tr>
<td>- Unlikely</td>
<td>- The unemployment rate will exceed 20% but remain at or below 35% of the established norm</td>
</tr>
<tr>
<td>- Highly unlikely</td>
<td>- The unemployment rate will exceed 10% but remain at or below 20% of the established norm</td>
</tr>
<tr>
<td></td>
<td>- The unemployment rate will remain at or below 10% of the established norm</td>
</tr>
</tbody>
</table>
Is the group making an effort to send a message or publicize its cause in a way that is cause for concern? Consider the following:

- exploits media
- publications
- website/internet
- remains anonymous

[very significant evidence]
[strong evidence]
[moderate evidence]
[minimal evidence]
[no evidence]

Is the group disseminating or seeking to disseminate threatening messages? Consider the following:

- Have they used mass media to distribute threatening messages?
- Have they published threatening messages in print?
- Have they used mailings (electronic or conventional) to distribute threatening messages?
- Have they established a website that contains threatening messages?

[The group is seeking to disseminate threatening messages to the masses]
[The group is seeking to widely disseminate threatening messages outside of their organization]
[The group is seeking moderate dissemination of threatening messages beyond their organization]
[The group is seeking to disseminate threatening messages among few outside of their organization]
[The group is not seeking to disseminate threatening messages]

Is the group trying to raise funds to support its operations in a way that is cause for concern? Consider the following:

- sponsors/benefactors
- criminal activities
- business ventures/front organizations
- investments]

[very significant evidence]
[strong evidence]
[moderate evidence]
[minimal evidence]
[no evidence]

Is the group getting support from threatening organizations or through illegal/shady activities? Consider the following:

- Are they engaged in criminal activities?
- Are their sponsors/benefactors engaged in criminal activities?
- Are they engaged in shady business ventures or investments?
- Do they have front organizations?

[The group is receiving more than 65% of its support from threatening organizations or through illegal/shady activities]
[The group is receiving 41% to 65% of its support from threatening organizations or through illegal/shady activities]
[The group is receiving 15% to 40% of its support from threatening organizations or through illegal/shady activities]
[The group is receiving less than 15% of its support from threatening organizations or through illegal/shady activities]
[The group is receiving no support from threatening organizations or through illegal/shady activities]
SEAS Frequently Asked Questions

If you don't find the answer to your question here, try How To.

Why can't I find an argument or template that another user created?

• You only have access to those arguments and templates that list you, or a group to which you belong, as either a member of their audience or as an author. To gain access, you will need to ask one of the authors to add you, or a group to which you belong, as a member of the audience or as an author. Everyone is a member of the group named World. (see Publishing)

• Only those arguments and templates that match the current parameter settings of the SEAS Object Manager are visible in it. These parameter settings are summarized immediately below the SEAS Object Manager toolbar. To change these settings, push the parameter button in the toolbar. (see Manager)

Why can't I modify the argument or template that I am viewing?

• If this argument or template has been published, then it cannot be modified by anyone. If the argument or template is unpublished, then only its authors can modify it. In this case, you could ask one of the authors to add you as a coauthor, giving you write privileges. In either case, you can make a copy of the argument or template; you will be the author of the copy with write privileges. If you want to be able to modify both an argument and its underlying template, then you can individually copy the argument and template, then substitute the new template for the old one underlying the new argument (when viewing an argument the template "T" button will take you to its underlying template; when viewing an argument the information button in the auxiliary toolbar will bring up a window where you can substitute the underlying template). (see Publishing)

• The answer to a question in an argument cannot be manually changed if an automated fusion method has been selected to answer the question based upon the evidence. If you wish to override an automatically calculated answer, first change the fusion method to "Manual", then you will be able to change the answer. (see Uni. Arg. Primitive Question)

Why did my modifications to an argument or template disappear?

• Several of the editing windows have an ok button. When an ok button is present, you must push it for your modifications to be made.

What does it mean when multiple lights are on corresponding to a single question?

• When users answer multiple choice questions, they have the option of selecting multiple (adjacent) answers. When a user has insufficient information to identify a single correct answer, they properly select all of the answers that might apply (i.e., they select all of the answers except for those that they know to be incorrect). The selection of multiple answers to a primitive question, sometimes leads to multiple lights at derivative questions, reflecting the fact that limited knowledge about the answer to a primitive question sometimes leads to limited knowledge about the answer to a derivative question.
Why can't I select all of the multiple choice answers as the answer to a question?

- Since the multiple choice answers are meant to span all possibilities, selecting all of the answers is equivalent to having selected no answers. That is, it is a prerequisite that each of the multiple choice answers might be the correct answer; selecting all of the answers would simply be a restatement of this condition, imparting no new information.

What do the red flags signify?

- The red signal flags signify that something is in need of the user's attention. In particular, exhibits and evidence attached to primitive questions may be flagged to indicate that the user should examine these to determine their relevance to answering the associated question. For example, if a SEAS uni-dimensional argument is the basis for a piece of evidence and that argument's conclusion changes, then the signal flag on that evidence will be raised to signal that this evidence should be reassessed, unless an automated fusion method is in use. A signal flag appearing adjacent to a derivative question indicates that one of the primitive questions on which it depends has a flagged exhibit or evidence; these are used to aid the user in navigating to those entities requiring attention.

How do I remove/add the red signal flags?

- In the Hierarchical Viewer, navigate down to the primitive questions where the flagged exhibits or evidence are found. Click on the signal flags and they will disappear.
- In the Hierarchical Viewer, navigate down to the primitive questions where the exhibits or evidence to be flagged are found. Push the Edit button adjacent to them and then select the Display flag option followed by pushing the ok button. (see Uni. Arg. Primitive Question)

Why can't I publish an argument or template?

- Unpublished arguments or templates can only be published by their authors. Further, an unpublished argument can only be published if the template on which it is based and all of the associated exhibits and evidence are either published or publishable by the user (i.e., the user is an author). A multi-dimensional argument or template can only be published by a user if the component arguments or templates are published or publishable by that user. (see Publishing)

How do I view or change the publication information associated with an argument or template?

- Many of the viewers include a publication information button. Pushing this button will reveal the publication information. If the user is an author, then they will be able to modify the publication information. (see Publication Information)

How do I publish an argument or template?

- Push the publication information button located in the toolbar of a viewer that is displaying the argument or template to be published. This will bring up the publication viewer/editor, displaying the publication information for this argument or template; it includes a publish button in its
toolbar. If the user is an author, then pushing the publish button will cause the associated argument and/or template to be published. (see Publication Information)

Why can't I delete a given argument or template?

- If an argument or template is published, it cannot be deleted. An unpublished argument or template can only be deleted by one of its authors. (see Publishing)

What is the difference between being an author or a member of the audience for an argument or template?

- Once an argument or template is published, both its authors and members of its audience can view it, but not modify it. An unpublished argument or template can be both viewed and modified by its authors, while members of its audience can view it, but not modify it. (see Publishing)

How do I set up another user as a coauthor of my argument or template?

- If you are an author of the argument or template, push the Publication Information button in the argument or template viewer and add the other user to the list of authors or add the name of a group of users that includes the intended coauthor. If you are not an author, you will need to ask one of the authors to add you as a coauthor. (see Publication Information)

What is the purpose of the situation descriptor associated with an argument or template?

- The situation descriptor associated with a template indicates the types of situations for which that template was intended to be used. The situation descriptor associated with an argument describes the situation for which the argument was created. The information in particular is useful when querying corporate memory to aid in finding relevant templates and related arguments. (see Situation Information)

How do I view or change the situation information associated with an argument or template?

- Many of the viewers include a Situation Information button. Pushing this button will reveal the situation information. If the user is an author, then they will be able to modify the situation information. (see Situation Information)

How do I create an argument?

- You can create an argument from the SEAS Object Manager by pushing the new button, indicating that it is an argument that you wish to create, identifying a template on which to base the new argument, and entering a unique name for the new argument. Note that you can only build arguments on top of argument templates to which you have access (i.e., you must be included as a member of the template's audience or as one of its authors). Initially, you will be the sole author of the new argument and it will have no audience. (see How To)
• Alternatively, you can create an argument by copying one. To create an argument by copying, find an argument using the SEAS Object Manager, select it by clicking on it in the window where found objects are listed, push the copy button, and enter a unique name for the new argument when asked. Initially, you will be the sole author of the new argument and it will have no audience. (see How To)

How do I create a template?

• You can create a template from the SEAS Object Manager by pushing the new button, indicating that it is a template that you wish to create and entering a unique name for the new template, along with the other requested parameters. Initially, you will be the sole author of the new template and it will have no audience. (see How To)
• Alternatively, you can create a template by copying one. To create a template by copying, find a template using the SEAS Object Manager, select it by clicking on it in the window where found objects are listed, push the copy button, and enter a unique name for the new template when asked. Initially, you will be the sole author of the new template and it will have no audience. (see How To)

How do I add an exhibit or evidence to an argument?

• Exhibits are added by clicking on the Exhibit In-Basket in the hierarchical viewer and entering the information that identifies the exhibit and indicating how it is to be cited. To add evidence, first add it as an exhibit and then promote it to being evidence by pushing the Promote button adjacent to it in the hierarchical viewer and entering its relevance. (see Uni. Arg. Primitive Question)

How do I remove an exhibit or evidence from an argument?

• To remove an exhibit, push the Trash button adjacent to it in the hierarchical viewer. To remove evidence, first push the Demote button adjacent to it in the hierarchical viewer, transforming it into an exhibit, and then push the Trash button adjacent to that exhibit. (see Uni. Arg. Primitive Question)

How do I add a component template to a multi-dimensional template?

• Find and open the multi-dimensional template using the SEAS Object Manager. Then, in the Hierarchical Viewer, click on the Template Stapler and identify the component argument to be added. (see How To)

How do I replace a component argument in a multi-dimensional argument?

• Find and open the multi-dimensional argument using the SEAS Object Manager. Then, in the Hierarchical Viewer, click on the Edit button adjacent to the component argument that is to be replaced and identify another argument with the same underlying template. (see Multi. Arg.)
How do I turn the tips off and on?

- In the SEAS Object Manager, push the Personal Information button and select the No option for Show Tips.

If you didn't find the answer to your question here, try How To.
VIEWERS & EDITORS

SEAS Object Manager

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

The SEAS Object Manager is responsible for the creation, copying, deleting, retrieval, importing, and opening of SEAS arguments, templates, and collections. There is a button in the toolbar for each of these operations.

Other buttons
The print button on the toolbar prints this display and the logout button dismisses this display and ends the user's session with the SEAS Server. On the right of the tool bar, the Personal Information button invokes the User Information Viewer/Editor (below) and the Help button invokes this Help system.

**Information for: Lowrance, John D., SRI International**

<table>
<thead>
<tr>
<th>First Name</th>
<th>John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Name</td>
<td>p.</td>
</tr>
<tr>
<td>Last Name</td>
<td>Lowrance</td>
</tr>
<tr>
<td>Nickname</td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td>Artificial Intelligence Center</td>
</tr>
<tr>
<td>Organization</td>
<td>SRI International</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:Lowrance@ai.sri.com">Lowrance@ai.sri.com</a></td>
</tr>
<tr>
<td>Password</td>
<td></td>
</tr>
<tr>
<td>New Password</td>
<td></td>
</tr>
<tr>
<td>Verify New Password</td>
<td></td>
</tr>
</tbody>
</table>

**Tip:** You must enter your (old) Password once and your New password twice to change it.

<table>
<thead>
<tr>
<th>Show Tips</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monochrome</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Graphic Style**
- Color
- Monochrome

**Home Collection**
- Lowrance Objects

**Preferred Viewer**
- Hierarchical
- Summary
- Table

The SEAS User Information Viewer/Editor is where a user reviews/updates his/her contact information, password, whether or not they choose to have Tips shown in SEAS displays, the style of graphics they prefer, and their home collection. All of the contact information fields are directly editable. To change a user's SEAS password, they must enter their old Password, their new password once under New Password and a second time under Verify New Password. Tips are turned on/off by clicking on the Yes/No options. The Graphic Style is selected by clicking on Color or Monochrome; when Monochrome is selected, progressively darker shades of gray replace the green-to-red color scale in the depiction of multi-dimensional arguments as starbursts/constellations, uni-dimensional arguments as navigation maps, and multi- and uni-dimensional arguments as tables. The user's home collection is chosen by clicking on the adjacent discovery button which invokes a browser where a collection is selected. The Preferred Viewer is the viewer that will be used when an argument or template is opened from the SEAS Object Manager or Collection Viewer. However, no modifications to the user's personal information are made until the ok button is pushed. Other buttons on the toolbar are used to print this display, to close this viewer/editor, and to invoke this help system.

**Manipulating Retrieved Objects**

Retrieved objects (including the user's home collection, Recent-Objects, and Arguments, Templates, and Collections matching the parameter settings summarized immediately below the toolbar) are listed
hierarchically in the lower portion of this display. Within this hierarchy, multi-dimensional arguments/templates have their uni-dimensional components as children; uni-dimensional arguments have their evidence, exhibits, and discovery tools as children; uni-dimensional templates have their discovery tools as children; collections have their contents as children. Items that have other items below them in the hierarchy that are not currently visible, have a + button adjacent to them; clicking on the + button will reveal the items that are immediately below this item in the hierarchy and will change the + to a - button; clicking on a - button causes the item displayed below the associated items to be hidden and causes the - button to be replaced with a + button. When there are too many objects at a given level to conveniently display them all, only an alphabetic range of them are shown with an up arrow button at the beginning of the range, or a down arrow button at the end of the range, or both. Each arrow button is labeled with the number of visible items at that level and the total number of items. Clicking on the up arrow button will move the visible range alphabetically backwards and clicking on the down arrow button will move the visible range alphabetically forward. The visible range can be moved to start with those that begin with a given letter by clicking on the corresponding letter in the alphabet displayed immediately above the retrieved objects. When the cursor is positioned over objects representing arguments, templates, or collections, the associated situation and publication information is displayed in a pop-up. Thus, using these buttons, the hierarchy of currently retrieved objects can be incrementally browsed and explored.

Every object viewed in the SEAS Object Manager includes an icon and that icon can have a signal flag and/or memo overlaid on it. In the case of collections, a flag/memo is shown if any of its member objects have a flag/memo displayed. This carries down through collections in collections in collections … Thus, if a user places objects in their home collection, their home collection will be annotated with a flag/memo if anything within it is so annotated. As such, this provides a signaling mechanism to the analyst, drawing attention to those objects so annotated. Signal flags are always displayed; memos are only displayed if they are visible and this is (partially) determined by the current search parameters (see Retrieving Objects below).

By clicking on the name or adjacent icon of an argument, template, collection, exhibit, evidence, discovery tool, or memo, that object will be opened in the preferred Viewer/Editor; in the case of exhibits and evidence, clicking on the icons will open them but clicking on their name will open the underlying document on which they are based (if available). By first clicking on the copy, delete, or rename button and then on a retrieved object, the corresponding action is performed on the selected object. Clicking a second time on a button before clicking on an object will cancel the action. Pushing the copy button, followed by selecting an argument, template, or collection, will bring up the Copy Argument/Template window. To create a copy of the object in the From field, the user enters a new name in the To field, followed by pushing the copy button. If the object being copied is an argument, then the user can elect to copy the underlying template by selecting the Copy Template option and/or copy any supporting arguments used as an exhibit or evidence by selecting the Copy Evidence option. If the object being copied is multi-dimensional, then the user can elect to make copies of its uni-dimensional components by selecting the Copy Components option. Pushing the exit button dismisses this window without creating a new object.
Copy SEAS Object

Pushing the **rename** button, followed by selecting an argument, template, or collection, will bring up the Rename SEAS Object window. To rename the object in the **From** field, the user enters a new name in the **To** field, followed by pushing the **rename** button. Pushing the **close** button dismisses this window without renaming the object.

**Rename SEAS Object**

Pushing the **delete** button, followed by selecting an argument, template, or collection, will bring up the Delete SEAS Object window. If the selected argument/template is multi-dimensional, then this window lists each **Component** along with whether or not it is **Used elsewhere**? as a component of another multi-dimensional argument/template, its **Authors**, **Audience**, whether it is **Published**?, and whether it is **Deletable**?. A component can be deleted if it is unused elsewhere, is unpublished, and the current user is an author. The **Delete Components** option allows the user to elect to delete the deletable components. Pushing
the **delete** button causes the selected object to be deleted along with any deletable components if that option was selected. Pushing the **cancel** button dismisses this window without deleting any objects.

## Delete SEAS Object

<table>
<thead>
<tr>
<th>Delete</th>
<th>IRAQ-99</th>
<th><strong>Delete Components</strong></th>
<th>Delete uni-dimensional components?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>LEADERSHIP, IRAQ-99</td>
<td>NO</td>
<td>LOWRANCE HARRISON RODRIGUEZ</td>
</tr>
<tr>
<td>YES</td>
<td>SOCIAL, IRAQ-99</td>
<td>NO</td>
<td>SFISHER</td>
</tr>
<tr>
<td>YES</td>
<td>POLITICAL, IRAQ-99</td>
<td>NO</td>
<td>LOWRANCE HARRISON RODRIGUEZ</td>
</tr>
<tr>
<td>YES</td>
<td>MILITARY, IRAQ-99</td>
<td>NO</td>
<td>SFISHER</td>
</tr>
<tr>
<td>YES</td>
<td>EXTERNAL, IRAQ-99</td>
<td>NO</td>
<td>LOWRANCE HARRISON RODRIGUEZ</td>
</tr>
<tr>
<td>YES</td>
<td>ECONOMIC, IRAQ-99</td>
<td>NO</td>
<td>SFISHER</td>
</tr>
</tbody>
</table>

**Tip:** If you want to delete the uni-dimensional component of the multi-dimensional object that you are deleting (where you have permission to delete and the component is only used by this object) mark the “Delete components?” checkbox.

<table>
<thead>
<tr>
<th>Deletable?Component</th>
<th>Used elsewhere?</th>
<th>Author</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>LEADERSHIP, IRAQ-99</td>
<td>NO</td>
<td>LOWRANCE HARRISON RODRIGUEZ</td>
</tr>
<tr>
<td>YES</td>
<td>SOCIAL, IRAQ-99</td>
<td>NO</td>
<td>SFISHER</td>
</tr>
<tr>
<td>YES</td>
<td>POLITICAL, IRAQ-99</td>
<td>NO</td>
<td>LOWRANCE HARRISON RODRIGUEZ</td>
</tr>
<tr>
<td>YES</td>
<td>MILITARY, IRAQ-99</td>
<td>NO</td>
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<td>YES</td>
<td>EXTERNAL, IRAQ-99</td>
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<td>YES</td>
<td>ECONOMIC, IRAQ-99</td>
<td>NO</td>
<td>SFISHER</td>
</tr>
</tbody>
</table>

## Creating New Objects

Pushing the **new** button will bring up the New SEAS Object window. To create a new object, the user selects the Type of object to create (see below), enters a Name for the new object in the expanded dialog, and, in the case of an argument (see below), selects the Template upon which it is to be based, followed by pushing the **new** button. Pushing the Discovery button invokes a browser to identify a template on which to base a new argument, while the Trash button clears the entry. Pushing the **close** button, before the **new** button, dismisses this window without creating any new objects.
In the case of a uni-dimensional template (see below), the user also must specify the **Structure** of the new template and the **Situation Type** to be employed. The skeletal structure is specified by a series of numerical entries indicating the number of **Questions Per Branch** that support each question higher in the skeleton e.g., 1 over 4 over 3 has the root derivative question (i.e., 1) supported by 4 derivative questions (i.e., 4) and each of these 4 derivative questions supported by 3 primitive questions. The **Inference Method** is specified by selecting an automated **Fusion Method** that is to be applied at every derivative question, at each **Level**, to automatically produce its answer based upon the answers to the questions immediately below it. If fusion methods are not selected for every level, then the prior fusion method (i.e., the first one above) is used for the remaining levels; if more fusion methods than derivative question levels are given, the extra ones are ignored. The number of **Choices** chosen at each Level, determine the number of multiple choice answers or lights that will be associated with the questions at the corresponding level. The **Situation Type** is selected from the list of available types and determines how situation descriptors for this template and arguments based upon it will be specified. If the **Security Marking** is provided, it is associated with the new template. After filling in all of the requested information, the new template is created by pushing the **new** button. Pushing the **close** button, before the **new** button, dismisses this window without creating any new objects.
In the case of a collection, the user also must specify the **Collection Type** and the **Situation Type** to be employed. The Collection Type is chosen from a list of supported types (see Using Collection for a description of these types). The **Situation Type** is selected from the list of available types and determines how the situation descriptors for this collection will be specified. After filling in all of the requested information, the new collection is created by pushing the **new** button. Pushing the **close** button, before the **new** button, dismisses this window without creating any new objects.
### Importing Arguments/Templates

If arguments/templates/collections have been previously exported as AML, using the export facility in the Hierarchical Viewer/Editor ([Hierarchical Viewer/Editor: Uni-dimensional Argument](https://example.com) and [Hierarchical Viewer/Editor: Uni-dimensional Template](https://example.com)), they are captured in AML files (see [Argument Markup Language](https://example.com)). If these exported arguments/templates/collections have since been deleted or modified, but their exported AML files remain, they can be reestablished in their previous state through importing. To import such an AML file, push the **import** button, then the browse button in the Import window, then find the file in the file system browser that is invoked, and finally push the **import** button in the Import window. A new collection will be created and added to the user's home collection that contains the imported items; during importing, if some of the items are found to already exist in the identical states, those existing items will be added to the collection rather than creating new items, and a memo will be attached to the resulting collection indicating which items were newly created and which were found.

### Retrieving Objects

Objects in this display are retrieved according to the search parameters. The current parameter settings are summarized immediately below the toolbar. Pushing the SEAS-Manager Viewer Parameters Editor button, adjacent to the textual summary, brings up the display below where these setting can be modified. The user
directly types in the desired criteria where there is no adjacent Discovery button and uses the Discovery buttons to hierarchically browse and select the desired option elsewhere. The Trash buttons are used to clear the adjacent field. Once the user has entered the desired criteria, pushing the ok button will cause objects matching that criteria and accessible to the user (see Publishing) to be retrieved and displayed in the SEAS Manager window; pushing the cancel button will return to the SEAS Manager without affecting its content. The displayed contents of the user's home collection and Recent-Objects, near the top of the SEAS Object Manager window, are unaffected by the search parameters. The Show Types options for Memos only affect the displaying of memo annotations on object icons in the SEAS Object Manager, not which objects will be displayed (see Manipulating Retrieved Objects above).

**Seas Manager Parameters**

[Images of buttons and fields for viewing and descriptors]

**Descriptor Information**
- Perspective
- Start Between
- End Between
- Actor
- Region
- Event

**Publishing Information**
- Published?
- Author
- Audience
- Publisher
- Published Between

**Memos**
- Show Types: All, None, Assumption, Critique, Comment, Context, None, Summary, For Review, Instruction, To Do

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Finding Objects

Objects that are retrieved, as described above, must match all of the criteria set by the parameters. To find objects that partially match the criteria, push the find button. This brings up the Find SEAS Objects window shown below. The criteria is set in the same way as for object retrieval, with the additional requirement that the Search For field must be filled with target object types.

![Find SEAS Objects window]

**Types:** (SEAS-UD-ARGUMENT)  
**Perspective:** ECONOMIC  
**Author:** LOWRANCE  
**Audience:** WORLD  
**Date Published after:** 01 Feb 2003  
**Date Published before:** 01 Sep 2003  
**Memo Content:** SYNOPSIS

**Search For:**
- Collection
- Multi-Dimensional Arguments
- Uni-Dimensional Arguments
- Multi-Dimensional Templates
- Uni-Dimensional Templates

**Publishing Information**
- **Published?**
  - Yes
  - No
  - Either  
- **Author**
  - Lowrance, John D., SRI International
- **Audience**
  - World
- **Publisher**
- **Published Between**
  - 1 Feb 2003 and 1 Sep 2003

**Descriptor Information**
- **Perspective**
  - Economic
- **Start Between**
- **End Between**
- **Actor**
- **Region**
- **Event**
Pushing the **ok** button after having set the criteria will result in the found objects being listed in order of their quality of match (see below). Clicking on any of these retrieved objects will cause them to be launched in the Hierarchical Viewer/Editor; pushing the **find** button will allow one to edit the search criteria; pushing the **print** button will print this window; pushing the **close** button will dismiss this window.

**Find SEAS Objects**

<table>
<thead>
<tr>
<th></th>
<th>Type</th>
<th>Title</th>
<th>Match Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ECONOMIC.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ECONOMIC.CSA-NS.2</td>
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<td>3</td>
<td>Economic.IRAQ-99</td>
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</tr>
<tr>
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</tr>
<tr>
<td>5</td>
<td>LEADERSHIP.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>EXTERNAL.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>MILITARY.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>POLITICAL.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SOCIAL.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>ENVIRONMENTAL.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ENVIRONMENTAL.CSA-NS.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>SOCIAL.CSA-NS.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>POLITICAL.CSA-NS.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>MILITARY.CSA-NS.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>EXTERNAL.CSA-NS.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Leadership.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Social.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Political.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Military.IRAQ-99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>External.IRAQ-99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Publication Information Viewer/Editor: Multi-dimensional Argument/Template

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Publication Information
IRAQ-99

<table>
<thead>
<tr>
<th>Component</th>
<th>Author</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
<tr>
<td>Social.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
<tr>
<td>Political.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
<tr>
<td>Military.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
<tr>
<td>External.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
<tr>
<td>Economic.IRAQ-99</td>
<td>Pound, Leslie, SRI International</td>
<td>World</td>
</tr>
<tr>
<td></td>
<td>Lowrance, John D., SRI International</td>
<td></td>
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<td></td>
<td>Harrison, Ian W., SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rodriguez, Andres, SRI International</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fisher, Scott, Hick &amp; Associates</td>
<td></td>
</tr>
</tbody>
</table>

Here the Publication Information Viewer/Editor depicts the publication information for an unpublished, multi-dimensional argument (i.e., IRAQ-99). The Unpublished Template symbol (top right) indicates that
neither this argument nor its underlying template are published; the absence of a "READ ONLY" symbol indicates that the current user can modify this argument. See the Publishing section for an in-depth review of its meaning in SEAS.

Buttons

The publish button on the toolbar causes this argument, its underlying template, this argument's component arguments, their underlying templates, and all evidence that is attached to any of these arguments to be published, if they are not already. Should the user not have permission to publish any of these unpublished objects, then the attempt to publish will fail and have no effect. Once published, these objects can no longer be modified or deleted. Other buttons on the toolbar are used to ok any modifications before they are saved or to close this Viewer/Editor. The first button at the right end of the toolbar invokes the Publication Information Viewer/Editor on the publication information for the template that underlies this argument; the second button invokes this Help system.

Author, Audience, and Propagate Option

Unless the user is limited to "READ ONLY" access (see Publishing), then the Authors and members of the Audience can be directly entered or found with the aid of a browser, invoked by pushing the adjacent Discovery buttons. Both of these fields can have multiple entries that correspond to individuals or groups of users. The Propagate option, when invoked, will set the Authors and Audience of this argument's component arguments to be the same as those for this multi-dimensional argument. No modification are made until the ok button is pushed. If the close button is pushed without first pushing the ok button, the modifications are lost.

Component Publication Information

The lower portion of this display lists this multi-dimensional argument's Component arguments along with their Authors and Audience. If any of these Components are unpublished, an Unpublished symbol is displayed at their right. The navigation button to the left of each Component invokes the Publication Information Viewer/Editor on the publication information for that component.
Templates

The Publication Information Viewer/Editor works analogously on templates as it does on arguments.

Published Argument and Templates

When the Publication Information Viewer/Editor is invoked on a published argument or template, a "READ ONLY" symbol appears at the top right, the ok, publish, and Discovery buttons do not appear, the Author and Audience fields are not editable, the Propagate option does not appear, and the Publisher and Date Published of the argument or template are listed. The Components are listed along with their Authors, Audience, and a navigation button to invoke the Publication Information Viewer/Editor on the adjacent component.
Situation Description Viewer/Editor

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Situation Descriptor Information
IRAQ 99

Time Interval
1 Jan 1999 To 31 Jan 1999

Actor

Actor Description

Region
Iraq

Region Description

Event
Trade

Event Description
Trade sanctions invoked.

Comments and Assumptions
This is an historical analysis done after the fact.

Propagate?
 descriptor information to components

The Situation Descriptor Viewer/Editor manages the situation descriptors that are associated with every argument and template. Here the Situation Descriptor Viewer/Editor depicts the situation descriptor associated with a multi-dimensional argument (i.e., IRAQ-99). The "Unpublished Template" symbol (top right) indicates that neither this argument nor its underlying template are published; the absence of a "READ ONLY" symbol indicates that the current user can modify this argument's situation descriptor. See the Publishing section for an in-depth review of its meaning in SEAS.
**Situation Descriptors**

A Situation Descriptor describes what an argument or template is about: who is the **Actor** under discussion, what sort of **Event** is under discussion, where (i.e., **Region**) or when the situation occurs (i.e., **Time Interval**), and the **Perspective** from which the situation is being analyzed. In the case of a template, the descriptor indicates how a template is intended to be used: for situations in a certain **Region** of the world, or to analyze a particular type of **Actor**, or a particular type of **Event**. In the case of an argument, the descriptor indicates what an argument is about: the **Actor** analyzed, the precise **Event**, where or when the situation under analysis occurred. Some of the situation descriptor slots can only be filled by selections from a predefined set of terms (i.e., those preceded by a Discovery button) while others are filled with free-form text (i.e., those not preceded by a Discovery button). The fixed slots are the primary basis for retrieval: they constitute the equivalent of a library "card catalog" but for indexing and retrieving arguments and templates. While the fixed slots might only approximate the true nature of the situation, the free-form slots provide a means to more precisely describe the situation. Using the SEAS Object Manager, the fixed slots are first exploited to retrieve potentially relevant arguments and templates, then the free-form slots are examined by the user to make the final determination of relevance. To get the most out of SEAS corporate memory, the users needs to fill in the situation descriptors as fully as practical.

**Buttons**

The buttons on the toolbar are used to **ok** any modifications made to the situation descriptor before they are saved or to **cancel** this Viewer/Editor. The first button at the right end of the toolbar invokes the Situation Descriptor Viewer/Editor on the publication information for the template that underlies this argument; the second button invokes this help system.

**Filling Situation Descriptor Slots**

Unless the user is limited to "READ ONLY" access (see Publishing), the situation descriptor slots not preceded by a Discovery button can be directly filled by typing and those preceded by a Discovery button can be filled with the aid of a browser. The browser is invoked by pushing the associated Discovery button. So doing guarantees that it is filled with an allowable term. The adjacent Trash buttons remove the entry from the corresponding field. No modification are made until the **ok** button is pushed; if any of the fixed slots are filled with unknown terms, then no modifications are made. If the **cancel** button is pushed without first pushing the **ok** button, the modifications are lost.

**Component Publication Information**

The lower portion of this display lists this multi-dimensional argument's **Component** arguments along with their situation **Perspective** and **Actor**. If any of these components are unpublished, an Unpublished symbol is displayed at their right.
Situation Descriptor Information
Economic.CSA

Here the Situation Descriptor Viewer/Editor depicts the situation descriptor for a published, uni-
dimensional argument (i.e., ECONOMIC.IRAQ-99).

Templates

The Situation Descriptor Viewer/Editor works analogously on templates as it does on arguments.

Published Argument and Templates

When the Situation Descriptor Viewer/Editor is invoked on a published argument or template, a "READ
ONLY" symbol appears at the top right, the save, publish, and Discovery buttons do not appear, and the
situation descriptor slots are not editable. The Components are listed along with their situation Perspective
and Actor.
Hierarchical Viewer/Editor: Multi-dimensional Argument

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

IRAQ-99

Here the Hierarchical Viewer/Editor depicts a multi-dimensional argument (i.e., IRAQ-99). The symbol(s) that appears in the upper right corner depicts aspects of the associated situation descriptor (here the dates indicate the bounds on the time period analyzed, the flag depicts the associated region, the crate represents a trade event that gave rise to this analysis, and the page of text indicates that there are additional free text...
annotations included in the situation descriptor). The Unpublished Template symbol (immediately below the situation descriptor symbols) indicates that neither this argument nor its underlying template are published. The absence of a "READ ONLY" symbol indicates that the current user can modify this argument and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this argument (see Publishing).

**Buttons**

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The button that appears immediately below these invokes the Parameters Editor (see below). The Template (i.e., "T") button, that appears near the middle of the toolbar, switches this viewer/editor to the template that underlies this argument. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to print this display and to close it. The first button at the right end of the toolbar invokes any auto-populating discovery tools associated with this argument (see Using Discovery Tools for details). The remaining buttons at the right end of the toolbar bring up the Memo Manager, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).

**Auxiliary Toolbar**

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, reconceals this toolbar when clicked.

![Auxiliary Toolbar](image)

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The export button brings up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.
Pushing the **critique** button will bring up the following dialog where the user selects the specific **Checks** and sets the associated **Criteria** that the Argument Critic is to apply to this argument, and specifies whether or not to **Discard Previous Critic Memos**. Upon pushing the **ok** button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the **print** button will print this dialog; pushing the **cancel** button before the **ok** button will exit this dialog without performing a critique of this argument; the **Help** button invokes this Help system.

### Argument Critic Parameters

<table>
<thead>
<tr>
<th>Check Argument</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Answers Uninformative?</td>
<td>Answers include more than 2 choices</td>
</tr>
<tr>
<td>✓ Rationale Inadequate?</td>
<td>Rationale length is less than 20 characters</td>
</tr>
<tr>
<td>✓ Rationale Dated?</td>
<td>Rationale not updated since last evidence update</td>
</tr>
<tr>
<td>✓ Evidence Inadequate?</td>
<td>Supporting evidence numbers less than 1</td>
</tr>
<tr>
<td>✓ Relevance Inadequate?</td>
<td>Relevance length less than 20 characters</td>
</tr>
<tr>
<td>✓ Unpromoted Exhibits?</td>
<td>Exhibits remain unpromoted to evidence</td>
</tr>
<tr>
<td>✓ Over Used Exhibit?</td>
<td>Exhibit used more than 4 times</td>
</tr>
</tbody>
</table>

Discard Previous Critic Memos  

Yes  No  Delete prior memos from the critic  

If this argument has not been versioned before, then pushing the **version** button will bring up the first dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to select the **New Collection Type** to be used to record versions of this argument (see [Using Collections](#) for an explanation of the differences among these types). Push the **new** button, after having selected a type, to create a new collection containing both this argument and a copy. Future modifications to this argument will not impact the copy. Push the **cancel** button to exit this dialog without creating anything new.

### Versioning/Sequencing Manager

<table>
<thead>
<tr>
<th>new</th>
<th>cancel</th>
</tr>
</thead>
</table>

New Collection Type  

[Sequential  Versioning]  

67  SEAS 6.4
If this argument has been versioned before, then pushing the **version** button will result in a dialog similar to the following. Pushing the Inspect button adjacent to a collection in the **Collections to Use** will cause the contents of that collection, being used to record versions of this argument, to be displayed. After having specified the collection to use if more than one is present, the **Previous Item Name** (if present), whether or not the item should be published, and whether or not the **Collection to Use** should be placed in the home collection of the user, pushing the **new** button will add a copy of the argument as a new item to the collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not already there). Pushing the cancel button before the new button will exit without creating a copy of this argument. See [Using Collections](#) for a detailed explanation of versioning and sequencing collections.

### Versioning/Sequencing Manager

<table>
<thead>
<tr>
<th>Select Collection to Use:</th>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IRAQ-99</td>
<td>Sequential</td>
</tr>
<tr>
<td></td>
<td>Iraq Assessments</td>
<td>Versioning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous Item Name</th>
<th>IRAQ-99 2004-3-5 11:33:17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publish Item?</td>
<td></td>
</tr>
<tr>
<td>In home collection?</td>
<td></td>
</tr>
</tbody>
</table>

**Tip:** If "In home collection/" is Checks, the versioning/sequencing collection is contained within or is to be placed in the user's home collection.

Clicking on the button at the right will bring up the Information window that provides information about the template that underlies this argument. Unless the user is limited to "READ ONLY" access (see [Publishing](#)), the Information window will appear as below, allowing the user to select a **New Template** to use as the basis for this argument. The user pushes the Discovery button to find a new multi-dimensional template.. Upon pushing the **ok** button, if that multi-dimensional template exists, then it is substituted for the original template underlying the multi-dimensional argument. The **close** button dismisses the Information window and the Help button, on the far right, invokes this Help system.
Memos

If visible memos are attached to this template or its underlying template, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. For more about managing memos, see Memo.

<table>
<thead>
<tr>
<th>Memo</th>
<th>Problem needing Resolution</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political</td>
<td></td>
<td>28 Jan 2004</td>
</tr>
</tbody>
</table>

Starburst and Constellation Graphical Depictions

A Starburst, immediately below the toolbar, depicts this multi-dimensional argument. In this graphic, the answers to this argument's component arguments are organized in a pattern that resembles spokes on a wheel. Each "spoke" corresponds to one answer; answers are displayed as "traffic lights" at the ends of the spokes; answers are also plotted as points along the spokes with the "hub" of the wheel typically corresponding to the green end of the linear scale and the "rim" typically to the red end; the points plotted on neighboring spokes are connected by lines and the resulting polygon is filled. The result is a plot that visually conveys the argument, with the severity of the situation being proportional to the area of the plot. This technique invites rapid comprehension and comparison when multiple arguments are simultaneously displayed. When the user clicks on the text that labels the component arguments, the Hierarchical Viewer/Editor displays the corresponding uni-dimensional argument.

The Starburst can be customized by each user in a number of ways. The user can specify whether each segment of the starburst should be depicted as a Ray, beginning at the origin and extending out to the appropriate position, according to which lights are lit, or as Sectors, only having those areas filled whose corresponding lights are lit. The user can also specify how different parts of the Starburst should be colored: mono - blue, max - with the color corresponding to the highest valued light, min - with the color corresponding to the lowest valued light, own - with the color that corresponds to that portion on the starburst (i.e., green at the center, yellow in the middle, and red at the perimeter). Some examples of these appear below. Note how some capture that Political has two lights on while others don't.
A Constellation is another way of graphically depicting a multi-dimensional argument. Using the same radial layout as for the Starburst, it depicts the trees of lights corresponding to each component argument within the corresponding wedge, placing the root node/light nearest the origin and growing out from there. Larger nodes/lights are used nearer the origin. Although this can result in a cluttered display, it has the advantage of depicting every question/answer of a multi-dimensional argument within a single compact display. This is further enhanced by pop-ups, which appear when the cursor is positioned over any light, which display the corresponding question topic and question text. This helps the user to come to better understand this complex display. A further refinement allows the user to filter out lights based upon their corresponding color. Thus, for example, a user might elect to show only the red, orange, and yellow lights, or just the red lights. Examples of this display appear above.
Yet another effect can be achieved by overlaying Constellations on Starbursts. This allows the user to quickly grasp the overall argument through the Starburst and the details through the Constellation. Some examples follow.

Pushing the Hierarchical Viewer Parameters button, brings up the following dialog. The **Show Wedges as** and **Show Color Values** parameter settings determine whether a Starburst is displayed and its appearance. The **Question Answers, Show Colors** parameters consist of the lights selected for inclusion in constellations; if no lights are selected, then no constellation will be depicted. By mixing and matching these parameter settings, the user can select from a wide range of graphical depictions that best suit the user's preferences and purpose. The **Memos Show Types** parameters are discussed below. The **All** and
None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.

### Hierarchical Viewer Parameters

**Viewing**
- Color: OWN
- Wedge: SECTORS
- Memo types: (ASSUMPTION COMMENT CONTEXT CRITIQUE FOR-REVIEW INSTRUCTION SUMMARY TO-DO)
- Memo Content: SYNOPSIS

**Starburst Graphic**
- Show Wedges as
  - Sectors
  - Rays
  - None
- Show Color Values
  - Own
  - Maximum
  - Minimum
  - Monochrome

**Answers**
- Show Colors
  - 
  - 
  - 

**Memos**
- Show Types
  - All
  - None
  - Assumption
  - Critique
  - Summary
  -Synopsis
  - Comment
  - For Review
  - To Do
  - Context
  - Instruction
- Show Content
  - Full

### Signal Flags and Memos in Graphical Depictions

Red signal flags may appear in the starburst graphical depiction. If they do, it indicates that the adjacent component argument has exhibits or evidence that require attention. These flags allow an analyst to rapidly navigate to those questions that require attention.

Similarly, yellow rectangles may appear in the starburst graphical depiction. If they do, it indicates that the adjacent component argument has a memo displayed of one of the selected Memo, Show Types in the Hierarchical Viewer Parameters.

### Component Arguments

The Component Arguments are listed immediately below the starburst. Each listing includes the name of the Component Argument and its underlying argument Template. Unless the user is limited to "READ ONLY" access (see Publishing), pushing the Edit button, adjacent to a component listing, brings up the Component Editor (see below), and allows the user to substitute a different argument (with the same underlying argument template) for the one associated with that button. The user can directly type in the name of a Component argument or use the Discovery button to find one. The trash button is used to clear the selected Component. Upon pushing the ok button, if that argument exists and is based upon the template indicated, then it is substituted for the original component in the multi-dimensional argument; if the component does not exist, but the Creation Policy option has been selected, then a new argument is created. The cancel button dismisses the Component Editor, the capture button captures this window (e.g., to a printer), and the Help button, on the far right, invokes this Help system.
Edit Components
IRAQ-99

Component: LEADERSHIP.IRAQ-99_1
Template: LEADERSHIP.CSA-IRAQ_1_1
Creation Policy:
- Create Component Argument if it does not exist already.
Hierarchical Viewer/Editor: Uni-dimensional Argument, Derivative Question

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries

Here the Hierarchical Viewer/Editor depicts a derivative question from a uni-dimensional argument (i.e., ECONOMIC.IRAQ-99). The symbol(s) that appears in the upper right corner depicts aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the dates indicate the bounds on the time period analyzed, the flag depicts the associated region, and the page of text indicates that there are additional free text annotations included in the situation descriptor). The "READ ONLY" symbol indicates that this argument cannot be modified by the current user; an Unpublished symbol will appear when appropriate (see Publishing).

Navigation Map and Navigation Buttons

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. Each node in this graphic is colored with the light that corresponds to the answer to that question. When the cursor is positioned over a node, a pop-up displays the corresponding question topic and text. The question depicted in this display is indicated by its corresponding node in the graphic having a dark border. If weighted fusion methods are being employed, then questions given less weight are depicted by smaller nodes (see Fusion and Inference Methods for details). Immediately below this navigation graphic are the navigation buttons that move one laterally (left and right) or vertically (up) within the hierarchy; when this uni-dimensional argument is being portrayed in the context of multi-dimensional argument, a button is included for moving directly to the multi-dimensional display. The analyst can also navigate by directly selecting a node within the navigation graphic. Pushing a (down) button, adjacent, to one of the supporting questions, causes the
Hierarchical Viewer/Editor to move down the hierarchy, bringing up a display with the associated question appearing as the focal question. If weighted fusion methods are being employed then weighting symbols will appear immediately to the right of the down buttons.

Pushing the Viewer Parameters button (below the navigation buttons and below the auxiliary toolbar, if present), brings up the following dialog. The Show Types parameters causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected types. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.

Other Buttons

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The Template (i.e., “T”) button, that appears near the middle of the toolbar, switches this viewer/editor to the template that underlies this argument. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to print this display or to close it. The first button at the right end of the toolbar invokes any auto-populating discovery tools associated with this argument (see Using Discovery Tools for details). The remaining buttons at the right end of the toolbar bring up the Memo Viewer/Editor, the Publication Information Manager, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).

Auxiliary Toolbar

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, conceals this toolbar when clicked.
The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The merge button invokes the Merging Tool where information can be moved between this and another template. The export button brings up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.

Pushing the critique button will bring up the following dialog where the user selects the specific Checks and sets the associated Criteria that the Argument Critic is to apply to this argument, and specifies whether or not to Discard Previous Critic Memos. Upon pushing the ok button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the print button will print this dialog; pushing the cancel button before the ok button will exit this dialog without performing a critique of this argument; the Help button invokes this Help system.

**Argument Critic Parameters**

<table>
<thead>
<tr>
<th>Check Argument</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answers Uninformative?</td>
<td>Answers include more than 2 choices</td>
</tr>
<tr>
<td>Rationale Inadequate?</td>
<td>Rationale length is less than 20 characters</td>
</tr>
<tr>
<td>Rationale Dated?</td>
<td>Rationale not updated since last evidence update</td>
</tr>
<tr>
<td>Evidence Inadequate?</td>
<td>Supporting evidence numbers less than 1</td>
</tr>
<tr>
<td>Relevance Inadequate?</td>
<td>Relevance length less than 20 characters</td>
</tr>
<tr>
<td>Unpromoted Exhibits?</td>
<td>Exhibits remain unpromoted to evidence</td>
</tr>
<tr>
<td>Over Used Exhibit?</td>
<td>Exhibit used more than 4 times</td>
</tr>
</tbody>
</table>

Discard Previous Critic Memos  ☑ Yes ☐ No  Delete prior memos from the critic
If this argument has not been versioned before, then pushing the version button will bring up the first
dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to
select the New Collection Type to be used to record versions of this argument (see Using Collections for
an explanation of the differences among these types). Push the new button, after having selected a type, to
create a new collection containing both this argument and a copy. Future modifications to this argument
will not impact the copy. Push the cancel button to exit this dialog without creating anything new.

Versioning/Sequencing Manager

new  cancel

New Collection Type  Sequential Versioning

If this argument has been versioned before, then pushing the version button will result in a dialog similar to
the following. Pushing the Inspect button adjacent to a collection in the Collections to Use will cause the
contents of that collection, being used to record versions of this argument, to be displayed. After having
specified the collection to use if more than one is present, the Previous Item Name (if present), whether or
not the item should be published, and whether or not the Collection to Use should be placed in the home
collection of the user, pushing the new button will add a copy of the argument as a new item to the
collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not
already there). Pushing the cancel button before the new button will exit without creating a copy of this
argument. See Using Collections for a detailed explanation of versioning and sequencing collections.
Clicking on the button at the right will bring up the Information window that provides information about the template that underlies this argument. Unless the user is limited to "READ ONLY" access (see Publishing), the Information window will appear as below, allowing the user to select a different template to use as the basis for this argument. The user pushes the Discovery button to find a uni-dimensional template. Upon pushing the ok button, it is substituted for the original template underlying the uni-dimensional argument. The close button dismisses the Information window and the Help button, on the far right, invokes this Help system.

**Template Information**

**IRAQ-99**

<table>
<thead>
<tr>
<th>Current template:</th>
<th>CSA-IRAQ_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Template</td>
<td>CSA-IRAQ_1_1</td>
</tr>
</tbody>
</table>

**Memos**

If visible memos are attached to this argument or its underlying template, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-
up; clicking on the subject will open that memo in the Memo Viewer/Editor. For more about managing memos, see Memo.

| Memos |
|------------------------|--------------------------|
| Problem needing Resolution | Critique |
| Posnel, Leslie, SRI International | 28 Jan 2004 |

Questions and Lights

The focal question appears just below the toolbar of buttons. Below this question the display shows the Supporting Questions that were posed to arrive at an answer to the focal question. The answers to these yes/no questions are portrayed as sequences of lights, along side the corresponding question, ranging from green to yellow to red (the exact number of lights may vary). If one or more of a question’s lights are on, it indicates that something is known about its answer: if one light is on, that is the answer; if multiple lights are on, it is indicating that the answer is one of those that is lit, but there is not enough information at present to give a definitive answer; by convention, if all answers remain possible given current information, no lights are lit. The advantage of this display is that the answers to all of the questions can be very quickly scanned to understand the overall characteristic of the assessment and to reveal which of the questions are driving the current answer.

Signal Flags

Red signal flags may appear below leaf nodes in the navigation map or adjacent to supporting questions. A flag below a node in the navigation map indicates that the (primitive) question corresponding to that (leaf) node has exhibits or evidence that require attention. A flag adjacent to a supporting question indicates that there are exhibits or evidence at primitive questions that hierarchically support the associated question. These flags allow an analyst to rapidly navigate to those questions that require attention.
Hierarchical Viewer/Editor: Uni-dimensional Argument, Primitive Question

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

**Economic IRAQ 99**

Base Question
BUDGET CRISIS: Is a budget crisis developing or worsening?

Consider the following:
- Rising budget deficit
- Increased external/internal borrowing
- Fiscal printing is exceeding revenue collection

**Analyst**: Sear Using Fusion Method
**Maximum**: 22 Oct 2003

- Yes, almost certainly
- Likely
- Even, about as likely as not
- Unlikely
- No, almost certainly not

**Rationale**: Based upon historical data, there is reason to expect a budget crisis, despite the possibility of hidden bank accounts and stolen goods.

**Evidence [2] (use Manual or Fusion Method)**

1. **Iraq Sanctions Case**
   - **Analyst**: Lawrence, John D., SRI International
   - **On**: 17 Jun 2003 15:05:50
   - **Relevance**: In addition to Iraq's ability to finance itself through stolen gold and结合起来 goods, there are rumors abound about large, undeclared Iraq bank accounts abroad.

2. **Iraq Economy 1995 Summary**
   - **Analyst**: Lawrence, John D., SRI International
   - **On**: 17 Jun 2003 15:05:27
   - **Relevance**: Historically, Iraq has had a very volatile economy.

**Exhibits [2]**

1. **Christian Aid in Iraq**
   - **Analyst**: Lawrence, John D., SRI International
   - **On**: 22 Oct 2003 12:32:33

2. **Iranian economic argument**
   - **Analyst**: Lawrence, John D., SRI International
   - **On**: 03 Dec, 2002 16:29:37

**Discovery Tools [3]**

*Google search for Iraq debt*
Here the Hierarchical Viewer/Editor depicts a primitive question from a uni-dimensional argument (i.e., ECONOMIC.IRAQ-99). The symbols that appear in the upper right corner depict aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the dates indicate the bounds on the time period analyzed, the flag depicts the associated region, and the page of text indicates that there are additional free text annotations included in the situation descriptor). The Unpublished Template symbol (below the situation descriptor symbols) indicates that this argument and its underlying template are unpublished. The absence of a "READ ONLY" symbol indicates that the current user can modify this argument and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this argument (see Publishing).

**Navigation Map and Navigation Buttons**

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. Each node in this graphic is colored with the light (closest to red) that corresponds to the answer to that question. When the cursor is positioned over a node, a pop-up displays the corresponding question topic and text. The question depicted in this display is indicated by its corresponding node in the graphic having a dark border. If weighted fusion methods are being employed, then questions given less weight are depicted by smaller nodes (see Fusion and Inference Methods for details). Immediately below this navigation graphic are the navigation buttons that move one laterally (left and right) or vertically (up) within the hierarchy; when this uni-dimensional argument is being portrayed in the context of multi-dimensional argument, a button is included for moving directly to the multi-dimensional display. The analyst can also navigate by directly selecting a node within the navigation graphic. If weighted fusion methods are being employed then weighting symbols will appear immediately to the right of the down buttons.

Pushing the Viewer Parameters button (below the navigation buttons and below the auxiliary toolbar, if present), brings up the following dialog. The Show Types parameters causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected types. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.
Other Buttons

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The Template (i.e., "T") button, that appears near the middle of the toolbar, switches this viewer/editor to the template that underlies this argument. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to **print** this display or to **close** it. The first button at the right end of the toolbar invokes any auto-populating discovery tools associated with this argument (see Using Discovery Tools for details). The remaining buttons at the right end of the toolbar bring up the Memo Manager, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).

**Auxiliary Toolbar**

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, reconceals this toolbar when clicked.

![Auxiliary Toolbar](image)

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The **merge** button invokes the **Merging Tool** where information can be moved between this and another template. The **export** button brings up the following dialog. Pushing the **save** button, after having selected the type of file the export is to be **Saved As**, performs the export (see Exporting and Importing for details on the different types of exports); pushing **cancel** before **save** exits the dialog without performing an export.

![Export SEAS Objects](image)

Pushing the **critique** button will bring up the following dialog where the user selects the specific **Checks** and sets the associated **Criteria** that the Argument Critic is to apply to this argument, and specifies whether or not to **Discard Previous Critic Memos**. Upon pushing the **ok** button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the **print** button will print this dialog; pushing the **cancel** button before the **ok** button will exit this dialog without performing a critique of this argument; the **Help** button invokes this **Help** system.
If this argument has not been versioned before, then pushing the version button will bring up the first dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to select the New Collection Type to be used to record versions of this argument (see Using Collections for an explanation of the differences among these types). Push the new button, after having selected a type, to create a new collection containing both this argument and a copy. Future modifications to this argument will not impact the copy. Push the cancel button to exit this dialog without creating anything new.

If this argument has been versioned before, then pushing the version button will result in a dialog similar to the following. Pushing the Inspect button adjacent to a collection in the Collections to Use will cause the contents of that collection, being used to record versions of this argument, to be displayed. After having specified the collection to use if more than one is present, the Previous Item Name (if present), whether or not the item should be published, and whether or not the Collection to Use should be placed in the home collection of the user, pushing the new button will add a copy of the argument as a new item to the collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not
already there). Pushing the cancel button before the new button will exit without creating a copy of this argument. See Using Collections for a detailed explanation of versioning and sequencing collections.

**Versioning/Sequencing Manager**

Select Collection to Use:

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRAQ-99</td>
<td>Sequential</td>
</tr>
<tr>
<td>Iraq Assessments</td>
<td>Versioning</td>
</tr>
</tbody>
</table>

Previous Item Name: IRAQ-99 2004-3-5 11:33:17

Publish Item? □

In home collection? ✔

Tip: If "In home collection/" is checked, the versioning/sequencing collection is contained within or is to be placed in the user's home collection.

Clicking on the button at the right will bring up the Information window that provides information about the template that underlies this argument. Unless the user is limited to "READ ONLY" access (see Publishing), the Information window will appear as below, allowing the user to select a different template to use as the basis for this argument. The user can directly type in the name of a uni-dimensional template or use the Discovery button to find one. Upon pushing the ok button, if that uni-dimensional template exists, then it is substituted for the original template underlying the uni-dimensional argument. The close button dismisses the Information window and the Help button, on the far right, invokes this Help system.

**Template Information**

IRAQ-99

<table>
<thead>
<tr>
<th>Current template:</th>
<th>New Template</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA-IRAQ_1</td>
<td>CSA-IRAQ_1_1</td>
</tr>
</tbody>
</table>

Memos
If visible memos are attached to this argument or its underlying template, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. If visible memos are attached to evidence, exhibits, or discovery tools, viewable by the current user, they will appear immediately below their respective citations. For more about managing memos, see Memo.

<table>
<thead>
<tr>
<th>Memos</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem needing Resolution</td>
<td>28 Jan 2004</td>
</tr>
<tr>
<td>Postel, Leslie, SRI International</td>
<td>28 Jan 2004</td>
</tr>
</tbody>
</table>

**Question, Amplification, and Answers**

The focal question, to be directly answered by the user, appears just below the toolbar of buttons. Just below this is an amplification that further explains, refines, or restates the question being posed. If this question has already been answered, then the Analyst who last contributed to this answer (or to the Rationale, see below) and the date On which that contribution was made are recorded. This is followed by a multiple choice list of answers for this question. Unless the user is limited to "READ ONLY" access (see Publishing) or an automated fusion method has been selected (see below), the user selects the plausible answer(s) for this question by clicking on one or more of the lights adjacent to these answers. If an automated fusion method has been selected, then the user will not be able manually change the selected answer(s).

**Rationale**

Immediately below the multiple choice answers is the Rationale that explains why the question has been answered as it has. Typically this explanation is based upon the Evidence that appears below it. Unless the user is limited to "READ ONLY" access (see Publishing), there is an Edit button next to the Rationale. Pushing this button allows the analyst to edit the text that constitutes the Rationale. The analyst edits the text in the Answer and Rationale Editor (below) and then pushes the ok button to record the changes or the cancel button to discard them.
Answer and Rationale
Economic.IRAQ 99

Answer:

- Yes, almost certainly
- Likely
- Even, about as likely as not
- Unlikely
- No, almost certainly not

Rationale:
Based upon historical data, there is reason to expect a budget crisis, despite the possibility of hidden bank accounts and stolen goods.

Evidence

Each piece of Evidence is represented by its Citation, a text string that describes this document, the Analyst who last contributed to this evidence and the date On which that contribution was made and its Relevance, a text string that describes what is in this document that is applicable to determining the answer to this question and the answer(s) that would be selected if it were based exclusively on this evidence. If visible memos are attached to evidence, viewable by the current user, they will appear immediately below their citations.

Unless the user is limited to "READ ONLY" access (see Publishing), there are three buttons to the left of every piece of evidence. Pressing the Inspect button (the first button with a magnifying glass on it) will cause the exhibit that is the basis of the Evidence to be displayed; pressing the Demote button (the third button) will demote this Evidence to an exhibit, in so doing, stripping it of its Relevance; pressing the Edit button (the second button) launches the Evidence Editor (below) where the analyst can raise or lower a Signal Flag associated with this evidence, edit the text that constitutes the Citation, edit the text and choose
the answers that constitute the Relevance of this evidence to answering the focal question, and manage memos attached to the evidence by invoking the Memo Manager by pressing the memo button. If the associated exhibit is a uni-dimensional argument, then the answers are automatically inherited from underlying argument if the Inheritance check box is checked, otherwise they are manually selected just like any other evidence.

Immediately adjacent to the "Evidence" label, the selected fusion method is displayed. The default method is Manual, meaning that it is up to the user to fuse the Evidence and select the appropriate answer(s) for the focal question. Unless the user is limited to "READ ONLY" access (see Publishing), the selected fusion method is changed by clicking on the method displayed and choosing from the list presented. All of the other fusion methods are automated fusion methods, that is, they automatically select the answer(s) for the focal question based upon the answers in the Relevance associated with each piece of Evidence. Different automated fusion methods combine the Evidence answers in different ways to derive the answer(s) for the
focal question (see Fusion and Inference Methods for details). Some fusion methods utilize weights assigned to the different pieces of evidence that they are combining. If such a weighted fusion method is in use, then weighting symbols will appear adjacent to each piece of evidence. Clicking on these weighting symbols will bring up the following dialog where the weight associated with a piece of evidence can be changed. The weight is proportional to the blue area of the chosen circle. A filled circle represents full impact while an empty circle represents no impact.

### Adjust Weight

![Weight Adjust Dialog]

**Tip:** The weight is proportional to the blue area of the chosen circle: a filled blue circle represents full impact; an empty circle represents no impact.

### Exhibits

The Exhibits associated with this question appear immediately below the evidence. Remember that an Exhibit differs from Evidence in that its relevance to the question at hand has yet to be determined. Therefore, each Exhibit is depicted by its Citation string, with no relevance. Unless the user is limited to "READ ONLY" access (see Publishing), four buttons appear before each Exhibit, otherwise there is one. The first of these buttons is used to examine the contents of the Exhibit, just as with the first Evidence button. The second of these allows one to edit the Citation associated with this Exhibit and raise and lower an associated Signal Flag. The third removes (trashes) the Exhibit. The fourth promotes an Exhibit to Evidence, by asking the user to enter its Relevance, using the Evidence editor shown above.

Clicking on the Exhibit In-Basket, invokes the New Exhibit interface (below). Here the user first selects the Type of entity to be added as an exhibit - either (1) a Citation (only) to an off-line document, (2) an on-line document specified by a URL, (3) a document contained in a local File from Disk, (4) an on-line document specified by a URL that is to be retained as a file by the SEAS server, (5) an on-line document specified by a URL that is to be searched for references to other on-line documents and turned into exhibits, (6) a SEAS Argument, or (7) Reuse an exhibit previously entered. In some cases, the user enters a Citation for the exhibit and, in other cases, enters a URL, File, Argument, or Exhibit, utilizing associated discovery buttons to invoke appropriate browser to locate objects. When using files as exhibits, those that can be viewed on most any machine (e.g., html, pdf, gif) are strongly preferred. Finally, the user indicates whether or not a Signal Flag is to be displayed followed by pressing the ok button to create the exhibit. Pressing the new button will create the exhibit and then clear this form for entry of another exhibit; pressing the cancel button will dismiss it without creating an exhibit. See Using Exhibits for more details on different types of exhibits.
Pushing on the edit button, adjacent to an exhibit, brings up the Exhibit Viewer/Editor (below). Unless the user is limited to "READ ONLY" access (see Publishing), the user can change the Citation and raise or lower the Signal Flag. Pressing the Inspect button will cause the document that is the basis of the exhibit to be displayed and pressing the memo button will invoke the Memo Manager on the memos attached to this exhibit.
Discovery Tools

The final portion of the display might include a list of Discovery Tools, some directly associated with this argument and others associated with the underlying argument template. If visible memos are attached to discovery tools, viewable by the current user, they will appear immediately below their citations. Each Discovery Tool represents a recommended means of answering or acquiring evidence to support the answering of the associated question. Discovery Tools can include ones that issue queries to search engines, create SEAS arguments that breakdown the associated question into other questions that might be easier to answer, or invoke other analytic tools, among possible others. The Inspect button that appears before each tool will activate the associated discovery tool. Pressing the memo button will invoke the Memo Manager on the memos attached to this discovery tool. Unless the user is limited to "READ ONLY" access (see Publishing), an Edit and a Trash button appear after each Inspect button. Pushing the Trash button eliminates the associated discovery tool. The Edit button invokes the Discovery Tool editor; clicking on the Discovery Toolbox invokes the similar New Discovery Tool Editor (see below). Here the user sees or selects the Type of discovery tool they wish to edit or create (one based upon a URL, SEAS Template, Reuse of a discovery tool previously entered, or one that creates multiple Exhibits from a URL), enters or edits the Citation text string that describes the tool in the case of a URL or SEAS Template, and enters a URL, SEAS Argument, or Exhibit, respectively, utilizing the associated Discovery button to invoke an appropriate browser to locate the object. Modification are saved by pressing the ok button; pressing the new button will save any modifications and clear this form for entry of another discovery tool; pressing the cancel button will dismiss it. See Using Discovery Tools for more details on different types of discovery tools.
New Discovery Tool

**Signal Flags**

Red signal flags may appear below leaf nodes in the navigation map or adjacent to evidence or exhibits. A flag below a node in the navigation map indicates that the (primitive) question corresponding to that (leaf) node has exhibits or evidence that require attention. Flags appearing before evidence or exhibits are intended to signal that these items require user attention.

**Tip:** Remember that the URL must contain the "http://" prefix if you are adding a web-based discovery tool.
Hierarchical Viewer/Editor: Multi-dimensional Template

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.
Here the Hierarchical Viewer/Editor depicts a multi-dimensional template (i.e., CSA-IRAQ). The symbols that appears in the upper right corner depict aspects of the associated situation descriptor (here the flag depicts the associated region and the crate a trade related event). The Unpublished Template symbol (below the situation descriptor symbols) indicates that this template is not published. The absence of a "READ ONLY" symbol indicates that the current user can modify this template and the Collaboration Warning symbol indicates that one or more coauthors are simultaneously accessing this template (see Publishing).

**Buttons**

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The button that appears immediately below these invokes the Parameters Editor (see below). The Argument (i.e., "A") button, that appears near the middle of the toolbar, switches this viewer/editor to the argument based upon this template, from which one originally navigated to this template; this button will not appear if you navigated to this template in another way. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to print this display or to close it. The buttons at the right end of the toolbar bring up the Memo Viewer/Editor, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).

**Auxiliary Toolbar**

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, reconceals this toolbar when clicked.

```
  copy  delete  rename  export  critique  version
```

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The export button brings up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.
Pushing the **critique** button will bring up the following dialog where the user selects the specific **Checks** and sets the associated **Criteria** that the Template Critic is to apply to this template, and specifies whether or not to **Discard Previous Critic Memos**. Upon pushing the **ok** button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the **print** button will print this dialog; pushing the **cancel** button before the **ok** button will exit this dialog without performing a critique of this argument; the Help button invokes this Help system.

If this template has not been versioned before, then pushing the **version** button will bring up the first dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to select the **New Collection Type** to be used to record versions of this template (see Using Collections for an explanation of the differences among these types). Push the **new** button, after having selected a type, to create a new collection containing both this template and a copy. Future modifications to this template will not impact the copy. Push the **cancel** button to exit this dialog without creating anything new.
If this template has been versioned before, then pushing the version button will result in a dialog similar to the following. Pushing the Inspect button adjacent to a collection in the Collections to Use will cause the contents of that collection, being used to record versions of this template, to be displayed. After having specified the collection to use if more than one is present, the Previous Item Name (if present), whether or not the item should be published, and whether or not the Collection to Use should be placed in the home collection of the user, pushing the new button will add a copy of the template as a new item to the collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not already there). Pushing the cancel button before the new button will exit without creating a copy of this template. See Using Collections for a detailed explanation of versioning and sequencing collections.
Memos

If visible memos are attached to this template or its underlying template, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. For more about managing memos, see Memo.

Starburst and Constellation Graphical Depictions

A Starburst, immediately below the toolbar, depicts this multi-dimensional template. In this graphic, this template's component arguments are organized in a pattern that resembles spokes on a wheel. Each "spoke" corresponds to one component. When arguments are constructed based upon this template, its answers will be displayed as "stop lights" at the ends of the spokes and plotted as points along the spokes with the "hub" of the wheel typically corresponding to the green end of the linear scale and the "rim" typically to the red; the points plotted on neighboring spokes will be connected by lines and the resulting polygon will be filled. The result is a plot that visually conveys the argument, with the severity of the situation being proportional...
to the area of the plot. When the user clicks on the text that labels the component arguments, the Hierarchical Viewer/Editor displays the corresponding uni-dimensional template.

A Constellation is another way of graphically depicting a multi-dimensional template. Using the same radial layout as for the Starburst, it depicts the trees of lights corresponding to each component template within the corresponding wedge, placing the root node/light nearest the origin and growing out from there. Larger nodes/lights are used nearer the origin. Although this can result in a cluttered display, it has the advantage of depicting every question/answer of a multi-dimensional template within a single compact display. This is further enhanced by pop-ups, which appear when the cursor is positioned over any node/light, which display the corresponding question topic and question text. This helps the user to come to better understand this complex display.

Pushing the Viewer Parameters button, brings up the following dialog. The **Show Colors** parameters consist of the lights selected for inclusion; if no lights are selected, then no Constellation will be depicted. The **Show Types** parameters causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected types. The **All** and **None** options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The **Show Content** parameter causes either the **Full** memos to be included or a shorter and more compact **Synopsis** to be included within displays that include the objects to which the memos are attached.

### Hierarchical Viewer Parameters

<table>
<thead>
<tr>
<th>Viewing</th>
<th>Color: OWN . Wedge: SECTORS Memo-types: (ASSUMPTION COMMENT CONTEXT CRITIQUE FOR-REVIEW INSTRUCTION SUMMARY TO-DO) . Memo Content: SYNOPSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Colors</td>
<td>▨ ▨ ▨  ▨  ▨</td>
</tr>
<tr>
<td>Memos</td>
<td></td>
</tr>
<tr>
<td>Show Types</td>
<td>▨ All</td>
</tr>
<tr>
<td>▨ None</td>
<td>▨ Critique</td>
</tr>
<tr>
<td>Show Content</td>
<td>▨ Full</td>
</tr>
</tbody>
</table>

**Tip:** Setting one or many lights will show all the individual questions overlayed on the starburst.

### Component Templates

The **Component Templates** are listed immediately below the starburst. Each listing includes the name of the **Component Template** and the label that is used to reference it in the starburst. Unless the user is limited to "READ ONLY" access (see **Publishing**), the display will include the Template Stapler and Edit and Trash buttons. Pushing the Trash button, adjacent to a component listing, removes that component from this multi-dimensional template. Clicking on the Template Stapler or pushing the Edit button brings up the Component Editor (see below), and allows the user to add an existing uni-dimensional template as a new **Component Template** or substitute a different existing template for the **Component Template** associated with that button. The Discovery button is used to find one. When arguments are constructed.
based upon this template, its answers will be plotted as points along the spokes with the "hub" of the wheel corresponding to the green end of the linear scale and the "rim" to the red, unless the **Inverted Scale** option is selected. Upon pushing the **ok** button, if that template exists, then it is added or substituted for the original component in the multi-dimensional template. The **cancel** button dismisses the Component Editor and the Help button, on the far right, invokes this Help system.

### Edit Components

**CSA-IRAQ**

<table>
<thead>
<tr>
<th>Component</th>
<th>Economic.CSA-IRAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Economic</td>
</tr>
<tr>
<td>Inverted Scale</td>
<td>Invert the display of the maximum and minimum colors.</td>
</tr>
</tbody>
</table>
Hierarchical Viewer/Editor: Uni-dimensional Template, Derivative Question

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Here the Hierarchical Viewer/Editor depicts a derivative question from a uni-dimensional template (i.e., ECONOMIC.CSA-IRAQ). The symbols that appear in the upper right corner depict aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the flag depicts the associated region, and the crate a trade related event). The Unpublished Template symbol (below the situation descriptor symbols) indicates that this template is not published. The absence of a "READ ONLY" symbol indicates that the current user can modify this template and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this template (see Publishing).

Navigation Map and Navigation Buttons

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. When the cursor is positioned over a node, a pop-up displays the corresponding question topic and text. The question depicted in this display is indicated by its corresponding node in the graphic being filled. If weighted fusion methods are being employed, then questions given less weight are depicted by smaller nodes (see Fusion and Inference Methods for details). Immediately below this navigation graphic are the navigation buttons.
that move one laterally (left and right) or vertically (up) within the hierarchy; when this uni-dimensional template is being portrayed in the context of multi-dimensional template, a button is included for moving directly to the multi-dimensional display. The analyst can also navigate by directly selecting a node within the navigation graphic. Pushing a (down) button, adjacent, to one of the supporting questions, causes the Hierarchical Viewer/Editor to move down the hierarchy, bringing up a display with the associated question appearing as the focal question.

Pushing the Hierarchical Viewer Parameters button (below the navigation buttons and below the auxiliary toolbar, if present), brings up the following dialog. The Memo Types parameters causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected Memo Types. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter.

### Hierarchical Viewer Parameters

| ok | print | cancel | ? |

**Viewing**

Memo-types: (ASSUMPTION CRITIQUE). Memo Content: SYNOPSIS

---

**Memos**

**Show Types**

- [ ] All
- [ ] None

- [ ] Assumption
- [ ] Critique
- [ ] Summary
- [ ] Comment
- [ ] For Review
- [ ] To Do
- [ ] Instruction

**Show Content**

- [ ] Full
- [ ] Synopsis

---

### Other Buttons

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The button that appears immediately below these invokes the Parameters Editor (see below). The Argument (i.e., "A") button, that appears near the middle of the toolbar, switches this viewer/editor to the argument based upon this template, from which one originally navigated to this template; this button will not appear if you navigated to this template in another way. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to print this display or to close it. The buttons at the right end of the toolbar bring up the Memo Manager, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).
Auxiliary Toolbar

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, conceals this toolbar when clicked.

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The merge button invokes the Merging Tool where information can be moved between this and another template. The export button brings up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.

Pushing the critique button will bring up the following dialog where the user selects the specific Checks and sets the associated Criteria that the Template Critic is to apply to this template, and specifies whether or not to Discard Previous Critic Memos. Upon pushing the ok button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the print button will print this dialog; pushing the cancel button before the ok button will exit this dialog without performing a critique of this argument; the Help button invokes this Help system.
If this template has not been versioned before, then pushing the version button will bring up the first dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to select the New Collection Type to be used to record versions of this template (see Using Collections for an explanation of the differences among these types). Push the new button, after having selected a type, to create a new collection containing both this template and a copy. Future modifications to this template will not impact the copy. Push the cancel button to exit this dialog without creating anything new.

If this template has been versioned before, then pushing the version button will result in a dialog similar to the following. Pushing the Inspect button adjacent to a collection in the Collections to Use will cause the
contents of that collection, being used to record versions of this template, to be displayed. After having specified the collection to use if more than one is present, the Previous Item Name (if present), whether or not the item should be published, and whether or not the Collection to Use should be placed in the home collection of the user, pushing the New button will add a copy of the template as a new item to the collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not already there). Pushing the cancel button before the new button will exit without creating a copy of this template. See Using Collections for a detailed explanation of versioning and sequencing collections.

Versioning/Sequencing Manager

![New and Cancel Buttons]

Collection Used:
Name: CSA-IRAQ
Type: Versioning

Previous Item Name
CSA-IRAQ 2004-3-7 12:44:10

Publish Item? ✔
In home collection? ✔

Tip: If "In home collection/" is checked, the versioning/sequencing collection is contained within or is to be placed in the user's home collection.

Clicking on the button at the right will bring up the Information window that provides information about the focal template. Unless the user is limited to "READ ONLY" access (see Publishing), the Information window will appear as below, allowing the user to modify the Skeleton and/or Inference Method of this template. The skeletal structure is specified by a series of numerical entries indicating the number of Questions Per Branch that support each question higher in the skeleton e.g., 1 over 4 over 3 has the root derivative question (i.e., 1) supported by 4 derivative questions (i.e., 4) and each of these 4 derivative questions supported by 3 primitive questions. The Inference Method is specified by selecting an automated Fusion Method that is to be applied at every derivative question, at each Level, to automatically produce its answer based upon the answers to the questions immediately below it. If fusion methods are not selected for every level, then the prior fusion method (i.e., the first one above) is used for the remaining levels; if more fusion methods than derivative question levels are given, the extra ones are ignored. The number of Choices chosen at each Level, determine the number of multiple choice answers or lights that will be associated with the questions at the corresponding level. Upon pushing the ok button, the template's skeletal structure and/or inference method is modified. The close button dismisses the Information window without making any modifications and the Help button, on the far right, invokes this Help system.
Memos

If new memos are attached to this template, at the question currently being displayed and viewable by the current user, they will appear immediately below the toolbar, as shown below. Pertinent information is listed for each such memo. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. For more about managing memos, see Memo.

<table>
<thead>
<tr>
<th>Memos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem needing Resolution</td>
</tr>
<tr>
<td>Poutzi, Ledsic, SRI International</td>
</tr>
<tr>
<td>Critique</td>
</tr>
<tr>
<td>28 Jan 2004</td>
</tr>
</tbody>
</table>

Questions

The Base Question appears just below the toolbar of buttons. Below this question the display shows the Supporting Questions that are posed to arrive at an answer to the Base Question. Unless the user is limited to "READ ONLY" access (see Publishing), there is an Edit button next to the Base and each Supporting Questions. Pushing this button allows the analyst to edit the text that constitutes the corresponding question and the number of lights that associated with its answer. The user makes edits in the Question Editor (below) and then pushes the ok button to record the changes or the cancel button to discard them.
Immediately adjacent to the "Supporting Questions" label, the selected fusion method is displayed. This is used to derive the answer to the Base Question from the answers to the Supporting Questions. Unless the user is limited to "READ ONLY" access (see Publishing), the fusion method is changed by clicking on the method displayed and choosing from the list presented. Different fusion methods combine the answers in different ways to derive the answer(s) for the focal question (see Fusion and Inference Methods for details). Some fusion methods utilize weights assigned to the different answers they are combining. If such a weighted fusion method is in use, then weighting symbols will appear adjacent to each Supporting Question. Clicking on these weighting symbols will bring up the following dialog where the weight associated with that question can be changed. The weight is proportional to the blue area of the chosen circle. A filled circle represents full impact while an empty circle represents no impact.

**Adjust Weight**

Tip: The weight is proportional to the blue area of the chosen circle: a filled blue circle represents full impact; an empty circle represents no impact.

Unless the user is limited to "READ ONLY" access (see Publishing), a Trash button appears adjacent to each Supporting Question. Pushing it deletes the associated question and all the questions that support it from the template. If the user is not limited to "READ ONLY" access, then supporting questions can be
added by clicking on the Template Stapler, adjacent to the fusion method. So doing results in the dialog below. The user specifies the **Skeleton** and **Fusion Methods** of a new branch of questions to be added. The skeletal structure is specified by a series of numerical entries indicating the number of **Questions Per Branch** that support each question higher in the skeleton e.g., 1 over 3 over 2 has the root derivative question (i.e., 1) supported by 3 derivative questions (i.e., 3) and each of these 3 derivative questions supported by 2 primitive questions. The Inference Method is specified by selecting an automated **Fusion Method** that is to be applied at every derivative question in the new branch, at each **Level**, to automatically produce its answer based upon the answers to the questions immediately below it. If fusion methods are not selected for every level, then the prior fusion method (i.e., the first one above) is used for the remaining levels; if more fusion methods than derivative question levels are given, the extra ones are ignored. The number of **Choices** chosen at each Level, determine the number of multiple choice answers or lights that will be associated with the questions at the corresponding level. **The Position of the new branch/question** specifies where the new branch/question is to be placed. If a numeric entry is selected, it will be placed at that position, otherwise it will be added as the last supporting question. Upon pushing the **ok** button, the template's skeletal structure and inference method is modified to include the new question/branch. The **close** button dismisses this window without making any modifications and the Help button, on the far right, invokes this Help system.
Hierarchical Viewer/Editor: Uni-dimensional Template, Primitive Question

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Here the Hierarchical Viewer/Editor depicts a primitive question from a uni-dimensional template (i.e., Economic.CSA-IRAQ). When the cursor is positioned over a node, a pop-up displays the corresponding question topic and text. The symbols that appear in the upper right corner depict aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the flag depicts the associated region, and the crate a trade related event). The Unpublished Template symbol (below the situation descriptor symbols) indicates that this template is not published. The Unpublished Template symbol (top right) indicates that this template is not published. The absence of a "READ ONLY" symbol indicates that the current user can modify this template and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this template (see Publishing).
Navigation Map and Navigation Buttons

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. The question depicted in this display is indicated by its corresponding node in the graphic being filled. Immediately below this navigation graphic are the navigation buttons that move one laterally (left and right) or vertically (up) within the hierarchy; when this uni-dimensional template is being portrayed in the context of multi-dimensional template, a button is included for moving directly to the multi-dimensional display. The analyst can also navigate by directly selecting a node within the navigation graphic.

Pushing the Viewer Parameters button (below the navigation buttons and below the auxiliary toolbar, if present), brings up the following dialog. The Show Types parameters causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected types. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.

Other Buttons

The three buttons that appear at the far left in the toolbar invoke the Hierarchical Viewer (i.e., this viewer), the Summary Viewer, and the Table Viewer. The button that appears immediately below these invokes the Parameters Editor (see below). The Argument (i.e., "A") button, that appears near the middle of the toolbar, switches this viewer/editor to the argument based upon this template, from which one originally navigated to this template; this button will not appear if you navigated to this template in another way. The button to its immediate right, with a film spool on it, invokes the Comparison Tool. The buttons centered on the toolbar are used to print this display or to close it. The buttons at the right end of the toolbar bring up the Memo Manger, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).
Auxiliary Toolbar

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, conceals this toolbar when clicked.

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the argument that is the focus of this viewer/editor. The export button bring up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.

Pushing the critique button will bring up the following dialog where the user selects the specific Checks and sets the associated Criteria that the Template Critic is to apply to this template, and specifies whether or not to Discard Previous Critic Memos. Upon pushing the ok button, the Critic will perform the specified checks, posting a memo of type critique wherever the criteria is not met; pushing the print button will print this dialog; pushing the cancel button before the ok button will exit this dialog without performing a critique of this argument; the Help button invokes this Help system.
If this template has not been versioned before, then pushing the **version** button will bring up the first dialog below, otherwise the second dialog below will be brought up. In this first dialog, the user is asked to select the **New Collection Type** to be used to record versions of this template (see [Using Collections](#) for an explanation of the differences among these types). Push the **new** button, after having selected a type, to create a new collection containing both this template and a copy. Future modifications to this template will not impact the copy. Push the **cancel** button to exit this dialog without creating anything new.

If this template has been versioned before, then pushing the **version** button will result in a dialog similar to the following. Pushing the Inspect button adjacent to a collection in the **Collections to Use** will cause the
contents of that collection, being used to record versions of this template, to be displayed. After having specified the collection to use if more than one is present, the Previous Item Name (if present), whether or not the item should be published, and whether or not the Collection to Use should be placed in the home collection of the user, pushing the new button will add a copy of the template as a new item to the collection and, if so indicated, publish that copy and add that collection to the user's home collection (if not already there). Pushing the cancel button before the new button will exit without creating a copy of this template. See Using Collections for a detailed explanation of versioning and sequencing collections.

Clicking on the button at the right will bring up the Information window that provides information about the focal template. Unless the user is limited to "READ ONLY" access (see Publishing), the Information window will appear as below, allowing the user to modify the Skeleton and/or Inference Method of this template. The skeletal structure is specified by a series of numerical entries indicating the number of Questions Per Branch that support each question higher in the skeleton e.g., 1 over 4 over 3 has the root derivative question (i.e., 1) supported by 4 derivative questions (i.e., 4) and each of these 4 derivative questions supported by 3 primitive questions. The Inference Method is specified by selecting an automated Fusion Method that is to be applied at every derivative question, at each Level, to automatically produce its answer based upon the answers to the questions immediately below it. If fusion methods are not selected for every level, then the prior fusion method (i.e., the first one above) is used for the remaining levels; if more fusion methods than derivative question levels are given, the extra ones are ignored. The number of Choices chosen at each Level, determine the number of multiple choice answers or lights that will be associated with the questions at the corresponding level. Upon pushing the ok button, the template's skeletal structure and/or inference method is modified. The close button dismisses the Information window without making any modifications and the Help button, on the far right, invokes this Help system.
Memos

If visible memos are attached to this template or its underlying template, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. If visible memos are attached to discovery tools, viewable by the current user, they will appear immediately below their respective citations. For more about managing memos, see Memo.

<table>
<thead>
<tr>
<th>Memos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem needing Resolution</td>
</tr>
<tr>
<td>Pozni, Leslie, SRI International</td>
</tr>
<tr>
<td>Critique</td>
</tr>
<tr>
<td>28 Jan 2004</td>
</tr>
</tbody>
</table>

Question, Amplification, and Answers

The Base Question, to be directly answered by the user, appears just below the toolbar of buttons. Just below this is the Question Amplification that further explains, refines, or restates the question being posed. The amplification will appear as a bulleted list of items in arguments; items are separated by carriage returns. This is followed by a multiple choice list of answers for this question. Unless the user is limited to "READ ONLY" access (see Publishing),

There is an Edit button next to the Base Question, Question Amplification, and Choices. Pushing this button allows the user to edit the text that constitutes the corresponding question or choices. The Number
of Choices (i.e., the number of lights) can be 2, 3, or 5. The user edits the text in the Question/Choice Editor (below) and then pushes the ok button to record the changes or the cancel button to discard them. To help speed the creation of templates and improve their quality, a library of exemplar template questions and associated multiple-choice answers is provided. One of these exemplar answer sets can be entered through the Use an Answer Set pull down menu. Pushing the Reverse button will reverse the order of the choices, making what was the choice associated with the red light associated with the green light and vice versa. If the Use these choices for all questions in this template is checked, then upon pushing ok, the choices for all questions in this uni-dimensional template are changed to this set. See the Style Guide for Argument Templates for guidance on creating good questions and choices.

**Question Editor**
**ECONOMIC.CSA-IRAQ**

<table>
<thead>
<tr>
<th>Number of Choices</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choices</td>
<td><img src="image" alt="Options" /></td>
</tr>
<tr>
<td>Yes, almost certainly</td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td></td>
</tr>
<tr>
<td>Even, about as likely as not</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td></td>
</tr>
<tr>
<td>No, almost certainly not</td>
<td></td>
</tr>
</tbody>
</table>

- Use these choices for all questions in this template.

**Tip:** If you use these choices for all questions in this template, you can change any or all of them later.

**Discovery Tools**

The final portion of the display lists the Discovery Tools associated with this question in the argument template. If visible memos are attached to evidence, viewable by the current user, they will appear immediately below their citations. Each Discovery Tool represents a recommended means of answering or acquiring evidence to support the answering of the associated question. Discovery Tools can include ones that issue queries to search engines, create SEAS arguments that breakdown the associated question into other questions that might be easier to answer, or invoke other analytic tools, among possible others. The Inspect button that appears before each tool will activate the associated discovery tool. Pressing the memo button will invoke the Memo Manager on the memos attached to this discovery tool. Unless the user is limited to "READ ONLY" access (see Publishing), an Edit and a Trash button appear after each Inspect
button. Pushing the Trash button eliminates the associated discovery tool. The Edit button invokes the **Discovery Tool** editor; clicking on the Discovery Toolbox invokes the similar **New Discovery Tool Editor** (see below). Here the user sees or selects the **Type** of discovery tool they wish to edit or create (one based upon a **URL**, **SEAS Template**, **Reuse** of a discovery tool previously entered, or one that creates multiple **Exhibits from a URL**), enters or edits the **Citation** text string that describes the tool in the case of a **URL** or **SEAS Template**, and enters a **URL**, **SEAS Argument**, or **Exhibit**, respectively, utilizing the associated Discovery button to invoke an appropriate browser to locate the object. Modification are saved by pressing the **ok** button; pressing the **new** button will save any modifications and clear this form for entry of another discovery tool; pressing the **cancel** button will dismiss it. See [Using Discovery Tools](#) for more details on different types of discovery tools.

### New Discovery Tool

<table>
<thead>
<tr>
<th>Type</th>
<th>Citation</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URL</strong></td>
<td>Google search for Iraq dept</td>
<td>google.com/search?q=iraq+debt&amp;sa=Google+Search</td>
</tr>
</tbody>
</table>

**Tip:** Remember that the **url** must contain the "http://" prefix if you are adding a web-based discovery tool.
Table Viewer

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Here the Table Viewer depicts a uni-dimensional argument (i.e., Economic.IRAQ 99). The symbol(s) that appears in the top right corner depicts aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the dates indicate the bounds on the time period analyzed, the flag depicts the associated region, and the page of text indicates that there are additional free text annotations included in the situation descriptor). The Unpublished Template symbol (below the situation descriptor symbols) indicates that neither this argument nor its underlying template are published. The absence of a "READ ONLY" symbol indicates that the current user can modify this argument and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this argument (see Publishing).

Navigation Map and Navigation Buttons

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. Each node in this graphic is colored with the light that corresponds to the answer to that question. When the cursor is positioned over a node, a pop-up displays the corresponding question topic and text. If weighted fusion methods are being employed, then questions given less weight are depicted by smaller nodes (see Fusion and Inference Methods for details). Immediately below this navigation graphic are the navigation buttons. The buttons that would move one laterally (left and right) and up within the hierarchy are not functional in this viewer. However, when a uni-dimensional argument is being portrayed in the context of multi-dimensional argument, a button is included for moving directly to the multi-dimensional display. Selecting a node within the navigation graphic invokes the Hierarchical Viewer/Editor on the corresponding question.
Signal Flags and Memos

Red signal flags may appear below leaf nodes in the navigation map. A flag below a node indicates that the (primitive) question corresponding to that (leaf) node has exhibits or evidence that require attention. These flags allow an analyst to rapidly navigate to those questions that require attention.

Yellow rectangles may appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected Memo Types (see Summary Options below).

Other Buttons

The three buttons that appear just to the right of navigation buttons in the toolbar invoke the Hierarchical Viewer/Editor, the Summary Viewer, and the Table Viewer Parameters editor on this argument or template. The buttons centered on the toolbar are used to print this display or to close it. The first button at the right end of the toolbar invokes any auto-populating discovery tools in this argument (see Using Discovery Tools for details). The remaining buttons at the right end of the toolbar bring up the Memo Viewer/Editor, the Publication Information Manager, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument or template that are not currently being displayed in this window (more on this below).

Auxiliary Toolbar

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar similar to the one below (without the merge button if the table represents a multi-dimensional argument or template and without the information button on the far right if it represents a multi-dimensional template). A similar triangle, pointing upward, conceals this toolbar when clicked.

These buttons perform the same operations as they do in the Hierarchical Viewer/Editor. See the Auxiliary Toolbar section for the Hierarchical Viewer/Editor operating on the appropriate type of object (i.e., multi-dimensional argument, multi-dimensional template, uni-dimensional argument, or uni-dimensional template) for details.

Table Viewer Parameters

Immediately below the toolbar, the active Table Viewer Parameters are textually described that determine the content of the tables that summarize the associated argument(s) or template(s). Every Table Viewer summary uses successive rows of a table to capture the successive generations of questions/answers. The relationships among the questions/answers is preserved by having derivative questions/answers overlap their supporting questions/answers. In the case of arguments, each cell in this graphic is colored with the light that corresponds to the answer to that question. When the cursor is positioned over a cell, a pop-up displays the corresponding question topic and text. Pushing the Table Viewer Parameters editor button brings up the display below where these setting can be modified.

In the summary table that follows, a uni-dimensional argument is depicted. The root question, captured by the single cell that constitutes the first row, overlaps the four cells that correspond to its four supporting
questions; each of these, in turn, overlaps their three supporting questions in the last row. In the table above, each question has its five possible answers depicted as cells in the column immediately below each of the primitive questions; those answers that are selected are lit with their corresponding color. The example above also depicts the supporting evidence and exhibits below each question lit with their corresponding light (or blue if none exists) and the fusion methods in use (here the manual fusion method is being used for all but the first question which is using average weighted; see Symbol Glossary for all of the fusion method symbols). When the cursor is positioned over any element in this depiction, a pop-up describes the corresponding item.

![Image of table viewer parameters]

The Table Viewer Parameters are modified through the Table View Parameters editor, which is invoked by pushing the corresponding button in the toolbar. The Show Label parameter determines if the table cells are labeled with the corresponding question Topic. The Show Answers parameter determines if All or None of the answers are included; the Show Details parameters determine if the Exhibits and/or Evidence are shown.

The Show Types parameters for Memos causes yellow rectangles to appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected types. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.

Table Viewer Parameters

<table>
<thead>
<tr>
<th>Label: Topic</th>
<th>None</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Show Labels</th>
<th>Topic</th>
<th>None</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Show Answers</th>
<th>All</th>
<th>None</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Show Details</th>
<th>Evidence</th>
<th>Exhibits</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Show Types</th>
<th>All</th>
<th>Assumption</th>
<th>Critique</th>
<th>Summary</th>
<th>Comment</th>
<th>For Review</th>
<th>To Do</th>
<th>Context</th>
<th>Instruction</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Show Content</th>
<th>Full</th>
</tr>
</thead>
</table>
When the Table Viewer is invoked on multi-dimensional arguments, each component argument is depicted by its own table.
Summary Viewer

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Economic.IRAQ-99

**ECONOMIC**: Is this country headed for an economic crisis?

**MACROECONOMIC STABILITY**: Is there a significant decline in this country's macroeconomic stability?

**BUDGET CRISIS**: Is a budget crisis developing or worsening?

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Answers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes, almost certainly</td>
</tr>
<tr>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td>Even, about as likely as not</td>
</tr>
<tr>
<td></td>
<td>Unlikely</td>
</tr>
<tr>
<td></td>
<td>No, almost certainly not</td>
</tr>
<tr>
<td>Rationale</td>
<td>Based upon historical data, there is reason to expect a budget crisis, despite the possibility of hidden bank accounts and stolen goods.</td>
</tr>
<tr>
<td>Evidence</td>
<td>Iraq Sanctions Case: In addition to Iraq's ability to finance itself through stolen gold and durable goods, there are rumors abroad about large, undeclared Iraqi bank accounts abroad.</td>
</tr>
<tr>
<td></td>
<td>Iraq Economy 1995 Summary: Historically, Iraq has had a very volatile economy.</td>
</tr>
<tr>
<td>Exhibits</td>
<td>[2] Christian Aid in Iraq</td>
</tr>
<tr>
<td></td>
<td>Iranian economic argument</td>
</tr>
</tbody>
</table>

**INFLATION**: Is inflation increasing or becoming worse?

<table>
<thead>
<tr>
<th>Analyst</th>
<th>Lowrance, John D., SRI International on 17 Jul 2003 10:12:21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes, almost certainly</td>
</tr>
<tr>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td>Even, about as likely as not</td>
</tr>
<tr>
<td></td>
<td>Unlikely</td>
</tr>
<tr>
<td></td>
<td>No, almost certainly not</td>
</tr>
<tr>
<td>Rationale</td>
<td>Recent economic reports indicates that inflation is on the rise. DNA is not reliable.</td>
</tr>
</tbody>
</table>

**BALANCE OF PAYMENTS**: Are there problematic developments in the country's balance of payments?

<table>
<thead>
<tr>
<th>Analyst</th>
<th>Lowrance, John D., SRI International on 12 Jun 2001 10:25:91</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes, almost certainly</td>
</tr>
<tr>
<td></td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td>Even, about as likely as not</td>
</tr>
<tr>
<td></td>
<td>Unlikely</td>
</tr>
<tr>
<td></td>
<td>No, almost certainly not</td>
</tr>
<tr>
<td>Rationale</td>
<td>Trade terms are in decline.</td>
</tr>
</tbody>
</table>
The Summary Viewer produces compact views of arguments and templates. It is intended to summarize all of the important information, as identified by the user, in a single page/screen. This provides for a compact view of an argument that can be easily saved to a single file or printed. Here the Summary Viewer depicts a uni-dimensional argument (i.e., ECONOMIC.IRAQ-99). The symbols that appear under the argument name depict aspects of the associated situation descriptor (here the coins depict the associated economic perspective, the flag depicts the associated region, and the dates indicate the bounds on the time period analyzed). The Unpublished Template symbol (located at the top right) indicates that this argument and its underlying template are unpublished. A "READ ONLY" symbol appears when appropriate and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this argument (see Publishing).

Navigation Map and Navigation Buttons

At the top left of this display is a navigation graphic that depicts the hierarchy of questions. Each node in this graphic is colored with the light (closest to red) that corresponds to the answer to that question. Immediately below this navigation graphic are the navigation buttons. The buttons that would move one laterally (left and right) and up within the hierarchy are not functional in this viewer. However, when a uni-dimensional argument is being portrayed in the context of multi-dimensional argument, a button is included for moving directly to the multi-dimensional display. Selecting a node within the navigation graphic invokes the Hierarchical Viewer/Editor on the corresponding question.

Signal Flags

Red signal flags may appear below leaf nodes in the navigation map. A flag below a node indicates that the (primitive) question corresponding to that (leaf) node has exhibits or evidence that require attention. These flags allow an analyst to rapidly navigate to those questions that require attention.

Yellow rectangles may appear in the navigation map. If they do, it indicates that the adjacent node/question has a memo displayed of one of the selected Memo Types (see Summary Options below).

Other Buttons

The three buttons that appears just to the right of navigation buttons in the toolbar invoke the Hierarchical Viewer/Editor, the Table Viewer, and the Summary Viewer Parameters editor on this argument or template. The buttons centered on the toolbar are used to capture this display (e.g., to a printer) or to exit it. The buttons at the right end of the toolbar bring up the Memo Manager, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right. If the memo button has several dark lines across its yellow field, this indicates that there are memos attached to this argument that are not currently being displayed in this window (more on this below).

Auxiliary Toolbar

Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar similar to the one below (without the merge button if the table represents a multi-dimensional argument or template and without the information button on the far right if it represents a multi-dimensional template). A similar triangle, pointing upward, conceals this toolbar when clicked.
These buttons perform the same operations as they do in the Hierarchical Viewer/Editor. See the Auxiliary Toolbar section for the Hierarchical Viewer/Editor operating on the appropriate type of object (i.e., multi-dimensional argument, multi-dimensional template, uni-dimensional argument, or uni-dimensional template) for details.

Summary Options

Immediately below the toolbar, the Summary Options are textually described that determine how the numbering, publication information, situation information, questions, answers, memos, and details are to be depicted in the summary display. Pushing the Summary Viewer Parameters button brings up the display below where these setting can be modified. The Display Graphic option under Information determines whether or not a summary graphic is shown at the top of the summary page (e.g., a starburst). The Show Publication Information and Show Situation Information options determine if All fields, just those that are Filled, or None of them are to be displayed. The Add Outline Numbers option for Questions determines if the elements summarized are preceded by numbers indicating their position in the hierarchy. If the Topic option is selected for Show Questions, then only the question topics are displayed; if Text is chosen, then the full text versions of the questions are displayed; if Both is chosen, then the topic and text is displayed for each question. Show Question Amplification determines if the question amplification is shown. The Answer In option determine which viewer/editor is used to answer questions from the summary viewer. If the Hierarchical Viewer is chosen then clicking on question in the summary will open the hierarchical viewer/editor on that question. If the Summary Viewer is chosen and the current user can modify this argument, then an Edit button appears next to each primitive question; pushing that button will allows that user to edit the answer and rationale for the corresponding question, just as in the hierarchical viewer, but without leaving the summary viewer/editor. The Answers option determine if All answers are to be displayed, or just those that are Chosen, or None of them. When None is the selected option, the answers to the questions are portrayed as sequences of lights, along side the corresponding question, ranging from green to yellow to red (the exact number of lights may vary). A green light corresponds to a favorable response to the question, while a yellow corresponds to a less favorable response and a red to an unfavorable response. The questions are phrased to make favorable responses correspond to favorable conditions for the object of the assessment. If one or more of a question’s lights are on, it indicates that something is known about its answer: if one light is on, that is the answer; if multiple lights are on, it is indicating that the answer is one of those that is lit, but there is not enough information at present to give a definitive answer; by convention, if all answers remain possible given current information, no lights are lit. The Show Types parameters determines which types of memos are to be included in the summary: The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached. Additional details of Question answers appearing in the summary are selectively included according to selected options: these include the Analyst that last modified the answer, the Rationale for the answer, and the associated Evidence and Exhibits. The Lights provide further filtering on the items depicted; these lights are toggled on/off by clicking on them; only questions, answers, and evidence corresponding to lit lights are included in the summary.
### Summary Viewer Parameters

<table>
<thead>
<tr>
<th>Information</th>
<th>Display Graphic</th>
<th>Show Publishing Info.</th>
<th>Show Situation Info.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☑</td>
<td>☑ All</td>
<td>☑ Filled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>☑ None</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Questions</th>
<th>Add Outline Numbers</th>
<th>Show Question</th>
<th>Show Question Amplification</th>
<th>Answer In</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☑ Both</td>
<td>☑ Topic</td>
<td>☑ Body</td>
<td>☑ Summary Viewer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Answers</th>
<th>Show Colors</th>
<th>Show Answer Text</th>
<th>Show Details</th>
<th>Memos</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☑</td>
<td>☑ for All Possible Choices</td>
<td>☑ Analyst</td>
<td>☑ Assumption</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td>☑ for Choices Selected</td>
<td>☑ Rationale</td>
<td>☑ Critique</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td>☑ None</td>
<td>☑ Evidence</td>
<td>☑ Summary</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td></td>
<td>☑ Exhibits</td>
<td>☑ To Do</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td></td>
<td>☑ Discovery Tools</td>
<td>☑ Comment</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td>☑ For Review</td>
</tr>
<tr>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td>☑ Instruction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Show Types</th>
<th>Show Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ All</td>
<td>☑ Full</td>
</tr>
<tr>
<td>☑ None</td>
<td>☑ Synopsis</td>
</tr>
</tbody>
</table>

The same argument as above is depicted below in the Summary Viewer using a different set of options.
Questions and Answers

The questions and answers are portrayed according to the Summary Options. Clicking on a question invokes the Hierarchical Viewer/Editor on that question.

Templates

The Summary Viewer works analogously on templates as it does on arguments. However, the only option under Details is the inclusion/exclusion of Discovery Tools.
ECONOMIC: Is this country headed for an economic crisis?

1 MACROECONOMIC STABILITY: Is there a significant decline in this country's macroeconomic stability?

1.1 BUDGET CRISIS: Is a budget crisis developing or worsening?

   Choices
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not

   Discovery Tools [3]
   - Google search for Iraq debt

1.2 INFLATION: Is inflation increasing or becoming worse?

   Choices
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not

   Discovery Tools [2]
   - Google Search for Iraq Inflation

1.3 BALANCE OF PAYMENTS: Are there problematic developments in the country's balance of payments?

   Choices
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not

2 FINANCIAL STABILITY: Is there a significant decline in this country's financial stability?

2.1 BANKING SECTOR: Are there problems or developments in the banking sector?

   Choices
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not

2.2 CURRENCY: Are there currency-related problems or developments?

   Choices
   - Yes, almost certainly
   - Likely
   - Even, about as likely as not
   - Unlikely
   - No, almost certainly not
Memo Manager

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Manage Memos
Economic.IRAQ-99 - Economic

Here the Memo Manager's Memo List depicts the memos associated with a question in an argument. It lists two memos including the Date that they were created/modified, their Subject, the Type of memo they are, whether or not they are Displayed as new memos, and their Author. Pushing the trash button adjacent to a memo will cause it to be deleted (if the current user is the author of that memo, then it is deleted from the system and will no longer be visible to anyone; if the current user is not the author, then deleting it will only remove it from their personal view, leaving it visible to others). Pushing the exit button dismisses the Memo List window. Pushing the new button or Edit button adjacent to a memo will bring up the New Memo window (immediately below); in the case of the Edit button, the window will be preloaded with the adjacent memo. If the current user is not an author of a memo, an Inspect button appears in place of an Edit button; pushing it will bring up the Memo window (as shown below). When the Display? option for a memo is on, it will appear as a new memo in other viewers (see far below).

Creating or Editing Memos

Memos are created by filling out all of the fields in the New Memo editor and pushing the ok or new button to submit them; the ok button will also dismiss this editor while the new button clears it, making it ready for the entry of another new memo. The close button will dismiss the editor without submitting any of the information entered or changed in the editor.

The memo Type indicates the purpose of the memo. Memos can be used to leave Instructions for others on how to use arguments/templates, to Critique an argument/template, to record overriding Assumptions, to attach a Summary, to state the Context within which this argument/template was/should be used, to indicate what is left To-Do, to indicate that an object is For-Review by others, or to attach a miscellaneous Comment. The Author and Audience function in exactly the same way as they do for arguments/templates: authors can modify the memo while members of the audience can view but not modify the memo. These fields are filled with the aid of a browser, invoked by pushing the adjacent Discovery buttons. Pushing the adjacent Trash button clears the field. The Subject tells the reader what the memo is about and the Text provides the details. Although memos resemble E-mail messages in many ways, they differ in only being seen when the object to which they are attached is viewed by members of the Audience or Authors.
Responses to Memos

Pushing an Inspect button adjacent to a memo or clicking on a memo's subject, will bring up the Memo window displaying the contents of that memo. If there are other Memos on the Same Subject, they will be listed below. Clicking on one of these will cause the contents of that memo to be displayed. In all cases, the memo whose contents is being displayed is highlighted in light blue. Pushing the delete button will cause the current memo to be deleted (as described above).
If the **respond** button is pressed, then the following **Response Window** will open. This provides a quick way to add a new memo on the same subject. It resembles and acts much like the **New Memo** window. While the response is being written, the **Memos on the Same Subject** includes a reference to this response highlighted in light red. Upon pressing the **ok** button the response memo is created; pressing the **close** button prior to the **ok** button will exit without creating a new memo.
New Memos in Other Viewers

If visible memos are attached to an object, viewable by the current user, they will appear in those displays where the object to which they are attached is visible, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor.
Collection Viewer/Editor

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Collection: SEAS Examples

Here the Collection Viewer/Editor depicts a miscellaneous collection (i.e., Examples for SEAS). If symbol(s) appears in the upper right corner they depict aspects of the associated situation descriptor. The Unpublished symbol (top right) indicates that this collection is unpublished. The absence of a "READ ONLY" symbol indicates that the current user can modify this collection and the absence of a Collaboration Warning symbol indicates that no coauthors are simultaneously accessing this collection (see Publishing).

Buttons

The two buttons at the far left on the toolbar, switch between a tabular and graphical view of the contents of the collection. The example above shows the contents in a tabular form and the example below shows the contents in graphical form. The buttons centered on the toolbar are used to print this display or to close it. The first button at the right end of the toolbar invokes any auto-populating discovery tools associated with
this collection, other than those that are items in the collection (see Using Discovery Tools for details). The remaining buttons at the right end of the toolbar bring up the Memo Manager, the Publication Information Viewer/Editor, the Situation Description Viewer/Editor, the SEAS Object Manager, and this Help system, respectively, moving from left to right.

Auxiliary Toolbar
Immediately below the buttons on the left is a small downward pointing triangle. When clicked, this reveals an auxiliary toolbar like the one below. A similar triangle, pointing upward, conceals this toolbar when clicked.

The first three buttons at the left in this toolbar perform the same operations as those in the SEAS Object Manager, only on the collection that is the focus of this viewer/editor. The export button brings up the following dialog. Pushing the save button, after having selected the type of file the export is to be Saved As, performs the export (see Exporting and Importing for details on the different types of exports); pushing cancel before save exits the dialog without performing an export.

A join button will be present if the collection type is alternatives (see below) and its items are all arguments sharing a common template. Pushing this button will bring up the following dialog to initiate a joining of the arguments in this collection (see Joining Arguments). The Arguments to Join are listed toward the bottom of the dialog; pushing the Inspect button to the left of one of these arguments (the button with a magnifying glass on it) will cause the associated argument to be opened in a viewer/editor. After selecting a Fusion Method, adjusting the weights associated with each argument (if the fusion method selected is a weighted fusion method), and choosing to Delete Current Best argument or not (see below), pressing the ok button will remove the argument currently designated best from the collection, create a new joint argument, add it to the collection, designate it best, and delete the argument previously designated best, if so specified. Pushing cancel before ok exits the dialog without performing a join or modifying the collection or its items in any way.
While still in the dialog above, if a weighted fusion method is selected, then weighting symbols will appear adjacent to each listed argument. Clicking on these weighting symbols will bring up the following dialog where the weight associated with an argument can be changed. The weight is proportional to the blue area of the chosen circle. A filled circle represents full impact while an empty circle represents no impact.
Collection Type

Immediately below the button toolbar, the Collection Type is displayed. Unless the user is limited to "READ ONLY" access (see Publishing), then the type of the collection can be chosen by selecting from the adjacent pull down menu. The type of a collection determines the relationship among its items. In a Miscellaneous collection, there is no relationship among the items other than their membership in the collection. For a more detailed discussion about the types of collections and their intended use, see Using Collections.

Memos

If visible memos are attached to this collection, viewable by the current user, they will appear immediately below the toolbar, either in the form of a short synopsis (as shown below) or in its full form. Positioning the cursor over the subject of a memo will cause its contents to be displayed in a pop-up; clicking on the subject will open that memo in the Memo Viewer/Editor. For more about managing memos, see Memo.

Table: Memos

<table>
<thead>
<tr>
<th>Problem needing Resolution</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pound, Ledle, SRI International</td>
<td>28 Jan 2004</td>
</tr>
</tbody>
</table>

Manipulating Items in the Collection

When the collection is viewed in its tabular form, the objects in the collection are listed hierarchically in the lower portion of the display. Within this hierarchy, multi-dimensional arguments/templates have their uni-dimensional components as children; uni-dimensional arguments have their evidence, exhibits, and discovery tools as children; uni-dimensional templates have their discovery tools as children; collections have their contents as children. Items that have other items below them in the hierarchy that are not currently visible, have a + button adjacent to them; clicking on the + button will reveal the items that are immediately below this item in the hierarchy and will change the + to a - button; clicking on a - button causes the item displayed below the associated items to be hidden and causes the - button to be replaced with a + button.

By clicking on the name or adjacent icon of an argument, template, collection, exhibit, evidence, discovery tool, or memo, that object will be opened in the preferred Viewer/Editor; in the case of exhibits and
evidence, clicking on the icons will open them but clicking on their name will open the underlying document on which they are based (if available).

Every item in the collection includes an icon and that icon can have a signal flag and/or memo overlaid on it. In the case of collections, a flag/memo is shown if any of its member objects have a flag/memo displayed. This carries down through collections in collections in collections … Signal flags are always displayed; memos are only displayed if they are visible and this is (partially) determined by the current Viewer Parameters. Pushing the Viewer Parameters button (below the tabular and graphical buttons and below the auxiliary toolbar, if present), brings up the following dialog. The Show Types parameters determines which types of memos are visible. The All and None options are shortcuts for selecting and deselecting all of the elements for the associated parameter. The Show Content parameter causes either the Full memos to be included or a shorter and more compact Synopsis to be included within displays that include the objects to which the memos are attached.

Unless the user is limited to "READ ONLY" access (see Publishing), symbols for manipulating the items in the collection will appear adjacent to the count of Collection Items. Clicking on the New Collection In symbol (the one with an arrow pointing into a box with "NEW" at the base of the arrow) will bring up the New SEAS Object window (see below). Here the user selects the type of object to create followed by pressing the new button which will invoke a dialog where the user specifies the object to be created. These dialogs are the same dialogs used to create these objects elsewhere in SEAS: for Discovery Tool see Uni. Tmp. Primitive Question, for Exhibit see Uni. Arg. Primitive Question, for Memo see Memos, and for everything else see Manager. When this dialog is completed, the object will be created and added as an item to the collection. Pushing the close button, instead of the new button, will return the user to the Collection Viewer/Editor without adding a new object.
Clicking on the Collection In symbol (the one with an arrow pointing into a box) will bring up the object Browsing Window (see below). In this browser, the user hierarchically searches for an object to add to the collection; clicking on an object will add it to the collection; clicking on the Close button will return the user to the Collection Viewer/Editor without adding a new object. Clicking on the Collection Move In symbol (the one with an arrow point from one box to another) will bring up the object Browsing Window. In this browser the user hierarchically searches first for a collection from which to move an object, then selects an object from that collection to move into the current collection. After so doing, the selected object will be in the current collection and not in the one from which it was selected.
Clicking on the Collection Out symbol (the one with an arrow pointing out of a box) followed by clicking on an item in the collection will remove that item from the collection; clicking on the Collection Out symbol a second time before clicking on an item cancels the removal operation.

If the type of collection is **Sequential** or **Versioning**, then the Collection Reorder symbol (the one with an arrow pointing out and back into the same box) will also appear (see below). Both sequential and versioning collections maintain a linear order over their items. Clicking on the Collection Reorder symbol followed by two items in the collection will move the first item after the second in the collection; clicking on the Collection Reorder symbol a second time before clicking on two items cancels the reordering operation.

**Collection: Genoa Project Assessment Arguments**

If the type of collection is **Versioning**, then three roles appear just above the collection items: **Next**, **Current**, and **Previous**. These roles are filled by items from the collection. The **Current** item replaces the **Previous** item and will be replaced by the **Next** item. Adjacent to each role are two buttons: pushing the Discovery button, the one on the left, followed by clicking on an item in the collection fills that role with that item; pushing that button a second time before clicking on an item cancels the role filling operation; clicking on the Trash button, the one on the right, removes any item filling the corresponding role.
It the type of collection is Alternatives, then a single role appears just above the collection items, Best. The item from the collection designated Best is the one that has been judged to be the superior of the alternative items found in the collection. Adjacent to Best are two buttons: pushing the Discovery button, the one on the left, followed by clicking on an item in the collection fills that role with that item; pushing that button a second time before clicking on an item cancels the role filling operation; clicking on the Trash button, the one on the right, removes the item filling that role.
Discovery Tools

The final portion of the display might include a list of Discovery Tools. If visible memos are attached to discovery tools, viewable by the current user, they will appear immediately below their citations. Each Discovery Tool represents a recommended means of acquiring objects to include in this collection. Discovery Tools can include ones that issue queries to search engines, create SEAS arguments, or invoke other analytic tools, among possible others. The Inspect button that appears before each tool will activate the associated discovery tool. Pressing the memo button will invoke the Memo Manager on the memos attached to this discovery tool. Unless the user is limited to "READ ONLY" access (see Publishing), an Edit and a Trash button appear after each Inspect button. Pushing the Trash button eliminates the associated discovery tool. The Edit button invokes the Discovery Tool editor; clicking on the Discovery Toolbox invokes the similar New Discovery Tool Editor (see below). Here the user sees or selects the Type of discovery tool they wish to edit or create (one based upon a URL, SEAS Template, Reuse of a discovery tool previously entered, or one that creates multiple Exhibits from a URL), enters or edits the Citation text string that describes the tool in the case of a URL or SEAS Template, and enters a URL, SEAS Argument, or Exhibit, respectively, utilizing the associated Discovery button to invoke an appropriate browser to locate the object. Modification are saved by pressing the ok button; pressing the new button will save any modifications and clear this form for entry of another discovery tool; pressing the cancel button will dismiss it. See Using Discovery Tools for more details on different types of discovery tools.
### New Discovery Tool

<table>
<thead>
<tr>
<th>Type</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEAS Template</td>
<td>Google.com/search?q=iraq+debt&amp;sa=Google+Search</td>
</tr>
<tr>
<td>Reuse</td>
<td></td>
</tr>
<tr>
<td>Exhibits from URL</td>
<td></td>
</tr>
</tbody>
</table>

**Tip:** Remember that the URL must contain the "http://" prefix if you are adding a web-based discovery tool.
Comparison Tool

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

CSA-NS.1

TIP: To add a new Argument/Template to compare with, click on the film spool icon above.

The Comparison Tool, in combination with some of our other viewers, allows the user to rapidly cycle through graphical depictions of different arguments. Above, the Comparison Tool has been invoked within the Hierarchical Viewer/Editor while examining a multi-dimensional argument; below, it has been invoked within the Hierarchical Viewer/Editor while examining a uni-dimensional argument. It is invoked/revoked by pushing the button that has a reel of film on it. This introduces an additional area into the display that includes a film reel, a strip of film consisting of a single frame, a button with a movie projector on it, and the contact sheet i.e., a button divided into four quadrants. The film frame includes a thumb-nail version of
the summary graphic in the original display. By clicking on the film reel, additional arguments can be added. With the addition of each new argument, the film strip is elongated to include an additional frame with a thumb-nail of the newly selected argument. Once multiple frames are in the film strip, passing the cursor over the frames causes the corresponding argument's summary graphic to replace the original full size graphic in the display. Thus, the user can move from one summary graphic to another, at their own pace, to see how they compare. Pushing the projector button causes the graphic to be animated, automatically displaying one frame after another and then repeating; pushing the projector button a second time causes the animation to stop. Pushing the contact sheet button adds full size graphic summaries of all of the arguments to the area below the film strip area; pushing that button a second time returns the display to its original configuration, showing a single full size graphic summary of the focal argument. Clicking on a frame in the film strip changes the focal argument to the one represented by that frame.

**TIP:** To add a new Argument/Template to compare with, click on the film spool icon above.

**Base Question**
Is the country about to enter a serious economic crisis?

**Supporting Questions (Fusion Method: Consensus)**

- **Does the nation face acute instability in the real economy?**
  - **Yes**
  - **No**
  - **Maybe**

- **Does the nation face acute financial instability?**
  - **Yes**
  - **No**
  - **Maybe**

- **Is the nation experiencing a severe decline in economic output/income?**
  - **Yes**
  - **No**
  - **Maybe**

- **Is there a critical breakdown in economic infrastructure?**
  - **Yes**
  - **No**
  - **Maybe**
Merging Tool

TIP: Click on the buttons and symbols in the images to view the corresponding glossary entries.

Here the Merging Tool has been invoked while the user was working on the left most primitive question of a uni-dimensional argument (i.e., ECONOMIC.IRAQ-99). "To" appearing above this argument's name and navigation map indicates that it is currently designated as the target for merging information from another (yet to be selected) argument. Empty appearing in the From area indicates that no argument has yet been selected to fill that role.
Here an argument (i.e., Economic.Feb 26 Iraq 1999) has been selected as the source of information From which to select items for merging into the target (i.e., To) argument. In the navigation maps corresponding to both arguments, the lower left most nodes have dark borders, indicating that their corresponding primitive questions are the foci for merging. The column below each argument lists different types of information found at the selected question. If a given type of information is only found on one of the two selected questions, then it is not listed for either. A banner, labeled with a type of information, appears immediately above the listing of information for that type. If the information of a given type is identical for both questions, or is not otherwise a candidate for merging, then the banners are grey, as are the
backgrounds for their listings. If the information of a given type is a candidate for merging (e.g., because they differ between the questions), the banners are blue and the listings have white backgrounds. If the elements in the listing for the From argument have a check box preceding them, then they are candidates for merging into the To argument.

**Buttons**

Pushing the discovery button, the first of one or two buttons in the To and From fields, will bring up a browsing window where an argument/template can be selected. Once an argument/template has been selected (see template example below), positioning the cursor over a node in the navigation map will cause a pop-up to display the corresponding question topic and text, while clicking on a node will change the focal question to the one that corresponds to that node. An inspect button appears adjacent to each argument/template's name. Pushing it will launch the Hierarchical Viewer/Editor on the focal question. Clicking on the swap arrow symbol, between the To and From fields will exchange the roles played by the two arguments/templates.

Once two arguments/templates have been selected and focal questions designated, items can be selected for merging. This is done by checking the boxes adjacent to items in the From argument/template. The All and None boxes, just below the navigation map, can be used to check all items and none in the From argument/template, respectively; similar buttons appearing beneath a banner for a given type of information, do the same, but restricted to items of that type. Once one or more items have been selected for merging, pushing the merge button will cause them to be copied to the To argument/template; pushing the cancel button will exit this tool without making any further modifications. When Fusion Methods, Choices, and Answer items are merged, they replace the corresponding items in the From argument/template; all other items are appended to those already in the From argument/template.

**Merging Tool**

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Nation-State</td>
<td>ECONOMIC.CSA-IRAQ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Topic</th>
<th>INFRASTRUCTURE/ENVIRONMENTAL PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a significant decline in this country's macroeconomic stability?</td>
<td>Are there infrastructure problems or environmental problems developing or worsening?</td>
</tr>
<tr>
<td>Memos</td>
<td></td>
</tr>
<tr>
<td>Fusion Method</td>
<td>Maximum</td>
</tr>
</tbody>
</table>
# GLOSSARY

## Glossary of Buttons

<table>
<thead>
<tr>
<th>Button</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔷️</td>
<td>A navigation button that moves to the top of the multi-dimensional hierarchy in an argument or template</td>
</tr>
<tr>
<td>🎣</td>
<td>A navigation button that moves up the question hierarchy in an argument or template</td>
</tr>
<tr>
<td>▼</td>
<td>A navigation button that moves to the previous question (i.e., the one that is immediately to the left at the same level in the question hierarchy) in an argument or template</td>
</tr>
<tr>
<td>▶️</td>
<td>A navigation button that moves to the next question (i.e., the one that is immediately to the right at the same level in the question hierarchy) in an argument or template</td>
</tr>
<tr>
<td>▼️</td>
<td>A navigation button that moves down a hierarchy of arguments or templates</td>
</tr>
<tr>
<td>✨</td>
<td>The template button that changes the display to the template that underlies the currently displayed argument</td>
</tr>
<tr>
<td>📈</td>
<td>The argument button that changes the display to the recently displayed argument associated with the currently displayed template</td>
</tr>
<tr>
<td>🍃</td>
<td>The hierarchical viewer button that changes the display of a multi-dimensional argument or template to a hierarchical view</td>
</tr>
<tr>
<td>🍃️</td>
<td>The hierarchical viewer button that changes the display of a uni-dimensional argument or template to a hierarchical view</td>
</tr>
<tr>
<td>🕐</td>
<td>The table viewer button that changes the display of a multi-dimensional argument to a tabular view</td>
</tr>
<tr>
<td>📌</td>
<td>The summary viewer button that changes the display of an argument or template to a summary view</td>
</tr>
<tr>
<td>⚙️</td>
<td>The comparison tool button adds/removes the argument comparison area to the current viewer</td>
</tr>
<tr>
<td>Button Icon</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td><img src="image" alt="Parameters Button" /></td>
<td>The parameters button that displays the parameter settings for the associated viewer.</td>
</tr>
<tr>
<td><img src="image" alt="Memo Button" /></td>
<td>The memo button that brings up the memo viewer/editor displaying any memos associated with the objects in the current display.</td>
</tr>
<tr>
<td><img src="image" alt="Memo with Hidden Memos Button" /></td>
<td>The same as the memo button immediately above except that this button also indicates that there are memos currently hidden from the user's view which will be revealed in the memo view/editor should it be invoked by pushing this button.</td>
</tr>
<tr>
<td><img src="image" alt="Publication Information Button" /></td>
<td>The publication information button that displays the publication information associated with an argument or template.</td>
</tr>
<tr>
<td><img src="image" alt="Publication Information Button for Template" /></td>
<td>The publication information button that displays the publication information associated with an argument's template.</td>
</tr>
<tr>
<td><img src="image" alt="Situation Information Button" /></td>
<td>The situation information button that displays the situation information associated with an argument or template.</td>
</tr>
<tr>
<td><img src="image" alt="Personal Information Button" /></td>
<td>The personal information button that displays the information associated with a given user.</td>
</tr>
<tr>
<td><img src="image" alt="Object Manager Button" /></td>
<td>The object manager button that exposes the object manager.</td>
</tr>
<tr>
<td><img src="image" alt="Help Button" /></td>
<td>The help button that displays helpful information about the associated display.</td>
</tr>
<tr>
<td><img src="image" alt="Information Button" /></td>
<td>The information button that displays the structural information associated with an argument or template.</td>
</tr>
<tr>
<td><img src="image" alt="Inspect Button" /></td>
<td>The inspect button that displays the contents of the associated evidence, exhibit, or argument.</td>
</tr>
<tr>
<td><img src="image" alt="Edit Button" /></td>
<td>The edit button that displays the associated text (e.g., rationale) in an editable window.</td>
</tr>
<tr>
<td><img src="image" alt="Promote Button" /></td>
<td>The promote button that turns an exhibit into evidence after the user enters the relevance of the exhibit to the question posed by the associated argument.</td>
</tr>
<tr>
<td><img src="image" alt="Demote Button" /></td>
<td>The demote button that turns evidence into an exhibit by stripping away its relevance.</td>
</tr>
<tr>
<td>Button</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>🔄</td>
<td>The reverse button reverses a list of items (e.g., answer choices)</td>
</tr>
<tr>
<td>🗑️</td>
<td>The trash button that removes objects</td>
</tr>
<tr>
<td>🔍</td>
<td>The discovery button that launches discovery tools designed to retrieve relevant objects in an argument, publication information, situation information, or query</td>
</tr>
<tr>
<td>🔍</td>
<td>The discovery button that launches discovery tools designed to retrieve relevant objects in an argument or collection, and that will automatically add those objects to an argument as exhibits or to a collection as items</td>
</tr>
<tr>
<td>🔎</td>
<td>The comparison viewer projector button that animates the associated graphic summaries of the associated arguments</td>
</tr>
<tr>
<td>📄</td>
<td>The outline button that tabularly displays the names of the associated objects</td>
</tr>
<tr>
<td>📖</td>
<td>The contact-sheet button that tabularly displays the graphic summaries of the associated objects</td>
</tr>
</tbody>
</table>
# Glossary of Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Unpublished Symbol" /></td>
<td>The Unpublished symbol indicates that the associated argument or template has not been published.</td>
</tr>
<tr>
<td><img src="image" alt="Unpublished Template Symbol" /></td>
<td>The Unpublished Template symbol indicates that the associated argument and it underlying template have not been published.</td>
</tr>
<tr>
<td><img src="image" alt="Read Only Symbol" /></td>
<td>The &quot;READ ONLY&quot; symbol indicates that the associated argument or template cannot be edited.</td>
</tr>
<tr>
<td><img src="image" alt="Collaboration Warning Symbol" /></td>
<td>The Collaboration Warning symbol indicates that another author is currently accessing the same unpublished argument or template. Should more than one author attempt to change the same information at the same time, the last one finished will be the one whose changes persist. Clicking on this symbol will reveal the identities of the collaborators.</td>
</tr>
<tr>
<td><img src="image" alt="Open Toolbar Symbol" /></td>
<td>The Open Toolbar symbol is used to reveal a concealed toolbar immediately below it.</td>
</tr>
<tr>
<td><img src="image" alt="Close Toolbar Symbol" /></td>
<td>The Close Toolbar symbol is used to conceal the toolbar that appears immediately above it.</td>
</tr>
<tr>
<td><img src="image" alt="Red Signal Flag" /></td>
<td>The red signal flag indicates that the associated item requires the user's attention.</td>
</tr>
<tr>
<td><img src="image" alt="Memo Symbol" /></td>
<td>The memo symbol indicates that the associated item has a memo displayed.</td>
</tr>
<tr>
<td><img src="image" alt="Exhibit In-Basket" /></td>
<td>The Exhibit In-Basket is used to add exhibits to a question posed by an argument.</td>
</tr>
<tr>
<td>Symbol</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td><img src="image" alt="Discovery Toolbox" /></td>
<td>The Discovery Toolbox is used to add discovery tools to a question posed by a template.</td>
</tr>
<tr>
<td><img src="image" alt="Template Stapler" /></td>
<td>The Template Stapler is used to add component templates to a multidimensional template.</td>
</tr>
<tr>
<td><img src="image" alt="Collection" /></td>
<td>The Collection symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Multi-dimensional Argument" /></td>
<td>The Multi-dimensional Argument symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Uni-dimensional Argument" /></td>
<td>The Uni-dimensional Argument symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Multi-dimensional Template" /></td>
<td>The Multi-dimensional Template symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Uni-dimensional Template" /></td>
<td>The Uni-dimensional Template symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Evidence" /></td>
<td>The Evidence symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Exhibit" /></td>
<td>The Exhibit symbol is used in object browsing.</td>
</tr>
<tr>
<td><img src="image" alt="Discovery Tool" /></td>
<td>The Discovery Tool symbol is used in object browsing.</td>
</tr>
<tr>
<td>Symbol</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td><img src="image1.png" alt="Weighting Symbols" /></td>
<td>Weighting symbols are used to depict differing weights attributed to objects being combined through weighted fusion methods. The greater the blue area in the symbol, the greater the weight.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Fusion Method Symbols" /></td>
<td>Fusion Method symbols used in the table viewer representing average, average weighted, consensus, consensus weighted, maximum, minimum, and manual.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Collection In" /></td>
<td>Collection In is used to add an item to a collection.</td>
</tr>
<tr>
<td><img src="image4.png" alt="New Collection In" /></td>
<td>New Collection In is used to create a new object and add it as an item to a collection.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Collection Out" /></td>
<td>Collection Out is used to remove an item from a collection.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Collection Reorder" /></td>
<td>Collection Reorder is used to move an item within a collection.</td>
</tr>
<tr>
<td><img src="image7.png" alt="Collection Move" /></td>
<td>Collection Move is used to remove an item from one collection and add it to another.</td>
</tr>
<tr>
<td><img src="image8.png" alt="The Film Spool" /></td>
<td>The Film Spool is used to add argument frames in the comparison tool.</td>
</tr>
<tr>
<td><img src="image9.png" alt="The Swap Arrow" /></td>
<td>The Swap Arrow is used in the merging tool to exchange the objects playing the To and From roles in the merge.</td>
</tr>
<tr>
<td><img src="image10.png" alt="The SEAS Team Envelope" /></td>
<td>The SEAS Team Envelope is used to initiate E-mail messages to the SEAS team. Questions and suggestions are welcome. The SEAS Team address is <a href="mailto:seas@ai.sri.com">seas@ai.sri.com</a>.</td>
</tr>
</tbody>
</table>

seas@ai.sri.com
<table>
<thead>
<tr>
<th>Various situation symbols are used to depict aspects of situation descriptors associated with arguments and templates. In this example, the flag indicates that the Region is Iraq and the Perspective is Economic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>🇸🇾 🧱</td>
</tr>
</tbody>
</table>
## Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative Collection</td>
<td>An alternative collection captures the idea that its items are in competition with one another to be designated the best. This type of collection can be used to organize arguments that represent differing opinions on a common topic with one designed as filling the role of Best (see <a href="#">Joining Arguments</a> for more details).</td>
</tr>
<tr>
<td>Argument</td>
<td>A specific line-of-reasoning that relates evidence to conclusions; an analytic product; an instantiated argument template including answers to questions posed by the template, evidence, and rationale.</td>
</tr>
<tr>
<td>Argument Skeleton</td>
<td>The framework underlying an argument template; that which determines the number and relationships among a set of uninstantiated questions (i.e., random variables); together with a fusion method, captures an uninstantiated analytic method.</td>
</tr>
<tr>
<td>Argument Template</td>
<td>A reasoning method; a domain-specific analytic method; an instantiated argument skeleton including questions, multiple choice answers, and discovery tools.</td>
</tr>
<tr>
<td>Audience</td>
<td>Those who can view (but not modify) the contents of an argument, template, or other document.</td>
</tr>
<tr>
<td>Author</td>
<td>Those who are responsible for the content of an argument, template, or other document. For an unpublished work, those that can modify it.</td>
</tr>
<tr>
<td>Citation</td>
<td>A reference to a source that uniquely identifies it e.g., a bibliographic reference.</td>
</tr>
<tr>
<td>Collection</td>
<td>A group of related objects (see <a href="#">Using Collections</a> for more details).</td>
</tr>
<tr>
<td>Component Argument/Template</td>
<td>An argument/template that serves as part of a multi-dimensional argument/template.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Constellation</td>
<td>A graphical depiction of a multi-dimensional argument, where trees of lights, one for each component argument, are laid out radial, placing the root node/light nearest the origin and growing out from there, with larger nodes/lights used nearer the origin.</td>
</tr>
<tr>
<td>Corporate Memory</td>
<td>The repository where all arguments, templates, and situation descriptors are recorded; a knowledge base of analytic products and methods indexed by the situations to which they apply.</td>
</tr>
<tr>
<td>Demote Evidence</td>
<td>The action of converting evidence into an exhibit, by stripping away its stated relevance.</td>
</tr>
<tr>
<td>Derivative Question</td>
<td>A question in an argument/template/skeleton whose answer is automatically derived from the answers to other supporting questions.</td>
</tr>
<tr>
<td>Discovery Tool</td>
<td>A recommended method for acquiring information pertaining to a question; a parameterized query or tool launch, attached to a specific question within an argument template or argument (see Using Discovery Tools for more details)</td>
</tr>
<tr>
<td>Evidence</td>
<td>An exhibit whose relevance to the subject matter of an argument has been established; a thing helpful in forming a conclusion or judgment; any species of proof presented for the purpose of inducing belief in a contention.</td>
</tr>
<tr>
<td>Exhibit</td>
<td>A document connected with the subject matter of an argument which upon acceptance is marked for identification and made part of the argument; documents that are potentially relevant to answering a posed question (see Using Exhibits for more details).</td>
</tr>
<tr>
<td>Fusion Method</td>
<td>A method that derives an answer to a question by uniformly combining the answers from a set of supporting questions; a method for combining evidence to derive an answer to the associated focal question (see Automated Fusion Methods and Inference Methods for more details).</td>
</tr>
<tr>
<td></td>
<td>• <strong>Automated:</strong> A fusion method that requires no user assistance.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Average:</strong> An automated fusion method that returns the average valued answer, where the answers are interpreted along a spectrum from low (green) to high (red).</td>
</tr>
<tr>
<td></td>
<td>• <strong>Average Weighted:</strong> An automated fusion method that returns the weighted average valued answer, where some answers are weighted more heavily than others and the answers are interpreted along a spectrum from low (green) to high (red).</td>
</tr>
<tr>
<td></td>
<td>• <strong>Consensus:</strong> An automated fusion method that returns the average valued answer with greater weight given to emphatic answers, where</td>
</tr>
</tbody>
</table>
the answers are interpreted along a spectrum from low (green) to high (red).

- **Consensus Weighted**: An automated fusion method that returns the average valued answer with greater weight given to emphatic answers, where some answers are also initially weighted more heavily than others and the answers are interpreted along a spectrum from low (green) to high (red).
- **Manual**: A fusion method that relies solely upon the user to produce the answer.
- **Maximum**: An automated fusion method that returns the highest valued answer, where the answers are interpreted along a spectrum from low (green) to high (red).
- **Minimum**: An automated fusion method that returns the lowest valued answer, where the answers are interpreted along a spectrum from low (green) to high (red).

<table>
<thead>
<tr>
<th><strong>Home Collection</strong></th>
<th>A collection designated by the user that appears as the first object in the SEAS Object Manager; this collection is analogous to a user's home directory in a computer file system.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inference Method</strong></td>
<td>An inference method assigns an automated fusion method to every derivative question in a template.</td>
</tr>
<tr>
<td><strong>Join</strong></td>
<td>Arguments based upon a common template can be merged through a join. The joint answer to each question, in the resulting argument, is based upon the independent answers, from the original arguments, captured as independent bodies of evidence in support of that question.</td>
</tr>
<tr>
<td><strong>Knowledge Base</strong></td>
<td>The repository where all arguments, templates, and situation descriptors are recorded; a corporate memory of analytic products and methods indexed by the situations to which they apply.</td>
</tr>
<tr>
<td><strong>Memo</strong></td>
<td>Annotations placed on SEAS objects that include a textual subject and body. The equivalent of sticky notes, formatted as memos (see <a href="#">Using Memos</a> for details).</td>
</tr>
<tr>
<td><strong>Multi-Dimensional Argument/Template</strong></td>
<td>A coordinated set of arguments/templates each of which captures a line-of-reasoning pertaining to a different question corresponding to a different aspect of the overall subject.</td>
</tr>
<tr>
<td><strong>Miscellaneous Collection</strong></td>
<td>A collection with no additional relationship among the items other than their membership in the collection.</td>
</tr>
<tr>
<td><strong>Navigation Map</strong></td>
<td>A graphical depiction of a uni-dimensional argument/template consisting of a tree of nodes, one node per question, with each derivative question positioned above and connected to its supporting questions.</td>
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<td>---------------------</td>
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<tr>
<td><strong>Primitive Question</strong></td>
<td>A question in an argument/template/skeleton that is answered directly.</td>
</tr>
<tr>
<td><strong>Published</strong></td>
<td>The state of an argument, template, or document where it is guaranteed to be stable and persistent i.e., it can be reliably cited knowing that it will be available and unchanged. If an argument is published then so must be its template and evidence.</td>
</tr>
<tr>
<td><strong>Promote Exhibit</strong></td>
<td>The action of converting and exhibit into evidence by recording its relevance.</td>
</tr>
<tr>
<td><strong>Question Amplification</strong></td>
<td>Additional information and considerations that further explain, refine, or restate a question posed in an argument/template.</td>
</tr>
<tr>
<td><strong>Question Topic</strong></td>
<td>A short phrase that describes the general topic of a question posed in an argument/template. These sometimes precede their associated question, separated by a colon. They sometimes are used in place of their question when a more compact form is needed.</td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>A statement of the reason for having so answered a question; explains the selected answer in light of the associated evidence.</td>
</tr>
<tr>
<td><strong>Relevance</strong></td>
<td>That quality of evidence which renders it properly applicable in determining the answer to a question; that which when added to an exhibit renders it evidence.</td>
</tr>
<tr>
<td><strong>Sequential Collection</strong></td>
<td>A collection with a linear ordering across its items.</td>
</tr>
<tr>
<td><strong>Situation Descriptor</strong></td>
<td>A recorded description of aspects of the type of situation to which a template was intended to apply or the specific situation for which an argument was developed. A situation descriptor is associated with every argument and template.</td>
</tr>
<tr>
<td><strong>Skeleton</strong></td>
<td>See <a href="#">Argument Skeleton</a>.</td>
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<tr>
<td><strong>Starburst</strong></td>
<td>A graphical depiction of a multi-dimensional argument consisting of multiple axes radiating from a central point, one per component argument, with each component argument's answer plotted along its associated axis, resulting in a polygonal shape that summarizes the multi-dimensional conclusion of the argument.</td>
</tr>
<tr>
<td><strong>Template</strong></td>
<td>See <a href="#">Argument Template</a>.</td>
</tr>
<tr>
<td><strong>Uni-Dimensional Argument/Template</strong></td>
<td>An argument/template that consists of a line-of-reasoning that answers a single question.</td>
</tr>
<tr>
<td><strong>Unpublished</strong></td>
<td>The state of an argument, template, or document where it is potentially unstable and may not persist i.e., it cannot be reliably cited since its contents or availability might be changed by its authors. If an argument's template or evidence is unpublished then so must be the argument.</td>
</tr>
<tr>
<td><strong>Versioning Collection</strong></td>
<td>A collection with a linear ordering across its items and three roles (Next, Current, and Previous) that are filled by items in the collection. The Current item is the version currently in use while the Previous item is the former current version and the Next item is the future current version.</td>
</tr>
</tbody>
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