Handbook

# Introduction to Argumentation Mapping

**A MacroVU Course by**
**Robert E. Horn**

**Visiting Scholar, Stanford University**
**Distinguished Consulting Faculty,**
**The Saybrook Graduate School**
**Email: hornbob@earthlink.net**

*Commercially sensitive*

***MacroVU® Analytics***
**321 High School Road PMB 366**
**Bainbridge Island WA 98110**
**(415) 775-7377**
**Fax: (415) 775-7377**
**URL: http://www.macrovu.com (publisher)**

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# Chapter 1 Components of Argumentation Maps

## Issues

What people argue and debate about (usually can be stated as a question)

issues can be divided into

**these distinct types of Issues**

| Issues of fact | Issues of action and plans | Issues of terminology | Issues of ethics | Issues of law | Issues of goals and means | Issues of explanation |
|---|---|---|---|---|---|---|
| Example (hypothetical) | | | | | | |
| Was the first quarter growth really 4.1% in 2004? | Should we plan to invest in new inventory in the next quarter? | Should we define the term "recession" as two successive quarters of negative growth of GDP? | Would it be unethical to make people who are earning right at the poverty line to pay the new tax? | Should the law define poverty level | Should the law define poverty level.<br><br>Are direct payments the best way to alleviate poverty? | Was the cause of the growth in the first quarter really the income tax cut of last year? |

Somebody asserts something about an issue, which we in this course call

## Claims

**Claims** can be divided into **these distinct types**.

Claims

Example (hypothetical)

| Positions (sometimes "main claim" or simply "claim") | Data (or Grounds or Supports) | Warrants | Backing | Rebuttal (or counterclaims) |
|---|---|---|---|---|
| The economy will probably grow by 3.5% in 2004. | The first quarter growth was 4.1% in 2004. | In the past a high growth rate in the first quarter has been followed by 3 quarters of growth almost that high. | Data collected by the Dept. of Commerce has been accurate for the past 12 years. | The first quarter growth was an unusual event because of the income tax cut last year. |

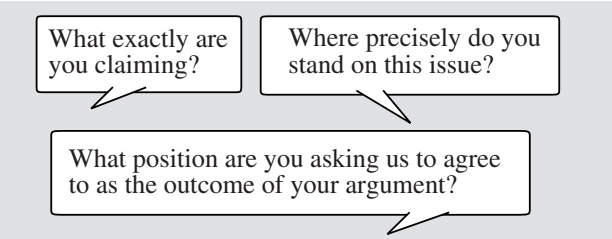
# Positions

When we begin to examine a policy discussion or an ethical argument, there is always some "destination," some claim that one of the discussants advances.

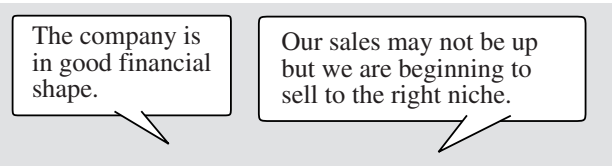
### Definition

Positions are "assertions put forward publicly for general acceptance with the implication that there are underlying 'reasons' that could show them to be 'well founded' and therefore entitled to be generally accepted." (Toulmin, et. al. l979)

### Questions to be asked

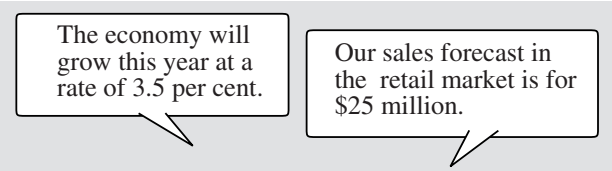



### Example one: position as fact




### Example two: position as policy proposal


### Example three: position as forecast



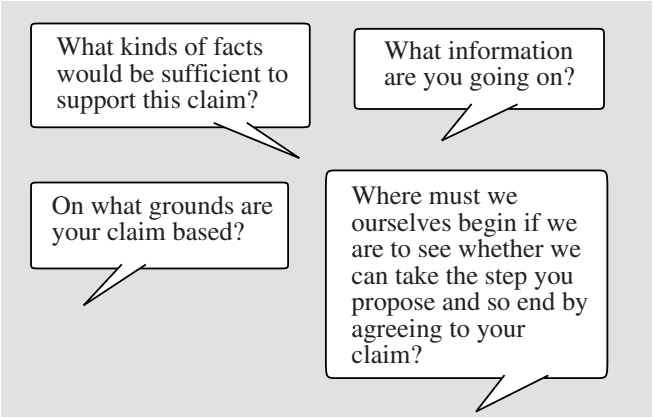

# Grounds (Data)

As we try to understand why somebody believes something, we may ask them exactly why they are taking that position and what they have to go on. Often their reply is in the form of data or facts that they believe to be true.

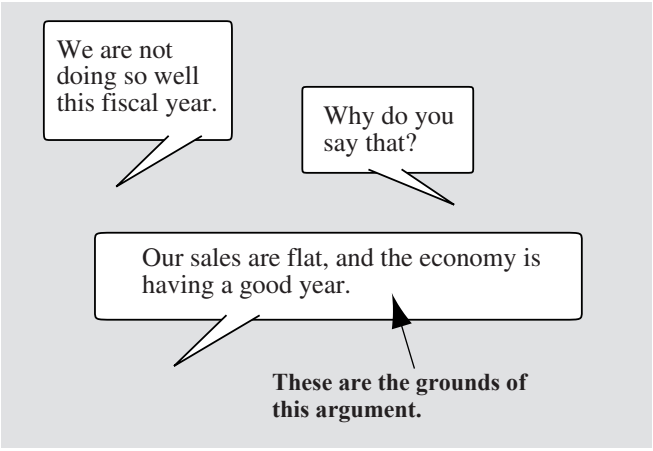
### Definition

"The term 'grounds' refers to the specific facts relied on to support a given claim (or position)." (Toulmin, et. al.1979)

### Questions to be asked




### Example one



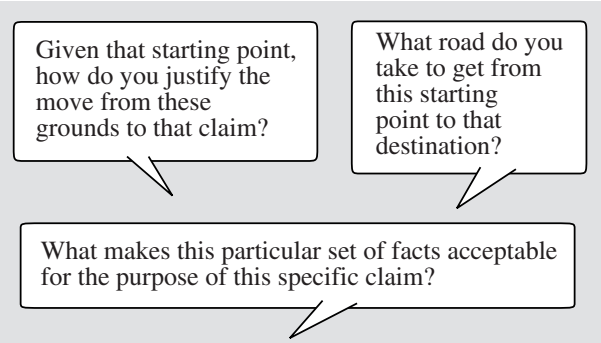
# Warrants

"Historically speaking, the warrant has always had close associations with the notion of a license or permit and also with that of a warranty or guarantee." (Toulmin, et al.1979)

### Definition

The warrant is the assertion that entitles you to interpret or link the grounds (facts) as support for the position taken.

### Questions to be asked

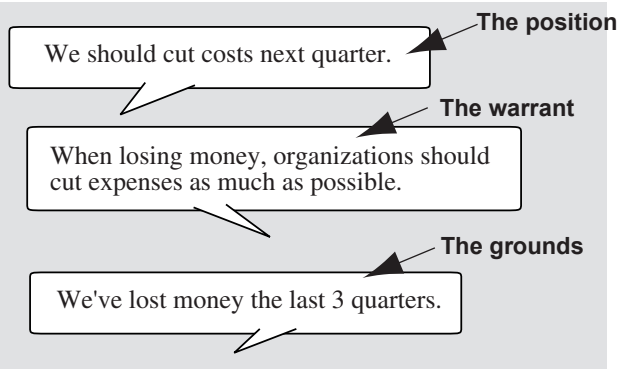



### Example one

Toulmin (l979) presents the familiar warrant...

I see smoke (grounds).
Smoke means fire (warrant),
therefore, there is a fire (position).

### Example two




### Types of warrants

Warrants usually "take the form of laws of nature, legal principles and statutes, rules of thumb, engineering formulas," moral commandments or principles.

# Backing

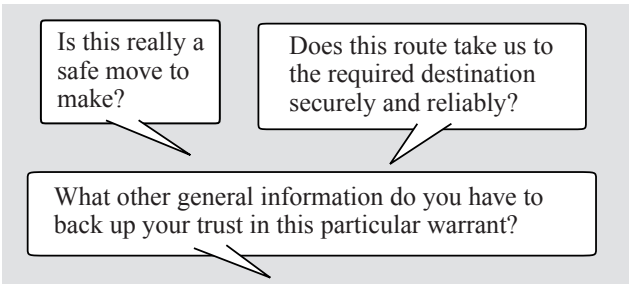
Sometimes we are not satisfied with the mere assertion of the warrant. We want more information. We want to understand why that warrant can hold in this situation.

### Definition

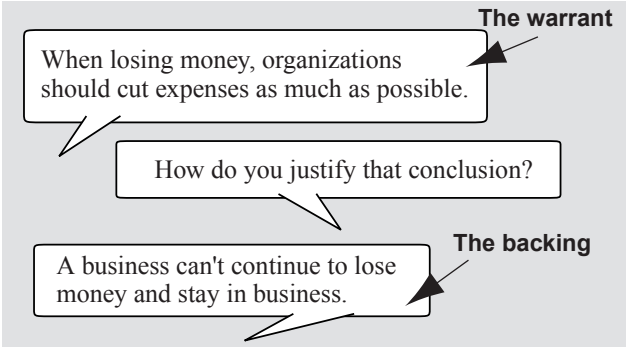
"The Backing consists of a very general set of background assumptions which, in effect, legitimize the basis for believing in the Warrant. That is, if the Warrant is not accepted on its surface, then the Backing is called into play to add deeper support to the argument."

(Mitroff and Mason, l980)

### Questions to be asked




### Example




### Different kinds of backing

"The warrants relied on to authorize arguments in different fields of reasoning require correspondingly different kinds of backing: legal statutes must have been validly legislated; scientific laws must have been thoroughly checked out...." Toulmin (l979)

Mitroff and Mason (l980) list four types of backing:
1. Cause-effect (given the truth of the evidence, the claim must follow)
2. Analogy (this situation is sufficiently like another to apply the same argument)
3. Belief in authority (someone powerful or credible argues that he or she believes (x) to be the case where (x) is a warrant)
4. Logical necessity (it is logically inconceivable or impossible that the claim would fail to occur given the evidence)

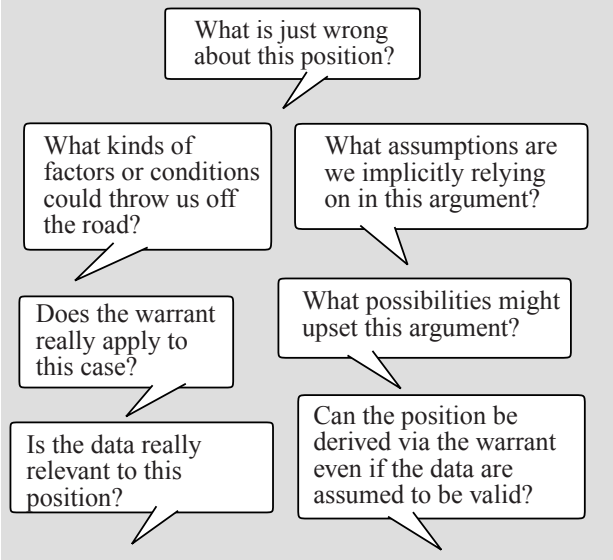
# Rebuttal

Rarely are we faced with an "airtight" situation or argument. Therefore, we need to know under what circumstances the current argument might not work.

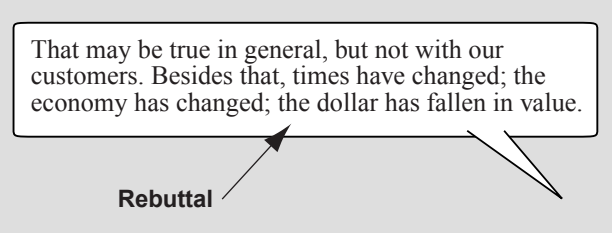
### Definition

The rebuttal presents the possible exceptions or objections as to why the position, the grounds, the warrants, or the backing may not hold for the situation under discussion.

### Questions to be asked




### Example




### Types of rebuttal

There are several types of rebuttal:

1. Grounds. The facts are wrong (Situation (s) is not the case.).
2. Warrants. The warrant does not apply. (The warrant is wrong. E.g., do something else.)
3. Backing False analogy or false belief.
4. Claims. We should take action B, not action A. (Situation (s) is not the case, so do some other action that is not-A.)

# 1.2 Types of Issues

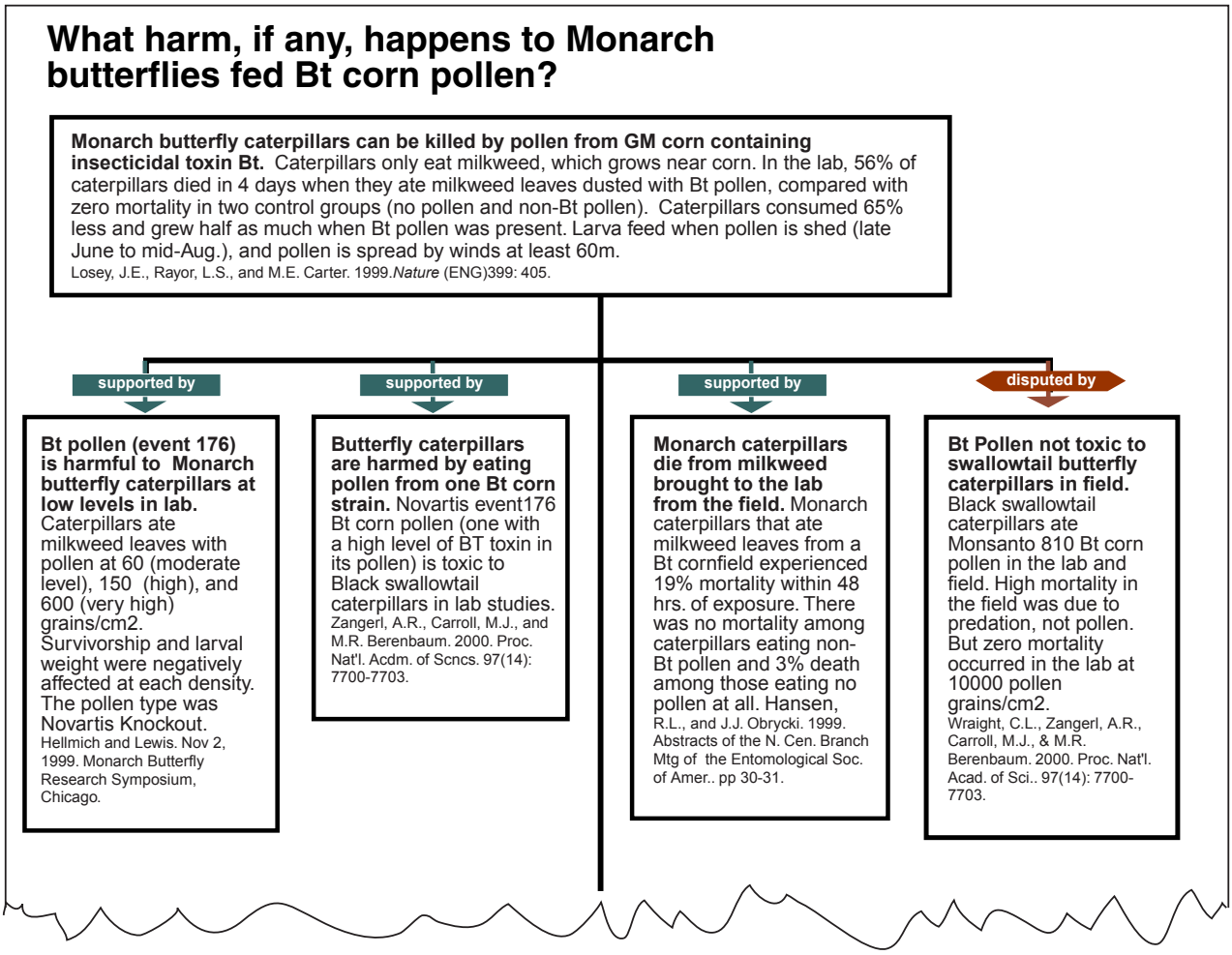
## Issues of fact (Evidentiary Issues)

**Definition**
Factual issues are disputes about whether something is the case, or whether a particular number or description is correct.

**Question Form**
Is (x) the case?
Is (x) correct?

## Positions about facts

### Example (GM Food)




**Source:** MacroVU, Inc. project on Argumentation Mapping and Genetically Modified Food. **Sponsor:** *New Scientist Magazine*

# Issues of action or planning

**Definition**
Issues of action are disputes over whether the group should do a particular thing or approve a plan or a design alternative.

**Question Form**
Should we do (x)?

**Example (Business)**
Should we include as optional the wing-mounted fuel tank for the aircraft?

# Positions about plans and actions

### Example (Electronic town meetings)

*Presuppositions for the major assertion on this chart*

**The United States should hold electronic town meetings on television for policy discussions, education of the electorate, and consensus building.**

**Major troubling problems raised by critics of electronic town halls can be remedied by careful design of the process.**

*Here is the proposal:*

**Electronic Town Meeting Convener,** a new organization, would have the following functions:

- devise a process for determining what are the critical issues to be deliberated on in the ETMs
- devise a method of receiving suggestions for agenda issues from the Executive and Congressional branches of government and other groups in the country
- devise a fair system of presenting the issues on the TV town meetings
- devise a fair and scientific system of polling to count the votes
- devise a fair way of bringing out as much consensus as can develop in a democratic country populated by people and corporations with different interests
- to hold electronic town meetings frequently (exact frequency to be determined)
- to provide unbiased information to the public by magazines and newspapers so that citizens can be as deeply informed as needed

**Source:** Meridian International Institute. Project on Argumentation Mapping and Electronic Town Meetings

# Issues of terminology

**Definition**

Issues of terminology are disputes over which terms should be used in a debate and sometimes over the meaning of terms used in the discourse.

**Question Form**

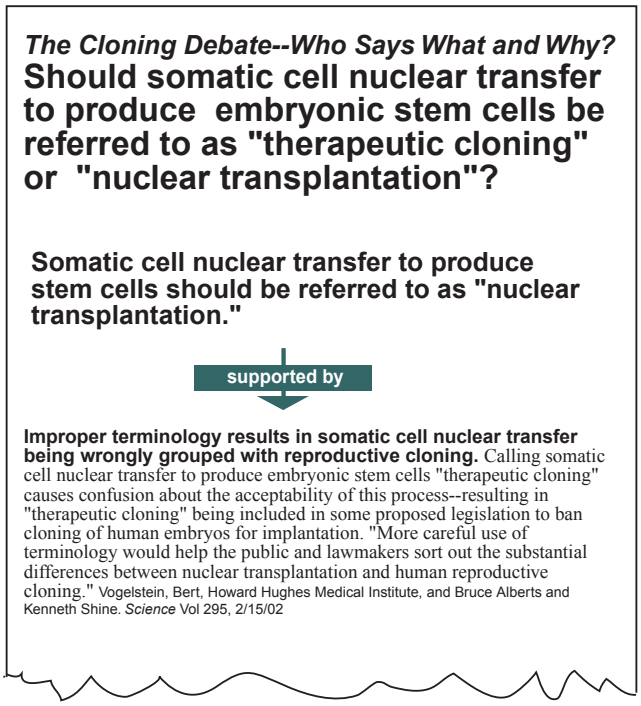
What is the (best) definition of (x)?
What definition should we use to discuss issue (y)?

# Positions about definitions

### Comment

Claims about terminology are claims that urge us to prefer one term or definition over another. Claims about what "really is" the definition of something is a metaclaim (see Metaclaims).

### Example ( Cloning vs. nuclear transfer )




# Issues of ethics

### Definition

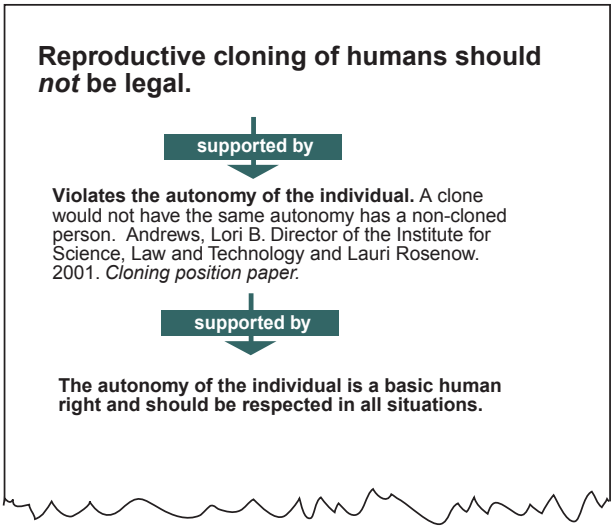
Ethical ethical are claims about what general human concerns require us to take a particular action or to make or obey a law.

# Positions about ethics

### Types of claims

Toulmin and his associates write:
"1. "Right" and "wrong": certain kinds of actions, proceedings, and/or consequences are recommended or ruled out as being categorically acceptable or unacceptable.

2. "Good" or "bad": certain kinds of actions, proceedings, and/or consequences are perceived as being desirable or preferable to a greater or lesser degree." (Toulmin, et al.1979, 312)



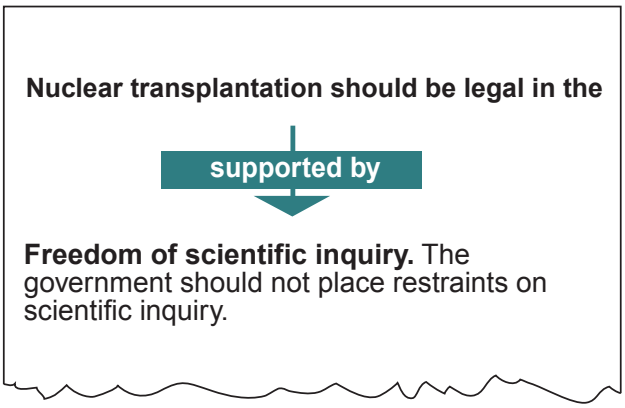
# Issues of law

### Definition

Law issues are positions about whether a particular rule should become law or regulation, or in a court whether a particular law applies.

# Positions about law

### Example (Cloning)




**Source:** MacroVU, Inc. project on The Cloning Debate

# Issues of explanation

### Definition

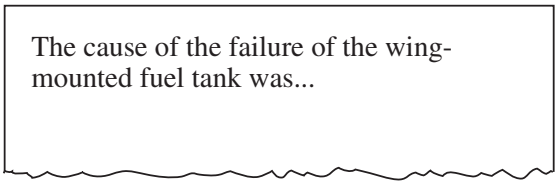
Issues of explanation are disputes over what is the explanation or cause of a particular event or situation.

### Question Form

What is the cause of (x)?
What is the explanation for (x)?
What is the origin of (x)?

# Positions about explanations

### Example (Engineering)



## Issues of goals

**Definition**
Issues of goals are disputes over what goal(s) or objectives to select for a given project, system or product.

**Question Form**
What should be the goal of this product or service?
What are we supposed to accomplish in this group?
What criteria should we use for satisfying the goal?
What are our objectives here?

## Positions about goals

**Example (Business engineering)**

The range of this aircraft, as designed, is adequate for the mission.

The criteria the Air Force uses for the acceptable range of these missiles is 1,000 kilometers.

## Issues of means

**Definition**
Issues of means are disputes over how to implement a particular goal.

**Question Form**
What is the appropriate (best) means to accomplish goal (y)?

## Positions about means

**Example (Engineering)**

The best way to build the bridge is to use suspension methods.

**Example (Public policy)**

Are direct payments the best way to alleviate poverty?

# Chapter 2 Choosing Sources

**1. Select an argument.** This can be an argument on which consensus has not been reached or for which historical development of the debate is of interest. No matter which type of argumentation map you plan to make, you should choose a subject on which sources disagree.

**Example (Consciousness)**
Can consciousness be explained?
What methodology is right for explaining consciousness?
What is the relationship between the mind and the body?

**Example (Genetically modified (GM) foods--experimental results)**
What harm, if any, happens to Monarch butterflies fed Bt corn?
Does Bt corn harm non-target insects?

**Example (Genetically modified (GM) foods--policy)**
Does world food productivity need to increase to alleviate hunger?
Did the benefits of green revolution technology outweigh the costs?

**Example (Cloning)**
Should the cloning of humans be legal?

**2. Begin with either one source that lays out the debate, or two sources that argue opposing sides of the debate.** This will help you quickly identify some of the central issues in the argument. Comment: Finding a source that is rich in "pros" and "cons" may take a bit of searching, but the time spent searching for such an article is usually well worth it.

**Example (Cloning)**
The Center for Genetics and Society's report "The Case Against Human Cloning and Inheritable Genetic Modification" (2001) outlines major arguments by ethicists, scientists, and concerned constituencies for and against the cloning of humans. Such a source can be useful for identifying the major "streams" of claims and rebuttals--such as Cloning is an individual reproductive decision or Cloning will exacerbate existing discrimination.

**3. Prefer well-known sources whenever possible.** Arguments from well-known or respected sources are more likely to be taken seriously and responded to by other authors, who may have refuted or supported these arguments directly or implicitly with their own arguments.

**Example (Consciousness)**
Sources included David Chalmers, author of *The Conscious Mind* (1996); William James, author of *The Principles of Psychology* (1890); and peer-reviewed articles from *The Journal of Consciousness Studies.*

**Example (Genetically modified (GM) foods--experimental results)**
Sources included the Monarch Butterfly Research Symposium and the journal Environmental Entomology.

**Example (Genetically modified (GM) foods--policy)**
Sources included the United States Department of Agriculture and the World Food Summit.

**4. As you gather more sources, look for sources that directly relate to the main claims that you have already identified--either by giving additional support for these claims, or by making well-supported arguments against them.**

# Chapter 3 Identifying Claims

## Claims

**Definition:** Claims are "assertions put forward publicly for general acceptance with the implication that there are underlying 'reasons' that could show them to be 'well founded' and therefore entitled to be generally accepted." (Toulmin, et. al. 1979)

### 1. When you have found your first one or two sources, read each source paragraph by paragraph, looking for all types of relevant claims.

A claim may be a direct statement of a position or fact, an analogy, or an implied position which you may find substantiated elsewhere.

**Example of claims (GM foods--experimental results)**
Monarch caterpillars that ate milkweed leaves from a Bt cornfield experienced 19% mortality within 48 hrs. of exposure.

**Example of claims (GM foods--policy)**
Increasing productivity is a strategy to avoid difficult institutional change, rather than feed the hungry.

### 2. Don't assume that a sentence or paragraph in your source material contains only a single claim.

Claims that appear in a single paragraph, or even a single sentence, may actually belong to separate "streams" of the argument. It is therefore important to mark each individual claim.

**Example (Cloning)**
Whether or not a clone is identical to its original, "parents may raise the resulting clone as if it were true. After all, the one key reason people want a clone is to assure that the child has a certain genetic makeup. Thus, it seems absurd to think they will forget about that genetic makeup once the child comes into being. Elsewhere in our current social policies, such as with genetic testing, though, we limit parents' genetic foreknowledge of their children because we believe it will improperly influence their rearing practices." (Lori B. Andrews)

**Claim A** — Parents may expect the clone to be identical to the original.
**Claim B** — Parents will continue to focus on the clone's genetic capabilities after birth since the clone was created for that particular genetic capability or makeup.
**Claim C** — Parents' genetic foreknowledge of their children is currently viewed as a bad thing.
**Claim D** — Genetic foreknowledge may "improperly influence" parents' childrearing practices.

### 3. Read forwards and backwards.

Since support often precedes a conclusion in inductive argumentation, you will often find major claims after the claims that support them. When constructing the argument map, you will present these claims in the opposite direction--from major claims "down" to supports.

**Example (Cloning)**
**Source paragraph**
"Traditionally Medicaid has not covered treatments for poor people to have more children, so only privately insured or wealthy people would have access to the new reproductive technologies. So we greatly exacerbate social inequality with genetic technology, as we do with many expensive technologies." Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

**Analysis of the source**
In this example, the last claim (which we will call claim G) *Cloning will exacerbate social inequalities* is actually the broadest claim, which is supported by claim (F) *Cloning is likely to be available only to the wealthy*, which is supported by the first claim (E) *Medicaid has not traditionally covered reproductive technologies.*

**These claims would be mapped as follows:**
**(G) Increased social inequality.** Inheritable genetic modifications would "greatly exacerbate social inequalities." Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

***is supported by***

**(F) Control by the wealthy.** Cloning and IGM technologies are likely to be available only to the wealthy, who will have control over deciding which genetic traits are desirable or undesirable. Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

***is supported by***

**(E) Precedent with reproductive technologies.** Medicare and Medicaid have not traditionally "covered treatments for poor people to have more children" and are therefore unlikely to cover new reproductive genetic technologies. Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

**4. Watch for analogies.** Many claims are made through analogies; relevant analogies should therefore be marked as their own separate claims.

**Example (Stem cells)**
Only allowing private funding for stem cell research would be equivalent to only having private universities. University education would still be available, but it would be seriously limited in scope and variety. (in this example, the analogy could be used as support for the claim *Stem cell research should be funded by both federal and private sources.*

**5. If you are mapping a long debate, it may be helpful to number or letter each claim (as in previous examples) in addition to marking the claims in the source.** You can then use these numbers or letters to make a rough outline of the debate. Comment: After you have identified the claims in your first source or two, it may also be helpful to type up a list of the numbered or lettered claims in statement form so that you can see precisely what is being claimed and can begin to see some connections among the claims. Avoid worrying at this stage, however, about how the larger structure of the argument will be laid out. It is easy to obsess over just how the argument will unfold, but the argument structure will change significantly (and multiple times) as you continue to find claims, rebuttals, and counterrebuttals.

**6. Ignore claims that do not pertain to the subject of your argument.** You may initially wish to mark all claims that might relate to your argument, but as you progress, you will refine the boundaries of your map and will be able to be more selective about claims.

**Example (Stem cells)**
For our map *Is it ethical to use embryos left over from fertility treatments for stem cell research?* we ignored arguments about clonal embryos. Such claims were not generally relevant since clonal embryos are, by definition, created, not left over.

# Chapter 4 Selecting Claims

**1. Include a claim if it is directly disputed by an article/author. Start with the easy claims and disputes.**

**Example (GM foods--policy)**
**Green Revolution technology is not designed to reduce hunger.** Merely increasing production does not mean the extra food will reach those who need it. In fact, the bias towards high-input production disproportionally benefits wealthier farmers and agribusiness, and may drive small farms out of business, as it has in the U.S. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.

***is disputed by***

**Green Revolution benefited rich and poor alike in one South Indian region.** A comparison of the North Arcot region of South India before and after adoption of Green Revolution technology showed that poor an rich farmers benefited proportionally, and that virtually no farmers were left behind in terms of productivity. Wages increased, income distribution benefited, and concentration of land ownership did not worsen. Hazell, P.B.R. and Ramasamy, C. 1991. *The Green Revolution Reconsidered. IFPRI Food Policy Statement Number 14.*

**2. In order to keep the relations among supporting or disputing claims clear, do not include duplicative arguments.** When you find multiple versions of essentially the same claim, choose the clearest or most well-known version of the claim, or summarize the claims into a single claim.

**Example (Cloning)**
"No individual scientist or physician has a moral or social warrant to engage in experiments that risk the entire species without the equivalent of informed consent from the species." Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

"We need the perspectives not just of those who are knowledgeable in biology or science; we also need the perspectives of sociologists, humanists, and citizens from a variety of life experiences. On something that affects our species' future, it would be valuable to have the perspectives of people from many countries." Baird, Patricia A. M.D. 2000. Should human cloning be permitted? *Annals Royal College of Physicians and Surgeons of Canada.* 33,4.

**Comment.** In this case, since Annas and Baird are both respected sources, but neither is particularly known for this claim, we chose Annas' formulation of the claim because it was more concise and more clearly made the link between the species' future and the consent/perspective of the species.

**3. Include arguments with intriguing or different angles.**

**Example (GM foods--policy)**
**People starve even when there is enough.** Current food production is enough to feed everyone on earth a 2300 kcal/day diet. Poverty is the root of starvation, and increases in productivity within existing economic systems will do little to help. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.

**4. Include historical claims if current claims explicitly or implicitly respond to them.** Additional history that is necessary for understanding arguments or the history of ideas should be put into separate sidebars.

**Example of claims included on map (Stem Cells)**
**In vitro fertilization (IVF) embryos were created as an end in themselves.** It is not disrespectful to use embryos left over from in vitro fertilization treatments because these embryos were created as an end in themselves--i.e., with the intent to produce a child--and not a means to an end. National Bioethics Advisory Commission, *Ethical Issues in Human Stem Cell Research,* Sept. 99

***is supported by***

**Kant's Practical Imperative.** According to an often-referenced social philosophy of Immanuel Kant, we should "Treat every man as an ends in himself, and never as a means only." Reese, W.L. *Dictionary of Philosophy and Religion*

**5. Avoid incidental or loosely drawn arguments, especially if they are not disputed by others in any formal way.**

**Example (Precautionary Principle)**
The ad hominem claim that environmentalists who favor the precautionary principle are merely motivated by a desire to sue companies for their own profit does not address the central question of whether or not the precautionary principle would be a sound environmental policy. The "profit" argument is also not refuted by those arguing in favor of the precautionary principle.

**NOTE for intellectual history maps:** When choosing among duplicative claims, prefer the earliest protagonist's statement to later repetitions of the same claim or rebuttal.

# Chapter 5 Structuring the First Draft of the Map

**Definition:** A ***focus box claim*** is the first claim in the argument, which answers the argument question. This focus box claim may have been made by one of the protagonists, or it may be a claim that is not found explicitly in the text you are working from but that is one of the implicit "large answers" to the debate. You will often find implicit claims in wording such as "There are those who think . . . ."

**1. Look for claims that one or more sources identify as central to the debate, and start by mapping out the interconnections among these claims (i.e., which claims support or dispute which other claims).** We frequently assemble "parts" of debates found in different articles into one "stream" of claims and rebuttals. Don't forget that claims that appear near one another in a source may actually belong to different argument streams.

**Examples of interconnections among claims (GM foods--experimental results)**
**Pollen transport and distribution are not significant factors in insect harm.** The amount and distribution of toxic pollen is so small that one does not need to consider these factors in evaluation of hazards from GM pest-protected plants.

***is supported by***

**Pollen doesn't travel far.** Ninety percent of pollen blows less than 16.5 ft (5 m) from cornfields and nearly all lands within 10 yards. Mark Sears. Nov. 2, 1999. Monarch Butterfly Research Symposium, Chicago.

**Example (GM foods--policy)**
**GM herbicide-resistant and Insecticidal crops are promising tools for increasing food production and combating hunger.**

***is disputed by***

**GM food is an extension of a failed strategy.** GM cropping systems are based on the chemical-reliant agricultural paradigm that has shown itself to be unsustainable due to pesticide resistance and environmental degradation. Another paradigm is necessary in order to feed the world in the long term, one that incorporates biological processes, reduces environmental impacts, and produces wealth for the farmer as well as the businesses that buy, sell, and export his or her food. Altieri, M.A. and Rosset, P. (1999). *AgBioForum*, 2(3&4), 155-162.

**2. In order to most clearly show the relationships among claims, look for larger claims that are supported or disputed by multiple streams of claims.** In other words, look for "umbrella" concepts/claims.

**Example (Cloning)**
The stream of claims about inheritable genetic modification producing better children and the stream of claims about inheritable genetic modification leading to increased social inequality, each support or dispute the larger claim: *Cloning should be banned because it is the gateway to inheritable genetic modification.*

**3. Divide the argument into subarguments (sub-maps) if it has many claims.** Large arguments of any type will usually be divisible into related, but separate, aspects of the argument, which can be separately mapped. Dividing the argument will make working with it much easier for you and for your reader. Once you create these divisions, you will of course want to be sure to include only those claims within each subargument that belong to that argument.

**Example (GM foods--experimental results)**
We divided the experimental results on genetically modified foods into separate maps including:
— Does Bt corn harm non-target insects?
— What harm, if any, happens to Monarch butterflies fed Bt corn pollen?
— Will GM insecticidal crops accelerate the development of resistance in weeds?
— Will GM crops reduce need for plowing?
— Will GM crops decrease pesticide use and hence decrease groundwater contamination and erosion?

**Example (GM foods--policy)**
We divided the larger question of the desirability of genetically modified foods into separate maps including:
— Did the benefits of green revolution technology outweigh the costs?
— Does world food productivity need to increase to alleviate hunger?
— Are potential gains in agricultural efficiency sufficient to feed the world population in 2050?
— Is large-scale agriculture and top down technology transfer the right approach to improving developing world agriculture?

**4. Carefully word the argument question to encompass only the issues that you will be addressing.**

**Example (Stem cells)**
Is it ethically allowable to destroy human embryos for stem cell research?

**Explanation**
The question narrows the argument scope to human embryos (as opposed to animal embryos) and specifies that the embryos are being destroyed for research (as opposed to the more established practice of destroying leftover in vitro fertilization embryos, but not using these embryos for research).

**Example (GM foods--experimental results)**
Does Bt corn harm non-target insects?

**Example (GM foods--policy)**
Did the benefits of green revolution technology outweigh the costs?

**5. Carefully word the first answer to your question (the Focus Box Claim), preferring positive formulations of the answer to negative ones.** Positive formulations are generally clearer because of the double-negative confusion that can result from Disputes of an already negative statement.

**Example of wrong wording (GM foods--experimental results)**
Bt corn is not harmful for non-target insects.

**Example of better wording (GM foods--experimental results)**
Bt corn is safe for non-target insects.

**Example of wrong wording (Stem cells)**
It is not unethical to destroy human embryos for scientific and medical research.

**Example of better wording (Stem cells)**
It is ethically allowable to destroy human embryos for scientific and medical research.

**6. For the Focus Box Claim, it is usually best to choose a controversial (but of course well-supported) answer; because without a controversial answer, there would be no argument.**

**Example (Stem cells)**
Is it ethically allowable to destroy human embryos for stem cell research? could be answered either "Yes, it is ethically allowable" or "No, it is not ethically allowable." Since legalizing the destruction of human embryos for stem cell research is more controversial than banning such destruction, we framed the Focus Claim *It is ethically allowable to destroy human embryos for scientific and medical research.*

The argument begins with claims that support this Focus Claim. For example: *Stem cell research has the potential to save lives and alleviate suffering.*

**7. For consistency and clarity, always place Supports before Disputes within the overall argument and within streams of the argument.** This improves the ease of reading the maps.

**8. When structuring an individual argument stream that includes multiple claims by two or more opposing sides, place in the focus claim box the claim that is most central to the overall argument or that is necessary for the relevance of the other claims.**

**Example (Cloning)**
For our cloning map, we had multiple sources making claims for and against cloning as a reproductive choice. We therefore had to decide between making a first-level Support for legal cloning--*Cloning should be protected under current freedom of reproductive choice*--or a first-level Dispute against legal cloning--*Cloning is not reproduction in the current sense.* Since the claims about cloning's reproductive status are only important because some people argue that cloning should be protected under existing reproductive choice, we chose the first formulation.

**NOTE for intellectual history maps:** Begin the overall history and each individual argument stream with the earliest statement that is followed by dispute.

**Example (Can Computers Think?)**
The "Can Computers Think?" argument map begins with Turing because Leibnitz's claim was far earlier and not connected by other claims to Turing's. In this case, Leibnitz's claim would appear in a historical sidebar rather than in the main argument.

# Chapter 6 Writing Claims

**1. State only one claim per box.** "Burying" one claim in another defeats one of the key purposes of argumentation mapping, i.e., to make the individual claims and the structure of the argument visible to the reader. Words such as "because," "therefore," and "for example" usually indicate that you are moving on to another claim that supports or is supported by the first one.

**Example of two claims incorrectly placed in one box (GM foods--policy)**
**The Green Revolution had mixed results in fighting hunger.** GM technology is nothing but an extension of the high-input green revolution model of development, which increased per capita food production by 11%, but had mixed results against hunger The worldwide 16% decrease in hunger from 1970 to 1990 becomes an 11% increase if we omit China, where policy changes led to increases in rural incomes and local control over production in the 1970's. The green revolution has not successfully fought hunger because merely increasing production does not mean the extra food will reach those who need it. In fact, the bias towards high-input production disproportionally benefits wealthier farmers and agribusiness, and may drive small farms out of business, as it has in the U.S. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. Ch. 5.

**Example of correctly separated claims (GM foods--policy)**
**The Green Revolution had mixed results in fighting hunger.** GM technology is nothing but an extension of the high-input green revolution model of development, which increased per capita food production by 11%, but had mixed results against hunger (see Green Revolution sidebar). The worldwide 16% decrease in hunger from 1970 to 1990 becomes an 11% increase if we omit China, where policy changes led to increases in rural incomes and local control over production in the 1970's. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. Ch. 5.

***is supported by***

**Green Revolution technology is not designed to reduce hunger.** Merely increasing production does not mean the extra food will reach those who need it. In fact, the bias towards high-input production disproportionally benefits wealthier farmers and agribusiness, and may drive small farms out of business, as it has in the U.S. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. Ch. 5.

**2. Consider clarity and purpose when deciding how much to separate examples and explanations from claims.** While you will always only include one claim per box, the decision to include brief examples or explanations within the claim box or as separate boxes partly depends upon the type of map that you are making. For maps of philosophical issues (including intellectual history and "best argument" maps), each individual protagonist's theory (on a narrow topic) may be most clearly presented and then supported/disputed if a brief explanation of the theory appears in the same box with the central claim. For maps of experimental results, each result--including the specific support and conclusion--should appear in a single box. For maps of policy issues, each argument "move" should be separated into its own box in order to more clearly show previously "buried" claims within a given argument. In other words, policy maps will generally "break the argument down" into smaller pieces than will the other types of maps.

**Example of result and study in single box (GM foods-Experimental results)**
**Bt corn affects some other non-target corn pests.** In a lab and field study, eating Bt corn reduced survival of army worms 11-25% and slowed their development by 8 days. They were also .07g lighter than non-Bt pollen eaters. Corn earworms (H. zea) who ate Bt corn developed 4 days later and died sooner. Bt corn had no effects on the black cut worm (A. ipsilon) or the stalk borer (P. nebris). Pilcher, C.D., Rice, M.E., Obrycki, J.J., and L.C. Lewis. 1997. *J. Economic Entomology.* 90(2).

**Example of reasons for a claim presented in separate boxes (Policy--Cloning)**
**Physical risks for clone.** Cloning holds many potential physical risks for the clone.

***is supported by the following three claims*** (each in a separate box):

**Experience with animal cloning.** In animal cloning, "one-third of the offspring die shortly before or after birth." Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**Risk of latent mutations.** Hidden mutations can be passed on from the original cells and then may become apparent or active in the clone. Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**Unknown physical risks.** "Cloning takes us into a vast unknown in terms of physical risks to the child. We do not even know yet how to scientifically evaluate what the risks will be." Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**3. Write the claim in concise declarative sentences, removing repetitive or stray ideas. Generally, claims should contain no more than three to five sentences.**

**Example of wordy claim (Cloning)**
**Predominantly will be used for IGM.** Cloning technologies will mainly be used not for cloning individual humans, but rather, for inheritable genetic modifications. People who want to create "better babies" with certain desirable characteristics might use inheritable genetic modifications that are made possible by cloning technologies. Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

**Example of claim written in concise declarative sentences (Cloning)**
**Predominantly will be used for IGM.** The main application of cloning technologies will be for inheritable genetic modifications to create "better babies," not for exact clones of existing humans. Annas, George. Chair of the Health Law Dept., Boston University School of Public Health. 2001. Turning point for the human species. *Trial* (July).

**Example of claim written in concise declarative sentences (GM foods--experimental results)**
**Rainfall has large impacts on pollen sticking to milkweed leaves.** Pollen levels were measured at rainy and windy Nebraska cornfields and dry Maryland cornfields during pollen shed. Pollen levels at cornfield edges after wet weather were about 6 grains/cm2 compared to 35 grains/cm2" for dry cornfields. Dively, G.P., Foster, J.E., Clark, T.L., and F.D. Jones. Nov. 2, 1999. Monarch Research Symposium, Chicago.

**Example of claim written in concise declarative sentences (GM foods--policy)**
**Institutional not technical change will determine success.** Productivity increases have helped reduced hunger only when institutions and infrastructure helped food get to hungry people. Hunger relief, if successful, will come from institutional changes such as responsive governments, road construction, adequate labor demand, and increases in access to land. Ruttan, V.W. 1999. The transition to agricultural sustainability PNAS 96: 5960-5967. LINK: www.pnas.org

**4. Unless the main point of the claim is to negate another claim or theory, try to state the claim positively, to help make its meaning readily apparent and help reduce the confusions resulting from double negatives.**

**Example of wrong negative formulation of claim (Cloning)**
**Era of genetic determinism.** People will not expect a clone to be inexact because they have come to see people in terms of their genes. "We are in an era of genetic determinism, where newspapers daily report this gene for this or that and top scientists tell us that we are a packet of genes unfolding." Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**Example of corrected positive formulation (Cloning)**
**Era of genetic determinism.** People will expect a clone to be exact because they have come to see people in terms of their genes. "We are in an era of genetic determinism, where newspapers daily report this gene for this or that and top scientists tell us that we are a packet of genes unfolding." Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**5. State the main point of the claim in the first sentence--unless the main point needs to come later in the claim to improve clarity.**

**Example of main point first (GM foods--experimental results)**
**Bt corn affects some other non-target corn pests.** In a lab and field study, eating Bt corn reduced survival of army worms 11-25% and slowed their development by 8 days. They were also .07g lighter than non-Bt pollen eaters. Corn earworms (H. zea) who ate Bt corn developed 4 days later and died sooner. Bt corn had no effects on the black cut worm (A. ipsilon) or the stalk borer (P. nebris). Pilcher, C.D., Rice, M.E., Obrycki, J.J., and L.C. Lewis. 1997. J. *Economic Entomology.* 90(2): 669-

**Example of main point first (GM foods--policy)**
**The Green Revolution had mixed results in fighting hunger.** GM technology is nothing but an extension of the high-input green revolution model of development, which increased per capita food production by 11%, but had mixed results against hunger (see Green Revolution sidebar). The worldwide 16% decrease in hunger from 1970 to 1990 becomes an 11% increase if we omit China, where policy changes led to increases in rural incomes and local control over production in the 1970's. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.

**Example of main point at end for clarity (GM foods--experimental results)**
**One Bt toxin safe for honey bees.** Different concentrations of Bt toxin CryIIIB was added to a syrup diet for honey bees. The concentration in syrup was either 0.066% toxin or 0.332% toxin, which is 400X or 2000X more than in pollen from Bt-transgenic plants. The toxin at these levels did not affect caterpillar weight or survival. S. Arpaia. 1996. *Jrnl. of Genetics & Breeding* 50(4): 315-319.

**Example of main point at end for clarity (GM foods--policy)**
**Most poor farmers cannot use large-scale technology.** Most farmers in developing countries grow on small parcels or marginal land. They can neither afford, nor efficiently use high-input technologies, the hallmark of the green revolution and, so far, of GM technology. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.; Cassman, K.G. and Harwood, R.R. 1995. The nature of agricultural systems: food security and environmental balance. *Food Policy* 20, 439-454.

**6. Be sure that conciseness does not interfere with clarity.** The claim should not be so brief that it becomes incomprehensible or vague. While one claim may rely on the same terminology as another, the claims should be independently comprehensible. Be sure to include a clear statement of the main claim--not just the support for the claim.

**Example of claim that is too brief (GM foods--experimental results)**
**One Bt toxin safe for honey bees.** The toxin levels in the syrup diet did not affect caterpillar weight or survival. S. Arpaia. 1996. *Jrnl. of Genetics & Breeding* 50(4): 315-319.

**Example of claim that is concise but not too brief (GM foods--experimental results)**
**One Bt toxin safe for honey bees.** Different concentrations of Bt toxin CryIIIB was added to a syrup diet for honey bees. The concentration in syrup was either 0.066% toxin or 0.332% toxin, which is 400X or 2000X more than in pollen from Bt-transgenic plants. The toxin at these levels did not affect caterpillar weight or survival. S. Arpaia. 1996. *Jrnl. of Genetics & Breeding* 50(4): 315-319.

**Example of claims that is too brief (GM foods--policy)**
**The Green Revolution had mixed results in fighting hunger.** The worldwide 16% decrease in hunger from 1970 to 1990 becomes an 11% increase if we omit China, where policy changes led to increases in rural incomes and local control over production in the 1970's. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.

**Example of claim that is concise but not too brief (GM foods--policy)**
**The Green Revolution had mixed results in fighting hunger.** GM technology is nothing but an extension of the high-input green revolution model of development, which increased per capita food production by 11%, but had mixed results against hunger. The worldwide 16% decrease in hunger from 1970 to 1990 becomes an 11% increase if we omit China, where policy changes led to increases in rural incomes and local control over production in the 1970's. Lappe, F.M., Collins, J., and Rosset, P. *World Hunger: 12 Myths.* New York: Grove Press. ch. 5.

**7. Use quotations if they are the best possible statement of a claim.** In general, it is better to write concise summaries, but sometimes a claim cannot be better summarized than by the author's own words.

**Example (GM foods--policy)**
**Not productive enough.** The model suggests "environmentally oriented agriculture will require reduction in meat consumption and overall caloric intake in Asia and parts of Africa in order to feed the world population in 2020." Even with dietary changes, regional food shortages are inevitable in Southern Asia. Groot, J.J.R., Penning de Vries, F.W.T., and Uithol, P.W.J. 1998. Food supply capacity study at global scale. *Nutrient Cycling in Agroecosystems* 50, 181-189.

**Example (Cloning)**
**Conflicts with legal protection of individuality.** "The notion of replicating existing humans seems to fundamentally conflict with our legal system, which emphatically protects individuality and uniqueness." Andrews, Lori B. Director of the Institute for Science, Law and Technology and Lauri Rosenow. 2001. *Cloning position paper.*

**8. Avoid claims that are merely definitions--except when the major argument is about what definitions to use.** Additional definitions needed for understanding claims can appear in separate sidebars.

**Example of wrong use of definition as claim (Cloning)**
Inheritable genetic modifications are changes in the sperm and egg cells that will produce alterations in the child and in all of that child's descendants.

**Example of correct use of claim about definition (Cloning)**
**Cloning is not "reproduction" in the current legal sense.** Cloning is not "reproduction" in the Constitutionally protected sense of "a process of genetic mix." Instead, cloning is "genetic duplication. It is not reproduction, but a sort of genetic recycling, where a single individual's genome is made into someone else." Andrews, Lori B. Director of the Institute for Science, Law and Technology, and Lauri Rosenow. 2001. *Cloning position paper.*

**Example of wrong use of definition as claim (Stem cells)**
Embryonic stem cells are cells found in early stage embryos that are capable of developing into nearly any cell type.

**Example of correct use of claim about definition (Stem cells)**
**An "embryo" outside a mother's womb is not truly an embryo.** Embryos used for stem cell research exist outside a woman's body and are, therefore, different in definition and status from embryos within a mother's body.

**9. Use the technical terms used by the sources--providing definitions in separate definition boxes, or, if the definition is brief and furthers the claim, within the claim itself.** Claims should be comprehensible on their own at least to a specialist in the field.

**Example of technical terms used in claim (GM foods--experimental results)**
**One Bt toxin safe for honey bees.** Different concentrations of Bt toxin CryIIIB was added to a syrup diet for honey bees. The concentration in syrup was either 0.066% toxin or 0.332% toxin, which is 400X or 2000X more than in pollen from Bt-transgenic plants. The toxin at these levels did not affect caterpillar weight or survival. S. Arpaia. 1996. *Jrnl. of Genetics & Breeding* 50(4): 315-319.

**Example of technical terms used in claim (GM foods--policy)**
**Inequality is not inherent to technology.** Governments were a major influence on equity in the distribution of the benefits of HYV's. This demonstrates that green revolution technology can reach all sectors of society given the right conditions. Inequity is the result of biased policy, not the technology itself. Leisinger, K.M. 1999. Biotechnology and food security. *Current Science* 76, 488-500. http://www.iisc.ernet.in/~currsci/feb25/articles14.htm

**Example of technical terms with brief definition that furthers claim (Consciousness)**
**Multiple Realization.** The Identity theory holds that being in pain is identical with having a certain brain state. But it seems reasonable that organisms from a wide variety of species, or even extraterrestrials, might be capable of being in pain, without all having the same type of brain; it therefore seems unlikely that pain is any single physical brain state. Nevertheless, one and the same abstract functional description could apply to all organisms that are in pain, since the functional description is determined strictly by the computational relationships among perceptual inputs, behavioral outputs, and inner states. Hilary Putnam (1967) "The Nature of Mental States" in W.H. Capitan and D.D. Merrill, ed., *Art, Mind, and Religion.* Reprinted in William Lycan, ed., *Mind and Cognition: A Reader.* Oxford: Blackwell, 1990. pp. 47-56.

**10. Don't proliferate variations of the same term within or among claims.**

**Example (Can Computers Think?)**
We changed "understanding" and "intelligent" to "thinking" in the Can Computers Think? map because the main claim contained the word "think."

**11. Avoid "x says" locutions in the claim, except where necessary for clarity, e.g. when one author is specifically responding to another author's argument.** In general, rely on the reader's use of the "supported by" and "disputed by" arrows to relate the current claim to the previous ones referred to.

**Example of incorrect "x says" locution (Consciousness)**
**The Conceivability Argument.** According to Descartes, I can imagine my body existing without my mind; I can also imagine my mind existing without my body. Therefore mind and body are distinct substances. Descartes, Rene. *Meditations on First Philosophy.* Transl. by John Cottingham. Cambridge: Cambridge U. Press, 1996.

**Example of correct avoidance of "x says" locution (Consciousness)**
**The Conceivability Argument.** I can imagine my body existing without my mind; I can also imagine my mind existing without my body. Therefore mind and body are distinct substances. Descartes, Rene. *Meditations on First Philosophy.* Transl. by John Cottingham. Cambridge: Cambridge U. Press, 1996.

**Example of correct use of author's name in response (Consciousness)**
**McGinn expects too much from a theory of consciousness.** McGinn's reason for holding that consciousness is unexplainable is that it is impossible to imagine a physical theory giving us a grasp of the phenomenal concepts of experiences that we have not had. But by McGinn's own admission, phenomenal concepts are definitionally such that they cannot be grasped by except by those capable of having the particular types of experience they characterize. Therefore no theory can give us the 'grasp of phenomenal concepts' that McGinn demands. It is more reasonable to expect a theory that systematically correlates phenomenal facts with physical or functional facts, and McGinn has given no reason to suppose such a theory impossible. Kirk, Robert . 1991. "Why shouldn't we be able to solve the mind-body problem?" in *Analysis* 51:1.

**12. Avoid unspecified and generalized pronouns in claims, including the generic use of "we" and the use of personal pronouns.** Each claim should be clear without the reader having to look at other claim boxes for names or other references.

**Example of unclear use of personal pronouns (GM foods--experimental results)**
**Presence of Bt corn does not alter insect populations in field.** In this two year Italian field study, they used beetles as an indicator species to see if they preferred living in the soil of Bt (event 176) or non-Bt corn fields. There were no statistically different amounts or kinds of beetles in Bt and non-Bt cornfields. In addition, other insects common to cornfields (cicadas, aphids, etc.) were observed to see if there were population differences in Bt and non-Bt cornfields. They did not find any statistically significant difference in the amounts and kinds of these insects either. G.C. Lozzia. 1999. *Bollettino di Zoologia Agraria e di Bachicoltura.* 31(1): 37-50.

**Example rewritten for pronoun clarity (GM foods--experimental results)**
**Presence of Bt corn does not alter insect populations in field.** This two year Italian field study used beetles as an indicator species to see if they preferred living in the soil of Bt (event 176) or non-Bt corn fields. There were no statistically different amounts or kinds of beetles in Bt and non-Bt cornfields. In addition, other insects common to cornfields (cicadas, aphids, etc.) were observed to see if there were population differences in Bt and non-Bt cornfields. There was no statistically significant difference in the amounts and kinds of these insects either. G.C. Lozzia. 1999. B*ollettino di Zoologia Agraria e di Bachicoltura.* 31(1): 37-50.

**13. Avoid putting references in claims. Each claim box should be able to stand independent from outside sources.**

**Example of wrong inclusion of reference (Can Computers Think?)**
**The predicate calculus cannot capture human reasoning.** Many knowledge-based systems in AI use some version of the predicate calculus to encode knowledge (see, for example, Lenat, 1990, pp. 34-35). Such systems utilize the classical concept of a category, which has been disconfirmed by a substantial body of empirical evidence, most notably prototype theory.

**Example of claim correctly written without internal reference (Can Computers Think?)**
**The predicate calculus cannot capture human reasoning.** Many knowledge-based systems in AI use some version of the predicate calculus to encode knowledge. Such systems utilize the classical concept of a category, which has been disconfirmed by a substantial body of empirical evidence, most notably prototype theory.

**14. Retrofit claims as necessary after writing subsequent rebuttals.** This happens when the rebuttal picks up on a point that you may not have thought was important enough to write in the claim in the first instance.

**NOTE for experimental results maps:** Since the whole purpose of including a given result may be to show a substance's lack of negative effects (which is not necessarily equivalent to positive effects), rule #3 about positive formulations may be less applicable for this sort of map.

**Example (GM foods--experimental results)**
**No effects on lady beetles raised on aphids that ate Bt potatoes.** Ladybeetles (C. convergens) were fed aphids that had been raised on Bt potatoes. There were no negative effects on ladybeetles in terms of development time, pupal weight, fertility, or longevity. The aphids ate as much Bt as non-Bt potatoes. Dogan, E.B., Berry, R.E., Reed, G.L., and P.A. Rossignol.1996. J. *Economic Entomology*. 89(5):1105-1108.

# Chapter 7 Naming Claims (with Topic Titles)

**1. If the claim has a "classical," or accepted name, use it.**

**Example (Consciousness)**
The Hard Problem
Causal Interactionism
The Chinese Nation

**Example (Stem cells)**
Utilitarian Calculus
Practical Imperative

**2. Unless such words are part of the "classical" name for the claim, avoid using words such as "argument," "reply," or "rebuttal."**

**Examples of classical names that include such terms (Consciousness)**
The Divisibility Argument
The Conceivability Argument

**Example of wrong use of such terms (Consciousness)**
New-physics materialism argument
Neurophenomenology reply

**Example of corrected names (Consciousness)**
New-physics materialism
Neurophenomenology

**Example of wrong use of such terms (GM foods--policy)**
Pollen doesn't travel far argument

**Example of corrected name (GM foods--policy)**
Pollen doesn't travel far

**3. If the claim is not already named, use a very brief summary of the claim itself for the name or make up a succinct name for the claim that includes the major elements that distinguish it from other claims on the map.**

**Examples (GM foods--experimental results)**
One Bt toxin safe for honey bees
Monarch butterflies die from milkweed brought to lab from field

**Examples (GM foods--policy)**
Green revolution technology is not designed to reduce hunger
Green revolution technology benefited rich and poor alike in one South Indian region

**4. Avoid names that are so vague that they could refer to multiple different claims on the map.** As with the wording of the claims themselves, the names of claims should be concise, but not so concise that they become unclear.

**Examples of names that are too brief (Consciousness)**
Reportability
Introspection

**Examples of names that are concise but not too brief (Consciousness)**
Reportability does not exhaust the field of consciousness
Introspection provides no good results

**Examples of names that are too brief (GM foods--experimental results)**
Bt toxin safety
Swallowtail butterfly caterpillars

**Examples of names that are concise but not too brief (GM foods--experimental results)**
One Bt toxin safe for honey bees
Bt pollen not toxic to swallowtail butterfly caterpillars in field

**Example of name that is too brief (GM foods--policy)**
GM crops adaptable

**Example of name that is concise but not too brief (GM foods--policy)**
GM crops can be adapted to conditions in developing countries

### 5. To reduce repetition, do not use the complete first sentence of the claim as its name.

**Example of incorrect repetition (Consciousness)**
**Perceptual states are just physical brain states.**
Perceptual states are just physical brain states. Suppose, for instance, that I say I am having a green after-image. There is no reason to suppose that I must be referring to some private or phenomenological object that is green; rather I may be simply reporting that I am having an experience similar to those that I have when I see something green. Once sensation-reports are purged of phenomenal language in this way, there is no obstacle to future empirical research discovering their identity with brain states. Place, U.T. [1956] 1990. Is consciousness a brain process? In *Mind and Cognition: A Reader*, ed. W. G. Lycan. Oxford: Blackwell.

**Example corrected to remove repetition (Consciousness)**
**Perceptual states are just physical brain states.** It is at least a scientific possibility that conscious states are just brain processes, and that reports of conscious states are just reports of brain states. Suppose, for instance, that I say I am having a green after-image. There is no reason to suppose that I must be referring to some private or phenomenological object that is green; rather I may be simply reporting that I am having an experience similar to those that I have when I see something green. Once sensation-reports are purged of phenomenal language in this way, there is no obstacle to future empirical research discovering their identity with brain states. Place, U.T. [1956] 1990. Is consciousness a brain process? In *Mind and Cognition: A Reader*, ed. W. G. Lycan. Oxford: Blackwell.

**Example of incorrect repetition (GM foods--experimental results)**
**Lacewings that ate corn borers that ate Bt corn leaves have a higher death rate.** Lacewings that ate corn borers that ate Bt corn leaves have a higher death rate. 62% of lacewings raised on Bt-fed corn borers died compared to 37% reared on non-Bt fed cornborers. Lacewings who ate the control prey of cotton leafworm (S. littoralis) which was fed Bt foliage also had higher mortality. Also, lacewings that ate Bt-fed cornborers developed more slowly than if fed non-Bt cornborers. Hilbeck, A., Baumgartner, M., Fried, P.M., and F. Bigler. 1998. *Env. Entomology.* 27(2): 480-487.

**Example of corrected to remove repetition (GM foods--experimental results)**
**Lacewings that ate corn borers that ate Bt corn leaves have a higher death rate.** 62% of lacewings raised on Bt-fed corn borers died compared to 37% reared on non-Bt fed cornborers. Lacewings who ate the control prey of cotton leafworm (S. littoralis) which was fed Bt foliage also had higher mortality. Also, lacewings that ate Bt-fed cornborers developed more slowly than if fed non-Bt cornborers. Hilbeck, A., Baumgartner, M., Fried, P.M., and F. Bigler. 1998. *Env. Entomology.* 27(2): 480-487.

**NOTE for experimental results maps:** When naming claims, you may need to include more specific information in the name in order to distinguish one result from another. The names may therefore be slightly longer than on other types of maps.

**Example (GM foods--experimental results)**
Husk and silk from Bt corn harms three non-target corn pests
Lacewings that ate corn borers that ate Bt corn leaves have a higher death rate.

# Chapter 8 Title is the Claim

**Introduction.** All titles should be as direct, concise, and thorough as possible, and should state the topic of the claim.

One problem that is regularly encountered when writing topic titles is attempting to not repeat the first sentence of the claim, or otherwise make the claim redundant. In some cases, we used titles by themselves without a quotation or further development of the claim, but the nature of labels makes it seem as though they should be labeling something.

So we began to use a title stating the entire claim, with the rest of the claim box used for a quotation that shows who has taken this stance. Using this method also shows the reader how the claim has been extracted from (or summarized from) the attendant syntax / rhetoric—which might be useful for highlighting multiple levels of complexity within the debate.

However, when many of these occur, we began to make every title the statement of the claim. This has led to a second distinct form of the argumentation map in which the *Title is the Claim.*

**Definition – Title is the claim**
Rather than stating the "topic" of the claim in the *Title is the Claim* type of map, the title of every claim should state a concise version of the claim itself—i.e. the statement that is being made on the topic.

**Advantage.** This will help the reader distinguish between claims on the same topic and—ideally—easily recognize how the claim is distinct from, but also connected to, other claims on the map. Our cloning series uses this approach.

This also provides the flexibility of display using software which can display in outline or tree-like fashion all of the arguments and their connections.

**Example (Stem Cell)**
**Difficulty of creating lines**. "'It is no small chore to derive, cyropreserve, and properly characterize three or four lines. . . Someone must have a factory somewhere, or we are talking about potential cell lines.'" Martin Pera, stem cell researcher at Monash University in Melbourne, Australia. qtd. in Gretchen Vogel, "Bush Squeezes Between the Lines on Stem Cells," *Science*, Aug. 17, 01

**Commentary**. This version, as it appears on the Stem Cell Federal Funding Map, does not clarify what kind of "lines" nor indicate how this might relate to the claim that it supports: "Dispute over number of stem cell lines." See Note in top commentary on how this ineffective label also fails to summarize a somewhat veiled main point of the quotation.

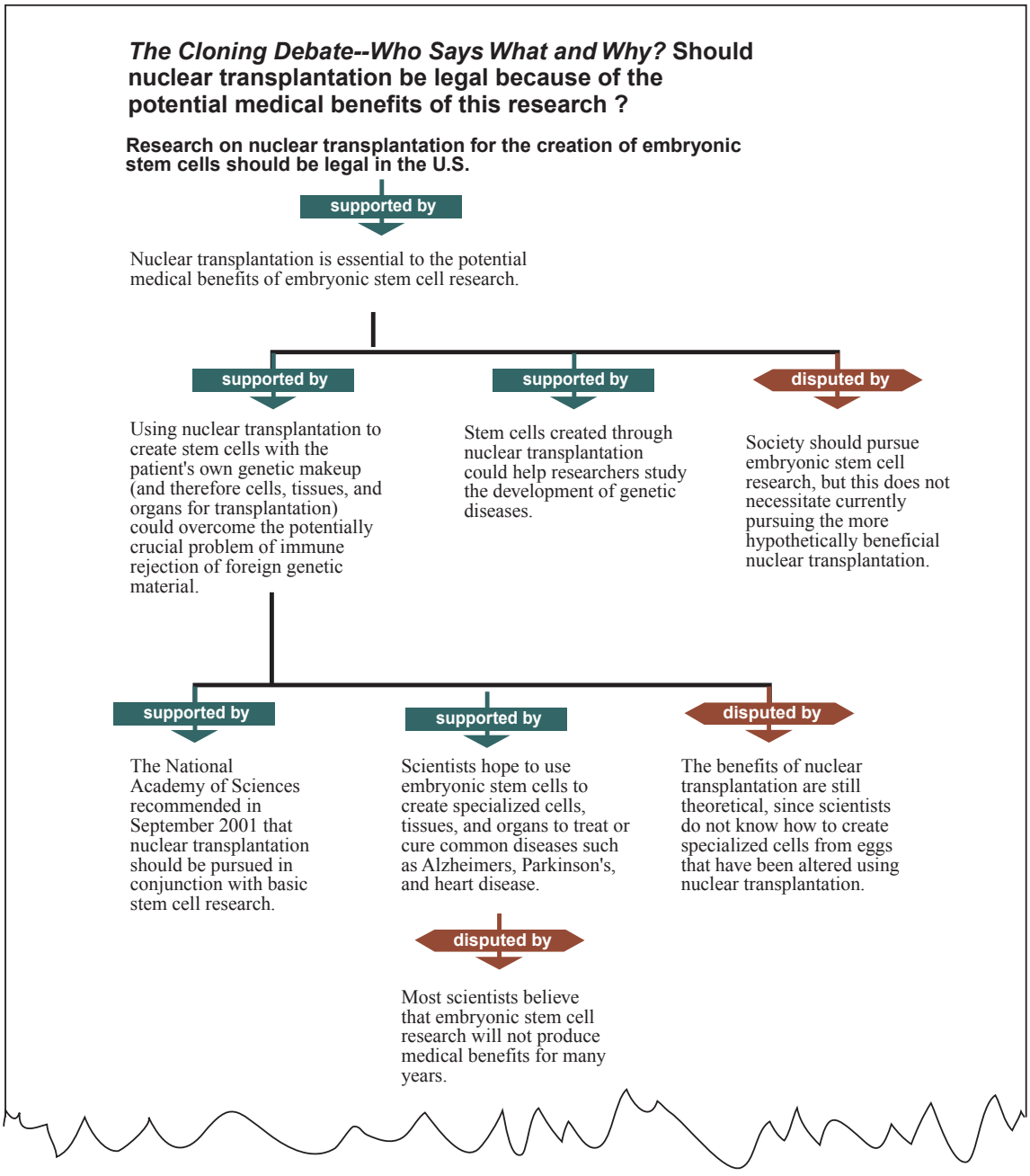
**Given the difficulty of creating stem cell lines, it is very unlikely that 60 lines exist.**
"'It is no small chore to derive, cyropreserve, and properly characterize three or four lines. . . Someone must have a factory somewhere, or we are talking about potential cell lines.'" Martin Pera, stem cell researcher at Monash University in Melbourne, Australia. qtd. in Gretchen Vogel, "Bush Squeezes Between the Lines on Stem Cells," *Science*, Aug. 17, 01

**Experimental results claims**
You may need to include more specific information in the name in order to distinguish one result from another. The names may therefore be slightly longer than on other types of maps.

**Examples (GM Food)**
Husk and silk from Bt corn harms three non-target corn pests.

Lacewings that ate corn borers that ate Bt corn leaves have a higher death rate.

**Example of several claims all of which have the Claim as the Title. (Cloning)**




**Source:** MacroVU project on Cloning

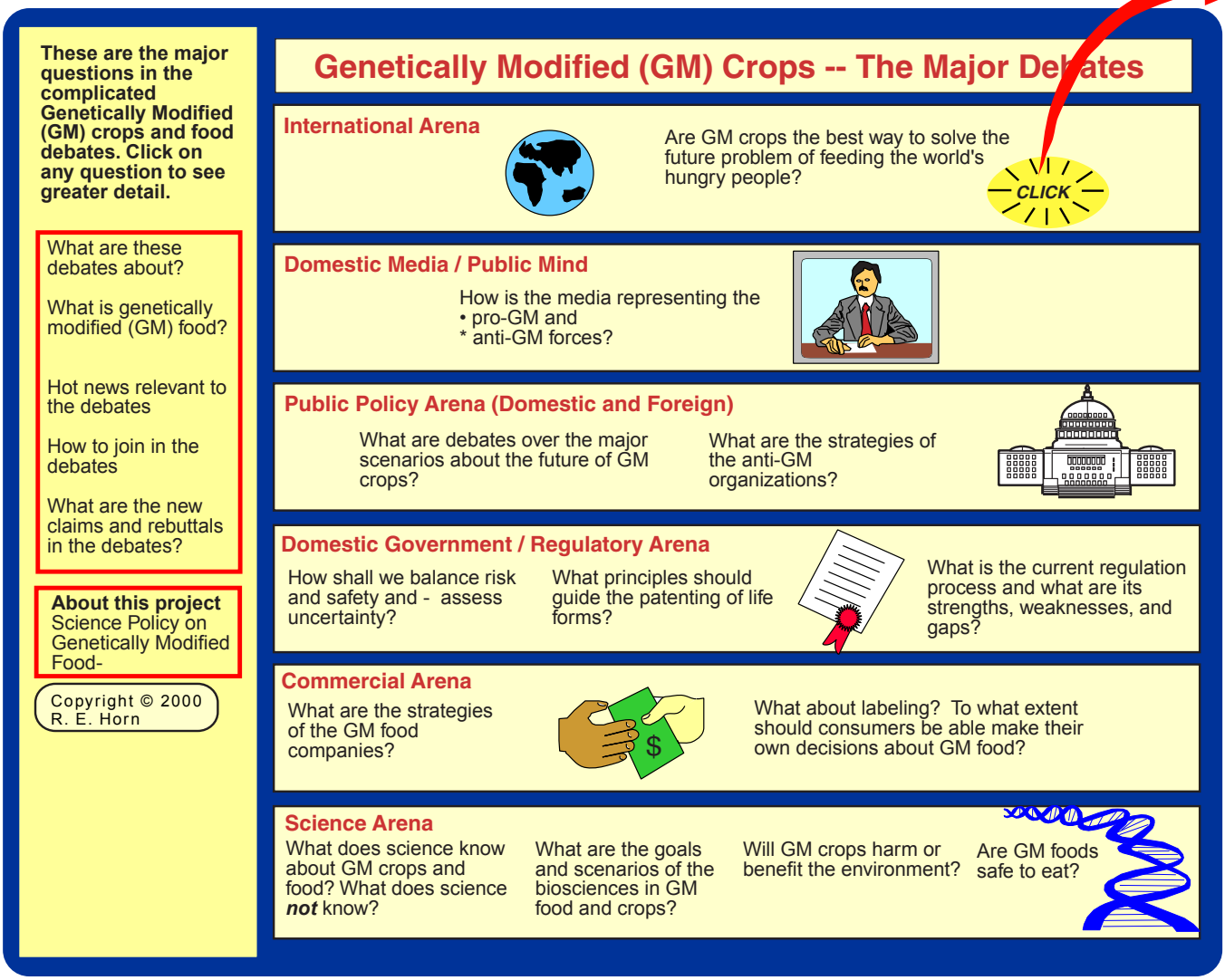
# Chapter 9 Top level entry into a group of debates

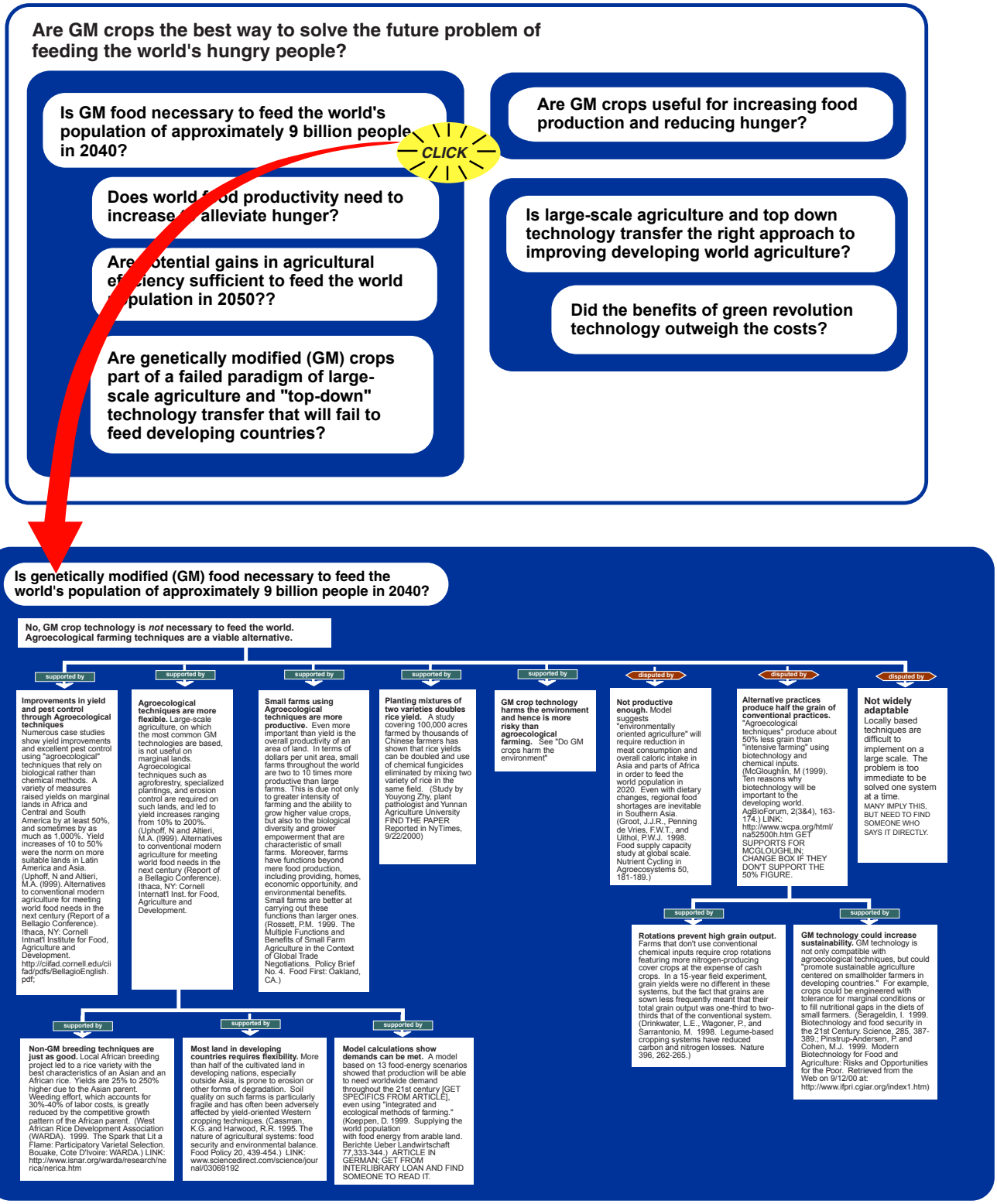
## Introduction

When presenting argumentation maps that have a rich set of subquestions, we need a way for readers to get an overview of the debate space.

## Example (GM Food)

When the reader clicks on one of these questions the detailed subquestions appear. (See next page)





# Example of top level subquestions

## The Electronic Town Meeting Debates

### Can ETMs Enhance the American Democratic Process?

Do the Prototypes Show that Electronic Democracy is Feasible?

Can the Public Actually Make Well-Informed Rational Decisions?

Will Electronic Town Meetings Allow for Sufficiently Serious Deliberation of the Issues?

Will Electronic Town Meetings Allow for Sufficient Contribution of the Various Special Interest Groups in Society?

Does the Critical and Urgent Challenge to a Sustainability of Human Life Require ETMs to Achieve New Social Consensus?

Is Doing Nothing (i.e. Not Implementing ETMs) a Reasonable Choice?

Will Electronic Town Meetings Increase Instability in Government or Decrease Gridlock and Inertia?

Will Electronic Town Meetings Distort the Policy Tradeoff Process?

### Will Electronic Town Halls Work?

Does TV work well for policy debate on the issues?

Is the American public interested enough in TV political programming for sustained watching?

Is the "town hall" metaphor a misleading concept itself?

Are many of the most important issues too complex to be thoroughly discussed on TV?

Will TV turn policy debate into sports-show like entertainment?

Can TV be fair with on-the-air moderators and off-camera agenda setting?

### Can Fair, Nonpartisan ETM Programs be Designed?

Can any electronic town meeting avoid bias in introducing its agenda?

Can a programming format be devised for fair and unbiased consensus building?

Can on-air moderators be trained to be fair and able to facilitate deliberation and recommendation?

Can issues be presented at a level of detail that matches the public's ability to deliberate?

Should voluntary call-in polling be part of an ETM?

Can scientific polling really be done accurately in a TV referendum?

### Can ETM Sponsoring Organizations Handle the Power Issues?

Would ETMS promote manipulation and demagoguery or facilitate consensus?

Will whatever organization that has financial control of the ETM sponsor will control the agenda?

Would any electronic town meeting organization just be too powerful?

### What Should be the Nature of the Sponsoring Organization for ETMs?

FOUR TYPES OF SPONSORING ORGANIZATIONS

Commercial Television

□

Government Agency

Special Interest Group

New Independent ETM Organizations

Examples of Argumentation Maps

# Introduction to Argumentation Mapping

**A MacroVU Course by**
**Robert E. Horn**
**Visiting Scholar, Stanford University**
**Distinguished Consulting Faculty,**
**The Saybrook Graduate School**
**Email: hornbob@earthlink.net**

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# Table of Contents

## EXAMPLES OF ARGUMENTATION MAPS



### A Note on Status of the Example Maps

These examples are included to illustrate different aspects of argumentation maps. For some issues, only a few only those maps needed to make a specific point are included. For some of these, the complete argumentation map is on our website.

One map is included to show how a first draft can be constructed from a single source. This enables you to get a debate started and to examine if the positions taken and claims made should have rebuttals. Two maps of the same topic show the difference between topic titles and using the claim itself as the title.

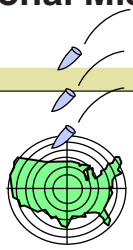
# 1. Example of Historical Summary of a Public Policy Debate (Topic Titles)

## *The National Missile Defense Debates*

***Summarizing the Current Debate***

### Should the U.S. build and deploy a midphase National Missile Defense System within the next five years?

**Yes, the U.S. should build a National Missile Defense (NMD) system to guard the U.S. against attack by rogue nations (such as North Korea, Iraq, and Iran), possessing a small number of intercontinental ballistic missiles (ICBMs) armed with biological, chemical or nuclear (BCN) weapons.**



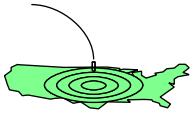
A

supported by

**Protect the country.** The primary job of the U.S. government is to protect its citizens against attack from foreign countries or terrorist groups. The threat of missile attack is serious enough to require building and deploying an NMD as soon as possible.

supported by

**Growing Threat.** The threat of nuclear attack from rogue nations is growing. By 2003, Iran and North Korea will be able to deploy nuclear missiles able to reach the U.S. (Rumsfield Report to Congress 1998.)



supported by

**North Korea tests missile.** In 1998 North Korea tested a multistage missile. The long- range nature of the weapon suggests that it is to be aimed at the U.S.

supported by

**Policy of U.S. is to deploy NMD.** "It is the policy of the United States to deploy a national missile defense." This law passed the House by 345-71 and the Senate by 97-3, and was signed by President Clinton in July 1999.

supported by

**Immoral to use nuclear weapons.** "Would we really incinerate every Iraqi because of some action by Saddam Hussein? I'm not sure we would, and I'm not sure we should." Sen. Jon Kyle, quoted in *NY Times*. 7/16/00

supported by

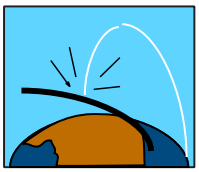
**Partially successful defense would limit damage.** The U.S. government's major objective should be to protect the country from direct attack. If National Missile Defense is possible, it should be built. Even a leaky shield would protect some Americans, and hence would be better than no shield at all. No U.S. leader would want to face a threat of nuclear attack with no defense at all.

supported by

**Preserve U.S. ability to use conventional force.** An NMD would preserve freedom of action for the U.S. to use military force in international crises. It would prevent a rogue state from trying to use "nuclear blackmail" to dissuade the U.S. from acting against such a rogue state in a confrontation.

supported by

**Develop technology.** The NMD program should be funded at a maximum in order to make sure that the U.S. develops the technology of missile defense at the optimum speed.



supported by

**Complicate attack planning.** Even a partially successful defense would complicate the planning of a potential rogue state so greatly that no rational planners could be confident in hitting the targets they want to hit and thus would be less likely to attack because of the certain risk of being destroyed.


**Note:** This argumentation map summarizes the policy debate (during the period of the second Clinton administration in the late 1990s) on National Missile Defense (NMD). Its purpose is to show the main reasons for supporting or opposing NMD.

## No, the National Missile Defense system should not be deployed.

**A**

**It is the most costly and least useful protection against the least likely attacks from weapons of mass destruction.**

supported by

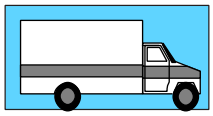
**Too costly for protection offered.** The NMD is too costly for the amount of protection it provides. The NMD provides little or no protection from a determined or crazy leader of a rogue nation and would cost $60-100 billion dollars.

supported by

**Other delivery means possible.** A determined rogue nation with the goal of attacking the U.S. could easily use other means to deliver BCN weapons.

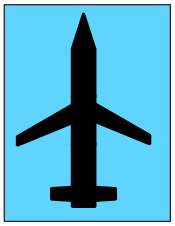
supported by

**Smuggling more likely delivery means.** Smuggling chemical, biological, or even nuclear weapons into the U.S. is a far more likely method of threatening the U.S. with BCN weapons.



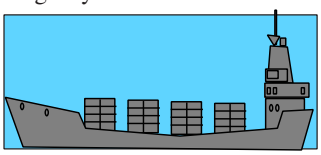
supported by

**NMD does not counter cruise missiles.** The National Missile Defense system will not protect against cruise missiles or short-range ballistic missiles fired from a boat a few hundred miles offshore.



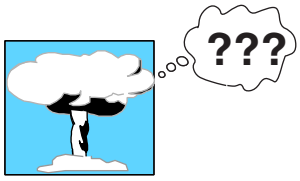
supported by

**Smuggling drugs is easy.** Smuggling drugs into the U.S. is relatively easy. Hundreds of tons of marijuana and approx. ____ of cocaine are smuggled in every year according to the U.S. Drug Enforcement Agency statistics.



supported by

**Undetectable and untraceable.** Smuggled weapons may very likely be undetectable and untraceable to their source nation and so retaliation would be precluded.




disputed by

**Protect against all delivery means.** Just because there are other means of delivery is no reason not to protect against one, especially a particularly dangerous one.

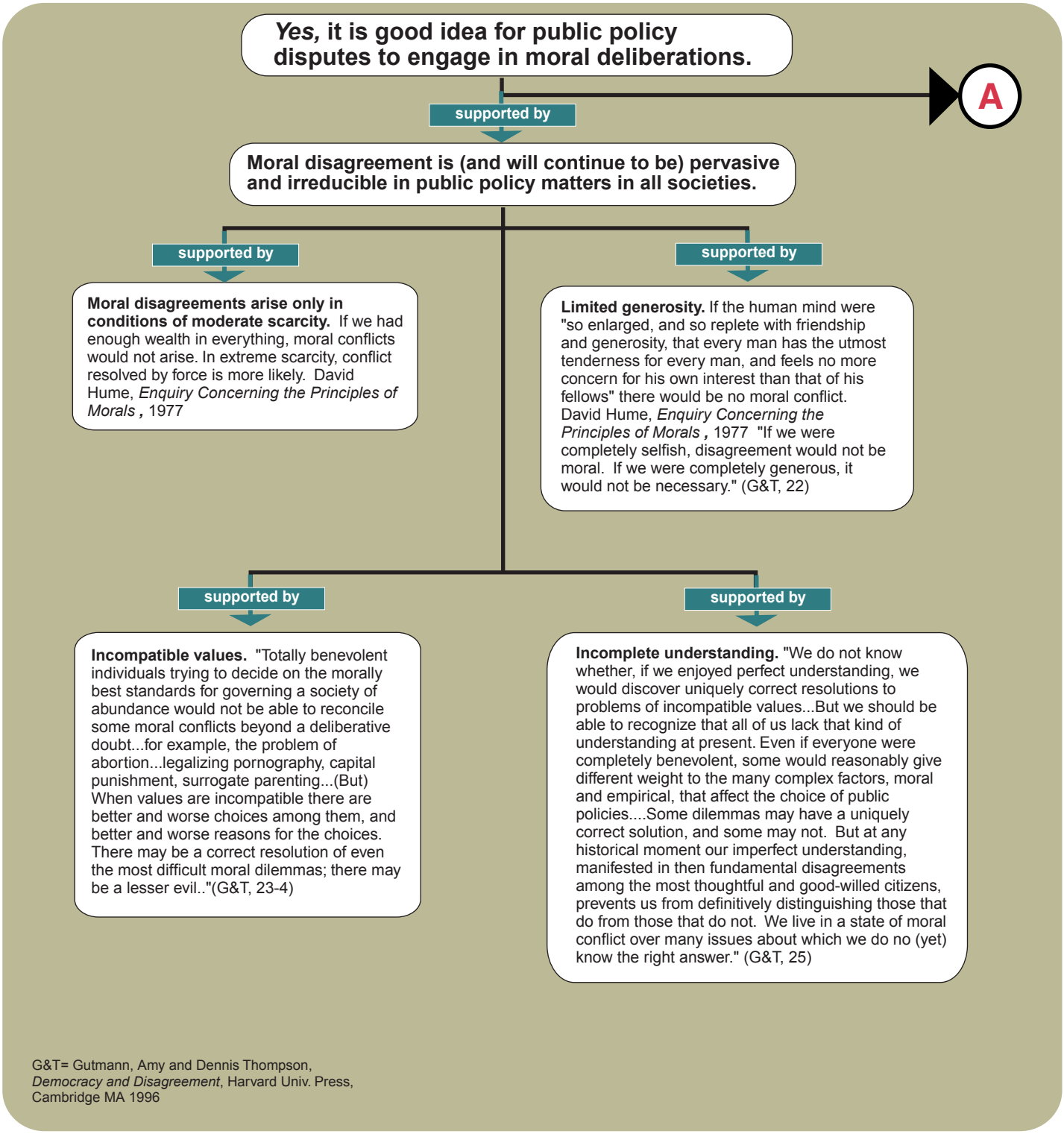
disputed by

**Missiles better than smuggling.** Missiles can be delivered quickly and directly so would be preferred by an opponent to smuggling which is inherently risky.

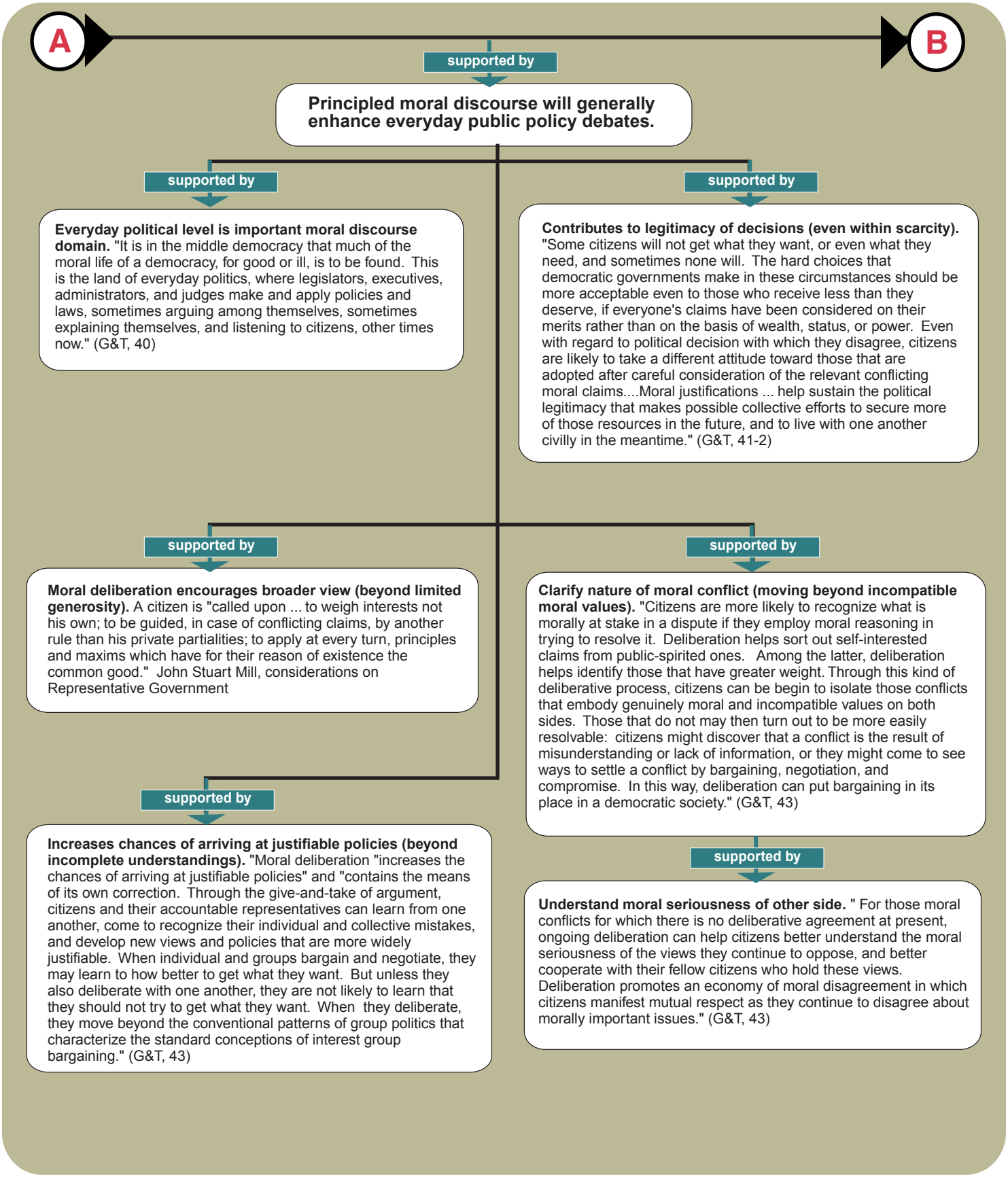
# 2. Example of the First Draft of a Map from a Single Source

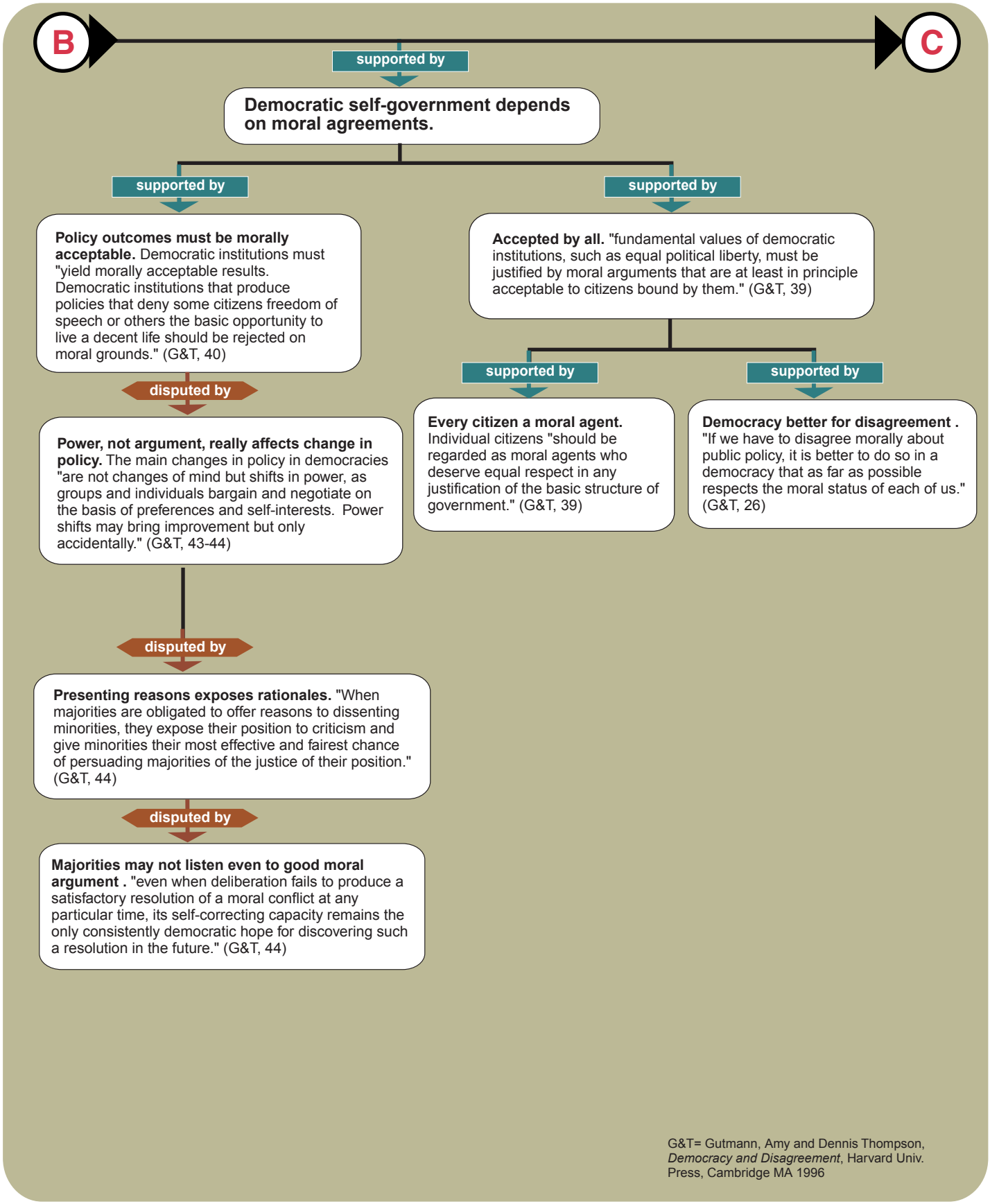
## *The Ethics in Public Policy Debates*

### Is it a good idea for public policy disputes to be explicitly ethical in nature?




G&T= Gutmann, Amy and Dennis Thompson, *Democracy and Disagreement*, Harvard Univ. Press, Cambridge MA 1996



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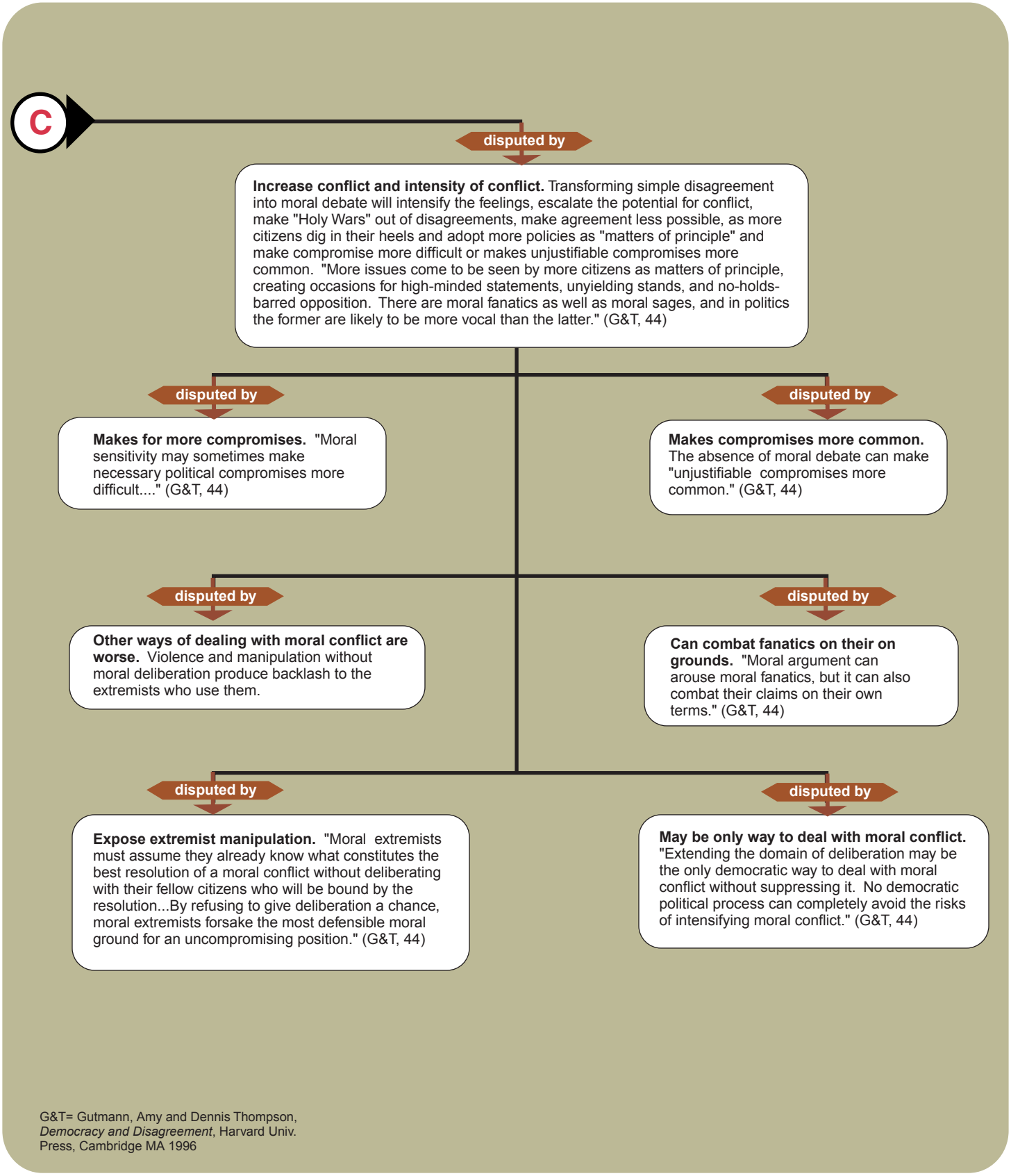



G&T= Gutmann, Amy and Dennis Thompson, *Democracy and Disagreement*, Harvard Univ. Press, Cambridge MA 1996

# 3. Example of a Debate About Terminology (Topic titles)

## *The Cloning Debate--Who Says What and Why?*

### Should somatic cell nuclear transfer to produce embryonic stem cells be referred to as "therapeutic cloning" or "nuclear transplantation"?

**Somatic cell nuclear transfer to produce stem cells should be referred to as "nuclear transplantation."**

supported by

**Improper terminology results in somatic cell nuclear transfer being wrongly grouped with reproductive cloning.** Calling somatic cell nuclear transfer to produce embryonic stem cells "therapeutic cloning" causes confusion about the acceptability of this process--resulting in "therapeutic cloning" being included in some proposed legislation to ban cloning of human embryos for implantation. "More careful use of terminology would help the public and lawmakers sort out the substantial differences between nuclear transplantation and human reproductive cloning." Vogelstein, Bert, Howard Hughes Medical Institute, and Bruce Alberts and Kenneth Shine. *Science* Vol 295, 2/15/02

supported by

A

**"Therapeutic cloning" is improper terminology because it does not reflect the research outcome.** "The term cloning . . . is properly associated with the ultimate outcome of the research, not the mechanism or techniques used to achieve that objective. The goal of creating a nearly identical genetic copy of a human being is consistent with the term reproductive cloning, but the goal of creating stem cells for regenerative medicine is not consistent with the term therapeutic cloning. The objective of the latter is not to create a copy of the potential tissue recipient, but rather to make tissue that is genetically compatible with that of the recipient." Vogelstein, Bert, Howard Hughes Medical Institute, and Bruce Alberts and Kenneth Shine. *Science* Vol 295, 2/15/02

supported by

**Accuracy of term "nuclear transplantation."** "The term "nuclear transplantation . . . captures the concept of the cell nucleus and its genetic material being moved from one cell to another, as well as the nuance of 'transplantation,' an objective of regenerative medicine." Vogelstein, Bert, Howard Hughes Medical Institute, and Bruce Alberts and Kenneth Shine. *Science* Vol 295, 2/15/02

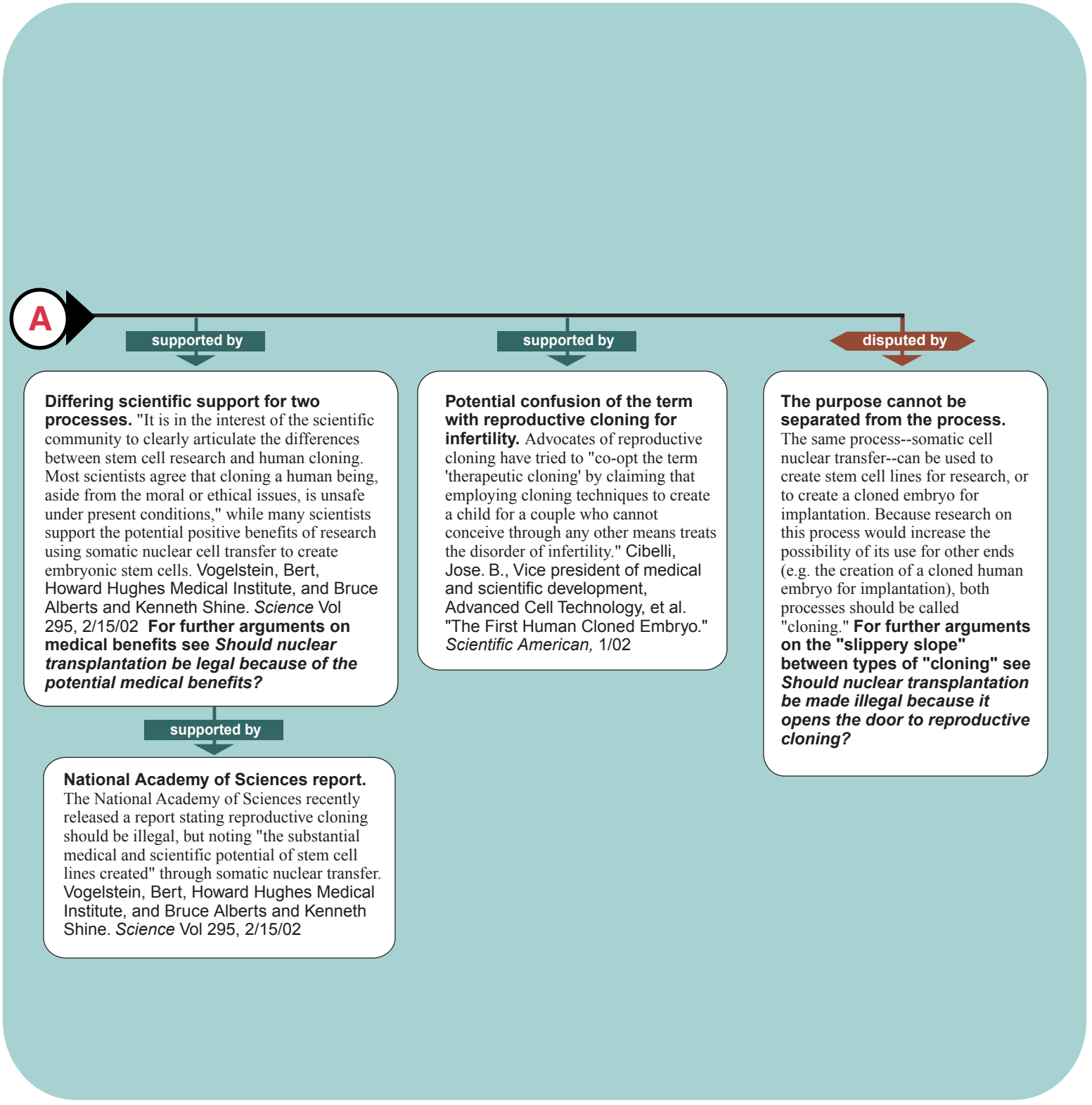
supported by

**Differing end products of the two avenues of research.** Using somatic cell nuclear transfer to create embryonic stem cells results in cells in a petri dish. Using this process to create a genetic copy of a human (i.e. a clone) might result in a sentient human if the cells were further implanted in a woman's womb and if such group of cells were to subsequently grow into an embryo (which has not yet been achieved). The intended outcomes of the two processes are, therefore, entirely different. Vogelstein, Bert, Howard Hughes Medical Institute, and Bruce Alberts and Kenneth Shine. *Science* Vol 295, 2/15/02

supported by

**Differing ethical implications of two avenues of research.** Ethical implications of "nuclear transplantation" are "similar to all embryonic cell research," while the ethical implications involved in creating a genetic copy of a human (i.e. a clone) are much more complex. Vogelstein, Bert, Howard Hughes Medical Institute, and Bruce Alberts and Kenneth Shine. Science Vol 295, 2/15/02

**For further arguments on ethical implications of embryonic stem cell research see *Should nuclear transplantation be made illegal because it is not ethical to destroy any human embryos?***



# 4. Example of a Debate About Terminology (The Claim is the Title)

## *The Cloning Debate – Who Says What and Why?*

### Should somatic cell nuclear transfer to produce embryonic stem cells be referred to as "therapeutic cloning" or "nuclear transplantation"?

**Somatic cell nuclear transfer to produce stem cells should be referred to as "nuclear transplantation."**

supported by

Using the term "cloning" confuses policy makers and the public about the substantial differences between human reproductive cloning and nuclear transplantation, leading to nuclear transplantation being included in proposed bans on reproductive cloning.

supported by

The terminology should reflect the differing research goals, i.e. reproductive cloning intends to produce a clone (a genetically identical offspring), while nuclear transplantation does not intend to produce a clone, but rather, genetically compatible stem cells.

supported by

The term "nuclear transplantation" accurately represents both the moving of genetic material from one cell to another, and the regenerative medicine goal of transplanting genetically compatible cells, tissues, or organs.

supported by

The end products of the two avenues of research are entirely different: reproductive cloning (theoretically) results in the implantation and birth of a human embryo, while nuclear transplantation results in cells in a petri dish.

supported by

The ethical implications of nuclear transplantation are more akin to the implications of embryonic stem cell research than to the more complex ethical issues of human reproductive cloning.

supported by

"Therapeutic cloning" is a confusing term because proponents of reproductive cloning sometimes argue that reproductive cloning is a "therapeutic" treatment for infertility.

disputed by

Somatic cell nuclear transfer should be called "therapeutic cloning" since the same process is used as in reproductive cloning, and research in therapeutic cloning could increase the chances of successful reproductive cloning.

supported by

The scientific community already distinguishes between the desirability of human reproductive cloning and nuclear transplantation, with most scientists favoring a ban on human reproductive cloning.

supported by

The National Academy of Sciences recently released a report saying that nuclear transplantation had important potential medical benefit, while human reproductive cloning should be banned.

# 5. Example of Argumentation Map about a Proposed Program

## *The Electronic Town Meeting Debates*

The recent political campaigns have produced a flurry of television programs, all calling themselves "electronic town meetings." Those who know something about electronic town meetings say that the television programs aren't anything like regular town meetings. Just because you have a candidate and some people asking him or her questions, does not make a town meeting.

While democracy has probably benefited to some degree from these programs, some innovators say they do not go far enough. They suggest that to solve some of our problems we could make democracy more directly responsible to the people. This series of charts will explore several of the major proposals and the arguments presented by their supporters and critics.

## Can ETM Sponsoring Organizations Handle the Power Issues?

Start Here

*Presuppositions for the major assertion on this chart*

**The United States should hold electronic town meetings on television for policy discussions, education of the electorate, and consensus building.**

**Major troubling problems raised by critics of electronic town halls can be remedied by careful design of the process.**

*Here is the proposal:*

**Electronic Town Meeting Convener,** a new organization, would have the following functions:

- devise a process for determining what are the critical issues to be deliberated on in the ETMs
- devise a method of receiving suggestions for agenda issues from the Executive and Congressional branches of government and other groups in the country
- devise a fair system of presenting the issues on the TV town meetings
- devise a fair and scientific system of polling to count the votes
- devise a fair way of bringing out as much consensus as can develop in a democratic country populated by people and corporations with different interests
- to hold electronic town meetings frequently (exact frequency to be determined)
- to provide unbiased information to the public by magazines and newspapers so that citizens can be as deeply informed as needed

**Would ETMS promote manipulation and demagoguery or facilitate consensus?**

A

disputed by

**Potential for demagoguery and manipulation of national emotions.** The electronic town meeting contains the possibility for a "national platform for demagoguery with enormous potential for manipulating the emotions of people and could intimidate Congress into abandoning itself utterly to satisfying whatever seemed the people's will that week." (Frank Borman, quoted in NY Times 6/6/92)

B

supported by

**If the administration would be in charge they could distort the framework of the argument.** The administration, if it were in charge of what would go on the program, could, through selection of speakers, the choice of questions, and the use of TV clips from situations and "real people's" testimony easily manipulate the outcome. You can see it now. Weeping children. People in wheelchairs.

disputed by

**A well designed ETM sponsor would have the designated roll to prevent demagoguery from happening on its programs.** Because of the legitimate fear of demagogic moves, the sponsors must have equally strong g mandate to prevent such situations from arising. Perhaps there will need to be new checks and balances on the organization itself.

disputed by

**The people are often ahead of leaders.** Just as important and the possibility of leaders manipulating the public, is the distinct possibility of the people being ahead of leaders. Evidence: George Gallup, Sr. is quoted by the San Francisco Chronicle (Oct. 21, 1985) as saying, "Through nearly five decades of polling, we have found the collective judgment of the people to be extraordinarily sound, especially on issues which come within the scope of the typical person's experience. Often the people are actually ahead of their elected leaders in accepting innovations and radical changes."

disputed by

**The use of the image of demagoguery is misleading and unfair.** Buried in the use of the word demagoguery is a core of images that is unfair and misleading. We all carry such images underneath our surface words. These images may be slightly different for different people. But usually, "demagogue" brings to mind a people who are directly persuaded by rhetoric and emotional messages. It brings to mind vivid images of Marc Anthony's speech in Julius Caesar, of Huey Long and Mussolini and Hitler. It is certainly unfair to summon up such images in this debate before the electronic town meeting has even been tried on TV.

ACKNOWLEDGEMENT.
I want to express my thanks to Duane Elgin, John Garrett, Paul Ray, Steve Rosell and Bob Weber for especially useful discussions or contributions to this study.

## Will whatever organization that has financial control of the ETM sponsor will control the agenda?

**A**

disputed by

**Financial control leads to dominance of programming.** No matter how the ETM organization is funded, there will be problems with funding sources trying to influence agenda and programming.

disputed by

**Current media are already dominated by limited interest.** The commercially owned media already represent particular interests. This narrow control can be expanded by properly designed ETM organizations.

disputed by

**Institutional means for reducing such attempts at dominance exist and could be duplicated in ETM sponsor.** Without giving an exhaustive list, we have examples of: funding from multiple sources (e.g. state, public, and local taxes, corporate donations, individual contributions, check-off funds on tax returns, etc.), limits on the amount of contribution, requirements for disclosure, sunshine laws for deliberations, etc.

**B**

disputed by

**Government will be more responsive to the will of the people.** The electronic town meeting would make Government more responsive, rather than less responsive, to what the people want. The program would present the Administration's best thinking and recommended solution.

disputed by

**The government can be too responsive to the will of the people.** If the idea of the electronic town meeting goes very far, politicians would just sit in front of their TVs and find out how they should vote. It would encourage them to become too spineless. We elect them because of their experience and judgment and because we believe they are the best people to handle whatever issues come up.

disputed by

**Current government gridlock is the problem, not the structure of our system.** The problem to be served is that our current system yields a form of gridlock, of inaction, at the time we need to conduct the public business with dispatch. The Congress and the President have failed to deal with the enormously growing deficit. This inability to control the deficit has slowed the growth of our economy.

disputed by

**In the short term, people can be stampeded by emotional issues.** The large swings of opinion between war and peace, for example, show that emotional issues can carry the day in the short term.

disputed by

**Repeated cycles of programs can sift out or decrease the emotionally charged aspects of issues.** Part of the design of the ETM organizations is the requirement to produce a sequence of programs that enable social issues to be dealt with in less irrational fashion.

## Would any electronic town meeting organization just be too powerful?

disputed by

**Any organization to handle TV town meetings would be too powerful.** We would be creating a monster, an extraconstitutional giant institution that in fact could control the whole political process. It is unprecedented.

disputed by

**A new nonpartisan organization would be such a public activity, it would have to be impeccable.** The amount of public attention on the ETM nonpartisan organization would be intense. The media would examine its actions with unprecedented scrutiny. The pressure to bend over backward to be fair would keep the agency in line.

disputed by

**Such and organization is not unprecedented.** The Federal Reserve Board controls our money supply. It is an independent agency. And by and large it has worked well and has preserved its independence.

disputed by

**We already have such a powerful organization in the TV broadcast media.** It is a false argument to presume that we are starting from no organization that is too powerful.. Quite the opposite. The press, especially commercial broadcast TV, already have major impacts on elections, national agenda, etc. It is a soft control of network choice of experts to be heard, topics to be viewed, etc.

disputed by

**ETM sponsor would not have monopoly on news or opinion.** A very likely scenario is that there would be many forms of feedback to elected representatives, of which the ETM would be only one. In addition, the First Amendment protects the ability of individuals and groups to go directly to the public with all forms of media.

disputed by

**New kinds of checks and balances can be devised.** Suppose there were ETM sponsors in each metropolitan area, like public TV stations and a national ETM. To get considered for the national organization's agenda might require the active sponsorship of three or more metropolitan areas over some population or some number of smaller areas. There is room for a great deal of creativity in institutional design.

**Source:** Meridian International Institute. project on Argumentation Mapping and Electronic Town Meetings 1993