

Michael Eisen's Angry, Hypocrisy Drenched Assault on Informed Consent using Massive Fallacious Reasoning while Ironically Brandishing the Banner of "Science"

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(Eisen may have set a New World Record by committing *Six Logical Fallacies with a Single Sentence.*)

The Genetically modified (GMO) food conflict surfaced in California where Food Safety proponents have put GMO food labeling on the November 2012 ballot so consumers can make an informed choice. GMO manufacturing corporations including Monsanto oppose labeling.

Though I'd written a letter to a British researcher about itⁱ the GMO campaign hadn't really caught my attention until I ran across an article, or more accurately found an article that ran over me and rational discourse.

Entitled "The anti-GMO campaign's dangerous war on science"ⁱⁱ it is written by a genetic researcher in California named Michael Eisen claiming to support Open Science.

The article caught my attention because I've been helping work for good science for a few decades, I'm aware of real attacks on science philosophy and credibility and I am a bit familiar with environmental impactsⁱⁱⁱ - so sounds good right ?

Wow, was I ever in for a disturbing surprise.

With deeply profound irony an "infuriated" Eisen claims he's fighting to defend science ("My vested interest here is science, and what I write here, I write to defend it").

Instead his article assaults and batters science reasoning and logic so relentlessly I had to set it aside for a few days to recover from my shocked dismay.

*"Well I'm angry, making sense gets in the way."
"Coupling" British TV series^{iv}*

If I'd found so much as one valid electronic breath defending science methodology, reasoning or logic in the article I wouldn't have written this. Nor does it bother me that his article only defends his own field of biology research, which includes GMOs. (It does give him expertise in the field and he takes pains to assure us he has no financial incentive in writing his article.) I am bothered that since he is speaking from a position of presumed expertise in the specific field of genetic research where many (presumably Eisen has lots of readers) will simply defer to his expertise rather than detect his faulty arguments.

What disturbs me most is how his article ignites a wildfire of false claims about GMO harm using numerous serious logical and factual errors - while fiercely and falsely proclaiming he is doing so in the name of Science with a capital S.^v -- Ouch.

The article's overarching theme is based on a fallacy formally called "Special Pleading." It means he attacks opponents for not meeting a set of standards (apparently "science reasoning") - while he violates those same standards (presumably you won't detect them). In short, hypocrisy.

His article attacks Informed Consent, GMO Food Harm, and Food Safety proponents themselves, with a non-stop blast of logical fallacies (meaning they prove nothing) and demonstrably misleading and false science "facts." I found more than two dozen fallacies that offend my preference for rational discourse and science reasoning.

Of course most articles include a minor logical error or two, including my own. However, I try to overlook others' errors, make efforts to avoid them myself, do correct them whenever I find one, and hasten to apologize. But weeks after Eisen's article was published with more than two dozen seriously harmful false claims directly on his main points, I find neither corrections nor apology for any of its wildfire of fallacies.

What really makes me uncomfortable is when Eisen claims high authority as spokesperson for "Science," then he's purporting to speak for me and anyone else who cares about science. In that case he darn well better have his logical ducks in a row.

But, he doesn't.

So let me start by disavowing that Eisen speaks for me and how I understand science and logic. I'll show why by comparing his articles many claims to formal and informal logical fallacies.^{vi}

His article's errors include --

Ignoring Elephant-In-The-Room Threat to Researchers

- 1. A Diversion or distraction called Exclusion Fallacy or Red Herring. His three thousand word article and FAQ is a good example of a diversion when Eisen's article wholly avoids mentioning the huge elephant-in-the-room issue that makes GMO research entirely one-sided and GMO safety suspicious.**

A Scientific American Editorial^{vii} (that's my own Appeal to Authority fallacy) recently expressed concern "Do Seed Companies Control GM Crop Research?" GM seed safety is seriously questionable because seed manufacturers make severe threats that they will sue any researcher who tries to conduct or publish experiments on GMO seed problems. This threat discourages research or publication of any harm from GM seeds. (I believe my Appeal to Authority is rescued by providing a credible reference to the verifiable fact of threats to researchers.)

War on Science? No, not even an attack.

Next come a half dozen fallacies with a single sentence: Ambiguity (twice), "Can't Prove a Negative," a Non-Sequitur (it does not follow), Contradiction, and "Proof by Assertion" fallacies with "*For the backers of the initiative to claim [GMOs might be harmful] as a finding of fact is an outright lie, and an outlandish attack on science."* ^{viii}

2. **Ambiguity fallacy: His claim of an "attack on science." is ambiguous about what he means by "science." Does he mean methodology, reasoning or facts - or some combination? It does make a difference. (It is also possible he means GMO scientists - but that would add an additional fallacy of falsely equating scientists with science.)**
3. **Nor does he define the careless way he uses the word "safe" (a separate ambiguity). Does he mean "not harmful" or that the harms are only relative to the benefits? (The word "safe" is not explicitly in the offending sentence, however the sentence refers to its earlier use.)**
4. **Next, assuming he intends safe to mean "not harmful" his position (claiming there is no possible harm from GMOs) requires a Proof of a Negative fallacy. However, the rules of logic prevent us from proving a negative (e.g. There is no harm). ^{ix}**

This fallacy means his position that "GMOs are safe" is invalid, proves nothing and refutes nothing.

5. **His claim of a "lie" is false since it is a Non-Sequitur fallacy (it does not follow). That's because committing a lie requires more than making a false claim, it requires the person making the claims to understand it is false.**

However, Eisen provides no evidence whatsoever that Food Safety people had any understanding that GMOs are safe - even if we assume, without accepting, his own claim that "GMOs are safe" is not shown false (in half a dozen ways).

6. **Contradiction fallacy: He claims GMO harm is a lie even though admitting "I'm sure they have a reference that justifies their making this assertion." (!)**

So -- the first part of his sentence claims its a lie that GMOs might be harmful - while later admitting Food Safety people will have a study justifying their claim. That's a Contradiction fallacy.

So he's contradicts his own harshest claim while standing in the quicksand of four other logical fallacies in a single sentence to exclaim this attack. That is so wrong.

7. **Proof by Assertion fallacy. This leaves his seemingly powerful assault with no valid support (there is no attack on science, no lie, and no valid argument supporting anything he claims with that sentence). That means his sentence taken as a whole is**

worthless, making it a mere opinion; not a logical argument. "Proof" without facts is called a Proof by Assertion fallacy.

That's six fallacies, six separate reasons, why his single sentence is false.

8. Eisen then makes a pretty serious claim that Food Safety people are waging "an aggressive (sic) war on science." But it also turns out baseless, called an Appeal to Motive fallacy.

His article provides zero evidence -- no documentation, quotes or citations that Food Safety proponents have expressed any desire to attack science.

9. Slippery Slope Fallacy: (a GMO notice on food products will "reify the war on science"). Again, Eisen's article provides zero evidence of this claim.

So while his article's incendiary title claims "The anti-GMO campaign's dangerous war on science" - the article provides nothing supporting that apparently baseless conjecture. It does give evidence of an attack on his opinions, however that's mere politics.

Are GMOs Harmful?

Eisen tries arguing that GMOs are not harmful.

Safety is Impossible to Prove -- "Can't Prove a Negative "

"Absence of evidence is not evidence of absence."

We've already covered how safety is an impossible Proof of a Negative fallacy, meaning it is unprovable. Maybe that's why Eisen ignores that, and adds no less than seven more logical fallacies on this point. Here are some from the quote: ("scientists have repeatedly and consistently demonstrated that GMOs are safe [not harmful].")

10. Biased Sample Fallacy:

Because of the Seed manufacturer's threats to sue researchers who try to conduct or publish safety experiments on their seeds, there is essentially no research on GMO seeds harm. This means that any claim that GMOs are safe is based purely on data scoured of negative effects. This makes GMO safety claims as meaningless as asking a grandmother if her grandchildren are the most beautiful kids in the world.

11. Shifting the Burden of Proof Fallacy, Argumentum ad Ignorantiam. The above quote also falsely implies that the burden of proof is now placed with Food Safety proponents.

"The burden of proof is always on the person asserting something. Shifting the burden of proof, a special case of Argumentum ad Ignorantiam, is the fallacy of putting the burden of proof on the person who denies or questions the assertion. The

source of the fallacy is the assumption that something is true unless proven otherwise."

12. Ambiguity. He claims "making GMOs is not inherently dangerous."

Does Eisen intend the term "dangerous" means "always harmful," or "never harmful"?^x That's another ambiguity fallacy. Further, does he mean GMOs are "not harmful" all by themselves, or that any GMOs harms must be ignored unless compared to the benefits -- as he does later in the article?

13. False Analogy and Contradiction fallacy: He argues there's no meaningful difference between natural genetic evolution and laboratory Genetic Manipulation ("... plants have evolved a dizzying array of defense mechanisms, including the production of a diverse arsenal of chemicals targeted at the insects and other pests that afflict them."), but then admits "I can think of dozens of ways that inserting a single gene into, say, soybeans could make them lethal to eat."

That begs me to ask him to compare the two with "So, have any soybean species evolved natural lethality to humans?" If they haven't - then its a false analogy.

14. Here's an "Apples and Oranges" fallacy ("the net effect of the GMO – Roundup Ready - has been positive.").

This is the false claim that GMO benefits and harms are somehow directly comparable. With this faulty logic, he claims that we can directly compare benefits (e.g. promise of more food to humans in another country) -- to the harms (e.g. that GMO food could cause to humans, animals or ecosystems) even though they are completely different types of populations and effects.

15. Baseless Assumption of a "Standard of Review" fallacy blended with an Appeal to Motive Fallacy. This Compound Fallacy (three fallacies with a single sentence) **claims that only GMO benefits are valid.** ("the net effect of the GMO – Roundup Ready - has been positive.").

Here he apparently asserts that if he can show the tiniest more benefit than Food Safety proponents can show harm - then you must ignore all the harms GMOs cause to humans and ecosystems. The problem is both benefits and harms are value judgments, and there is no unit of measure to unarguably compare the two.

Appeal to Motive: The writer claims to know everyone's personal values when comparing benefits to harm. Some refer to an intrusive interpretation of another's thoughts as "mind rape."

Different "Standards of Review": He seems to assert that if he can show the tiniest more benefit than Food Safety proponents can show harm (ie 51 % vs 49 % percent - of what?) - then we must ignore all the harms GMOs cause to humans and ecosystems.

This is essentially the "Preponderance of Evidence" standard of review used by United States civil courts.

Contrast that with the Precautionary Principle that many prefer where any reasonably potential harm (i.e. such as 5 percent as much harm as benefits - if it was even possible to measure such a thing) we should find alternatives - regardless of the benefits. This is closer to the "Probable Cause" or "Fair Argument" standards of review used by United States civil courts.

- 16. Non-Sequitur (it does not follow) Fallacy and Hasty Generalization Fallacy. Eisen's article falsely implies GMO scientists have complete control over the effects of their experiments, that only the properties they want are transferred.**

This is a fallacy because benefits and harms are entirely different kinds of phenomena.

Benefits and harms of laboratory created or modified biology (sometimes called "Frankenfoods") is the Wild West of research; it is overflowing with unknowns.

Some researchers may believe they know what benefit a specific section of DNA provides and even have some control over it. But that is totally independent of whether we can even imagine all the harms that same section of DNA can cause us, or other species or ecosystems.

While Eisen admits awareness of serious misconduct in a related industry ("I am also skeptical when industries assert that their products are safe, because so often these claims have turned out to be false.") he seems to believe somehow his own field is immune to it.

Perhaps Eisen was remembering Thalidomide. Manufacturers claimed studies showed Thalidomide "safely" provided a benefit to millions of mothers. It was sold as "non toxic," "completely harmless for infants," and "harmless even over a long period of use." -- Sound familiar? Only later did they have to answer to the serious birth defects it caused real children.

Similarly, we know antibiotics cure us of bacterial diseases, but no one imagined billions of pounds of them would be fed to farm animals. Nor did anyone anticipate millions of pounds them would be flushed down toilets to contaminate streams and lakes with harmful and still (begging your pardon) unplumbed consequences.

My own research in environmental impacts shows the numbers and the depth of environmental impacts we find is continually growing - not shrinking - in every field of science. That growth is particularly strong in toxics. We used to be concerned about chemicals in parts per thousand or parts per million, now we know of harm by chemicals in a few parts per trillion (a twentieth of a drop of water in an Olympic sized swimming pool).

The Thalidomide case illustrates how benefits and harms are never studied equally or at the same time. Worse, studying GMO harms is avoided like a hot potato by independent GMO researchers because of legal threats.

It is almost a cliché how serious harms are covered up for years or decades (as long as possible) by industries that make hazardous products. Just last month, July 2012, a woman finally won a multi-million dollar suit for being born without limbs due to Thalidomide^{xi} even though it hasn't been sold or prescribed for 50 years.

Legal loopholes and Bureaucrats Ignoring Impacts

Bureaucrats team up with Legal loopholes to allow GMOs to be sold as food in Britain without any approvals; nor is any environmental impact analysis required. The US Supreme Court decided in 2010 that gene flow to a wild species is a potentially significant environmental and economic impact and does require an Environmental Impact analysis - even though USDA, APHIS, FDA and EPA tried to ignore them.

Since GMO Manufacturers threaten lawsuits against any researcher who does experiments with their seeds, this means GMO Manufacturers, with a poor reputation for credibility already, are the sole source of experiment data for GMOs. That model worked poorly for consumers of Tobacco, Asbestos and Lead industries.

- 17. Diversion, Exclusion, Myopia or Tunnel Vision Fallacy. The whole article falsely implies that there are no possible harms GMOs can cause.**

This is false as evidenced by the non-target effect including "Wild Outcrossing" (versus laboratory outcrossing)^{xii} which is the unintended pollution of GMO genes to native populations of plants or animals or non-GMO crops. Wild outcrossing has already been observed at distances beyond 10 miles. It could potentially effect food crops globally in a runaway manner like invasive species (the most dangerous of the three types of environmental impacts^{xiii}) - yet that phenomena is not evaluated by any US government agency in its approval process.

The European Environmental Agency found evidence that wild plants (weeds) getting insect resistance could get a significant competitive advantage. Could novel plant genes (e.g. resistance to pesticides) get transferred to microorganisms during decomposition? While it has only been seen in special laboratory conditions, it has occurred.

- 18. His statement "I have no concerns about the safety of GMOs." is an Irrelevant Conclusion, a distraction fallacy.**

- 19. Appeal to Authority and a False Analogy Fallacy by falsely equating decisions by political bodies, Regulatory agencies, with facts generated by science research. ("Regulatory agencies in the US and Europe have consistently rejected claims that plants that produce their own 'Cry' (proteins) cause problems in either humans or farm animals.")**

Just because a political body, a Regulatory agency, has rejected a claim does not mean that a substance will not harm humans or other biota. Regulatory agencies regularly make decisions contrary to science facts due to political pressure and inadequate expertise.

20. **Factual Error.** He gets a science fact wrong on a pesticide point claiming "Glyphosate (Roundup's active ingredient) is generally considered to be inert in humans."

That's misleading, but actually backwards. "[Glyphosate] *laboratory studies have found adverse effects in all standard categories of laboratory toxicology testing.*" and "*Glyphosate-containing products have caused genetic damage in human blood cells,*"^{xiv})

21. **False Analogy fallacy:** He equates synthetic pesticides with plant defense mechanisms - so you shouldn't fear synthetic pesticides.

Synthetic pesticides and plant defense mechanisms are not identical phenomena, have dramatically different effects, all of which is only superficially studied and understood.

22. **Appeal to Consequences - Relevance Fallacy** ". . . the challenges of feeding our growing population, and believe in the power of biotechnology to not just make agriculture more efficient, but to make it better for people and the planet. "

While emotionally persuasive to me initially, it is not relevant to a person's personal choice of whether a consumer gets informed or not. Of course there's no guarantee, insurance or accountability, so the promise or consequences might turn out false.

23. **False Equivalence, False Analogy fallacy.** He equates the pesticides made in chemical corporations with natural pesticides. ("natural pesticides have been found in every plant in which they have been sought") But he provides no evidence that "natural pesticides" kill anything as opposed to merely discouraging pests.

Personal Attacks Are Distractions

Eisen steps outside the bounds of civil discourse by employing several Ad Hominem Fallacies; indeed four more fallacies with a single sentence. Two fallacies are closely related and two are independent fallacies (and a further ambiguity fallacy is identified just for good measure):

24. **Equivocation/Ambiguity Fallacy and False Attribution Fallacy.** Amazingly while he claims to know Food Safety proponents' motives, goals and thinking (e.g. claims Food Safety people are waging "an aggressive (sic) war on science.") - he refers to them ambiguously and fails to provide even one quote or citation.

25. He raises a "Guilt by Association Fallacy" by associating and equating Food Safety people with "climate-change denying brethren" without any evidence.

He links GMO opposition to climate-change skeptics (again providing zero evidence) with "... anti-GMO campaigners have joined their climate-change denying brethren."

It does not matter what anyone's position on either issue is - the fallacy is associating and equating two groups - with no evidence.

26. There is also a "Poisoning The Well" fallacy (attack an opponent's character so you disregard their arguments) or "Genetic Fallacy" (The source/person of argument is bad therefore all arguments are bad), and Appeal to (poor) Authority Fallacy. While the article does commit all three and while they are not exactly identical, for purposes of simplicity lets consider them as just one.

The phrase "climate-change denying brethren" implies both groups are . . what - bad, or not credible? (we could ding him with another ambiguity fallacy, but lets let that go.)

27. Ad Hominem fallacy. Since some people have bad feelings about climate-change skeptics this also makes the baseless association a personal attack - independent of the attack on their credibility.

28. Appeal to Motive Fallacy and Baseless Assumption Fallacy: GMO Food Safety people are "not open to being convinced."

Again, the article never provides any evidence. Worse, it boldly asserts (not merely "questions") the writer knows Food Safety proponent's mindset and response. (Another intrusive interpretation of an opponent's thoughts.)

His article has several more fallacies, but I think you get the point.

Not One Valid Argument?

Now his is a long article, its anti-logic makes it offensive to read, and it is possible I may have missed something, however, I could only find a single trivial point of his dozens of claims that is *not* based on a logical fallacy, and that tiny point is easily refuted.^{xv}

This means Eisen fails to make any valid arguments; at least not rationally. (While it is a logical fallacy, the promise of feeding starving people persuades me emotionally until I realize it is a complex, unaccountable empty promise.)

Il-logic Summary

Using this wildfire of numerous serious logic and fact errors of his own Eisen, presumably familiar with logic and scientific methodology, has the arrogance to accuse Food Safety people of wielding "egregious misinformation, bad science, pseudoscience and non-science."

Since Eisen's article doesn't provide any real evidence of that (his attempts only result in multiple fallacies), just for reference, let's reflect on how his article fares against his own charges.

- "Egregious Misinformation" -- Eisen's misleadingly baseless, inflammatory and vilifying title, false accusation of lying, and grossly contradicting the best available science in claiming Glyphosate (Roundup's active ingredient) is safe.
- "Bad Science" -- (that's ambiguous so I have to cover all bases) Food protectors aren't conducting GMO experiments. Those doing GMO experiments are censoring all research on harms. So who is doing the bad science? Does he mean "Bad Logic" instead? Since he provides only a single quote (his interpretation of it is a double fallacy) - all we have are his own violations of logic - which don't inspire much confidence. What else could he mean by "bad science?"
- "Pseudoscience and Non-Science" -- What do you call six logical fallacies in a single statement added to another 20+ logical fallacies including personal attacks?

All while asserting "...public policy should be based on good data and solid reasoning."

While his article claims it is defending science, it doesn't actually do so, instead he too cleverly manipulates science reasoning using a laundry list of common logical fallacies.

Directly contrary to the writer's claims, it seems to me if anything is damaging or undermining science reasoning or logic - it is his article. He does so by falsely (at top of his admittedly "infuriated" electronic lungs) and broadly implying he or his pro-GMO side alone can claim the mantle of science in the GMO dispute -- and then twisting logic and science reasoning upside down for his field's gain.

Now, a fallacy alone does not mean the truth is opposite his claims ; just that his specific claims are false, worthless or meaningless. Then again while Eisen's article is worth essentially zero logically, is worth a lot for GMO advocates because it throws a lot of mud wrapped in fallacies (a couple dozen patently false claims now have a life of their own). This serious damage to rational GMO discourse giving GMOs a huge profit in arguments with a trivial investment in fact and worthless rationale.

This is an unfortunate lesson in how just because someone is trained and hired as a scientist - they don't always debate with logical or scientific reasoning.

Both Sides Use Science but with Different Values and Priorities

I'm not sure Eisen understands that Science facts are inherently provisional; that they never provide a final answer. New evidence shows up daily. We never finally prove anything, yet his article proclaims facts as though they are 100 percent true and carved in stone for the next millennium.

Nor does Eisen ever mention (or realize?) that he and Food Safety proponents might fully embrace science but have different philosophies or values. Not a different view of science methods, reasoning or facts, but different judgments on how to apply scientifically generated facts to potential harm from GMOs to the real world, to real people, to real farmers who don't want GMOs, and to actual living animals and ecosystems.

That's not a conflict with science methodology or facts, its just another political dispute between different values for harm and benefit. Eisen apparently sees all benefits and no harm, and Food Safety people presumably find serious potential harm and little to no benefits.

As best I can determine from his article the highest priority for Food Safety people is the ability to make informed food choices called Informed Consent.

What is his highest priority? Its not clear. Eisen admits he's fighting Informed Consent. (Labeling GMO foods is not a Notice - its a "Warning" and "It must be stopped !")

But compare that with his earlier statement "I support the right of people to make choices about what they eat, and think we should provide them with the information they need to do so." Those seem mutually exclusive, so which is it? Who is confused here?

Whatever Eisen's highest priority is, it is clearly not food safety, informed consumers or science reasoning.

In any case, he seems content with GMO foods and says he believes they are safe. That puzzles me because he writes that he's "a big consumer of organic foods." I want to ask him - Why, what are your reasons? I wonder if he believes that GMO food that is otherwise organically grown can be labeled "Organic?"

Eisen Should Support GMO Labeling

However if he is sincerely as thrilled with GMO foods as he says and believes they are safe - - doesn't it make sense that Eisen should support labeling them so he can avoid non-GMO foods?

Summary

In my years of reading about pseudo-science and environmental impact analyses (often hard to tell them apart) I've read some repulsive reasoning purporting to be science. However, I cannot remember encountering such a wholesale abuse of science reasoning, so many serious logical fallacies as Eisen's article contains. (Because he does it in so few words, it has a high fallacy density.)

This is so much worse because they are committed by someone who should know better; someone who should instead be setting a good example. Eisen's article is irony and hypocrisy writ large.

Here's what I now understand after carefully reviewing his article.

- There is no war or attack on science (or lie) by Food Safety proponents contrary to the article's inflammatory title
- GMOs cannot be proven harmless
- Researchers are threatened by Seed Makers including Monsanto
- The article provided no fallacy-free pro-GMO arguments, and
- Eisen should support labeling foods as GMOs so he can avoid GMO-free food.

Clean-up Suggestions

We all make errors, including me, and I can forgive a sincere one. Eisen should correct that title which was admittedly written in anger, and it might show good faith to delete or repair the other couple dozen logical fallacies while he's at it.

I believe Eisen owes the science community a public apology for his gross misuse of logical fallacies in the name of defending science.

I also hope he can summon up some courtesy to offer the Food Protection advocates an apology for his angry misuse of logical fallacies to attack them.

Then maybe they can all sit down together and discuss this rationally.

**If we want truth to reign when science is involved,
isn't fallacy-free discourse essential for that goal?**

Notes and References:

ⁱ The only other contact I've had with the GMO conflict is a cordial letter I penned to a British GMO researcher who seemed to have a similarly misguided ownership of Science and failed to distinguish the difference between science methods and facts and the politics of applying them to human values. When he failed to respond I published it on the web. "Runaway Environmental Impacts from GMOs Need Investigation" (<http://daviddilworth.com/pol/runaway-environmental-impacts-from-gmos-need-investigation/>)

ⁱⁱ "The anti-GMO campaign's dangerous war on science "
<http://www.michaeleisen.org/blog/?p=1082>

ⁱⁱⁱ David Dilworth is the editor of likely the largest database of environmental impacts which compiles the best available science on over 1,000 different kinds of environmental harms, mitigations, and thoughtful, reasonable alternatives to avoid those harms.
<http://daviddilworth.com/env/about/>

^{iv} Susan in Patrick's Love Cupboard episode

^v Eisen's abundant grammar and spelling errors sometimes make his claims ambiguous and confusing to confidently comprehend.

^{vi} List of Fallacies http://en.wikipedia.org/wiki/List_of_fallacies.
See also Fallacies, by Stephen Downes <http://onegoodmove.org/fallacy/toc.htm> and http://www.freethoughtpedia.com/wiki/Logical_fallacy_summary

^{vii} "Do Seed Companies Control GM Crop Research?", Scientific American, Oct 2009
<http://www.scientificamerican.com/article.cfm?id=do-seed-companies-control-gm-crop-research>
"Scientists must ask corporations for permission before publishing independent research on genetically modified crops. That restriction must end"

^{viii} Full quote -- "For the backers of the initiative to claim otherwise as a finding of fact is an outright lie, and an outlandish attack on science."

^{ix} Argument from Ignorance Fallacy: The rules of logic prevent us from proving a negative.

While the article carefully never precisely states "GMOs are not harmful" it almost puts on a circus to falsely imply for ordinary readers that there is proof of a negative in several different ways: ("I have no concerns about the safety of GMOs", "GMOs are safe", "the net effect of the GMO ... has been positive" and "There is no compelling evidence of any harm arising from eating GMOs, and a diverse and convincing body of research demonstrating that GMOs are safe.")

^x -- or somewhere in between that is adjustable depending on what question he is answering.

^{xi} "The Tragic Children of Thalidomide"
<http://multinationalmonitor.org/hyper/issues/1987/04/thalidomide.html>

"Grunenthal (a Thalidomide manufacturer) then attempted to stave off adverse publicity. Through connections with a friendly editor of a German medical magazine, Grunenthal successfully delayed publication of a paper which showed a strong link between thalidomide use and peripheral neuritis. But the flood of evidence continued. "Sooner or later we will not be able to stop publication of the side effects of Contergan," an internal Grunenthal memo read. "We are therefore anxious to get as many positive pieces to work as possible."

"... the company's clinical research director was forced to admit that thalidomide caused serious problems. In a memo dated May 10, 1961, he wrote, *"I personally maintain the view that there is no longer any doubt that, under certain circumstances that I am unable at present to understand or explain, Contergan can cause the nervous injuries described."* He then added, *"I consider it simply impossible that the company should officially adopt the standpoint that these reports are exclusively a matter of unqualified polemics."*

^{xii} When one intends to inject a gene in a species it can be called "transfer." When it occurs in wild or native species it is accurately called "pollution;" it is a euphemism and probably doublespeak to call wild GMO contamination "transfer."

^{xiii} See "Runaway Environmental Impacts from GMOs Need Investigation"
(<http://daviddilworth.com/pol/runaway-environmental-impacts-from-gmos-need-investigation/>)

"Given the marketing of glyphosate herbicides as benign, it is striking that laboratory studies have found adverse effects in all standard categories of laboratory toxicology testing. These include medium-term toxicity (salivary gland lesions), long-term toxicity (inflamed stomach linings), genetic damage (in human blood cells), effects on reproduction (reduced sperm counts in rats; increased frequency of abnormal sperm in rabbits), and carcinogenicity (increased frequency of liver tumors in male rats and thyroid cancer in female rats)."

"Glyphosate-containing products have caused genetic damage in human blood cells,"

"In animal studies, feeding of glyphosate for three months caused reduced weight gain, diarrhea, and salivary gland lesions. Lifetime feeding of glyphosate caused excess growth and death of liver cells, cataracts and lens degeneration, and increases in the frequency of thyroid, pancreas, and liver tumors."

^{xv} The only valid (sub)argument I found (his explanation of corn's origins may be fine but doesn't directly support his claims) is "The relatively low rate of such horizontal gene transfer in multicellular organisms like plants and animals compared to bacteria is more a reflection of reproductive barriers and the defenses they have evolved to prevent viruses from hitchhiking in their DNA . . ."

He's saying that humans and plants have evolved barriers to block natural genetic transfer, preventing viruses from modifying our genetic structure. That's good.

But then he implies, without any persuasive reasons or asking our permission, that we must allow GMOs to bypass those barriers that may have taken our bodies millions of years to develop.

Well, I must respond "Why would our bodies and plants develop reproductive barriers?" Is it perhaps because those reproductive barriers allowed our species to survive all these millennia? Yet Eisen wants us sit back and allow GMOs to blast past those hard won barriers that keep viruses from modifying our genetic structure so GMO food and genes can get directly inside us and any animals that eat GMO crops.
