

# Critique of Tony Lawson on Neoclassical Economics

Victor Aguilar

[www.axiomaticeconomics.com](http://www.axiomaticeconomics.com)

## Abstract

*I review Tony Lawson's paper, [What is this 'school' called neoclassical economics?](#) Varoufakis and Arnsperger also wrote a paper asking, "What is Neoclassical Economics?" I review it [here](#). They define neoclassical as methodological individualism, instrumentalism and equilibration, which Lawson explicitly rejects, writing, "the core feature of neoclassical economics is adherence not to any particular substantive features but to deductivism itself in a situation where the general open-processual nature of social reality is widely recognised at some level."*

## Conflating Taxonomy and Deductive Logic

Unlike Mark Buchanan, who has meteorologist envy, Tony Lawson has biologist envy. Who says pluralism is just an excuse for the World Economics Association to blacklist mathematicians? These pluralists are all unique! Buchanan (2013, p. 206) writes:

*The British Meteorological Office, for example, then [1900] maintained a huge and ever-growing index of weather maps recording air pressures, humidity, and other atmospheric variables at stations scattered around the country, day by day, stretching well into the past. It was a history of the weather, and meteorologists consulted it as a "look it up" guide to what should happen next. The idea was simple. Whatever the current weather, scientists would scour the index of past weather looking for a similar pattern.*

Weather forecasting in those days was just a catalog of proverbs: red sky at night, sailor's delight; red sky in the morning, sailors take warning; rainbow in the morning gives you fair warning; halo around the sun or moon, rain or snow soon; etc. A "scientist" was just one with access to a bigger and more detailed catalog of proverbs.

Biology back then had a very similar system, known as taxonomy. They had an ever-growing index of critters organized into species, genus, family, and so on, which they consulted as a

“look it up” guide. The idea was simple. Whatever they knew about a recently spotted critter, scientists would scour the index of known critters looking for a similar pattern.

For example, if they caught a fleeting glimpse of a nocturnal predator with a bushy tail and other cat-like features, they would think, “Genus: Felis.” Then, without having ever seen one being born or having looked at the underside of a female, they could state with some certainty that, because felines are placental mammals, these critters develop in their mother’s placenta, are born live and then suckle from her teat. But the system was hardly fool-proof. If the critter is from the genus *Dasyurus*, then it is a marsupial.

The problem was that biologists had no explanation for *why* there were all these different types of plants and animals, in the same way that meteorologists had no explanation for *why* air pressure drops before a storm. They had seen roughly the same thing happen often enough in the past that they could – in a vague sort of way – predict that similar things might happen in the future. But taxonomy for its own sake – compiling look-it-up tables of things that one has no explanation for – is just empiricism. This is the behavior of hobbyists who are incapable of reading the literature – too much math – yet take voluminous notes on “experiments” that they are conducting. They feel that this activity alone qualifies them as scientists, in spite of the fact that real scientists who are familiar with the equations describing the phenomena have expressed no interest in looking through hobbyists’ stacks of spiral notebooks.

Everything changed for biologists after the publication of “*The Origin of Species*,” by Charles Darwin, in the same way that everything changed for meteorologists after the publication of “*Weather Prediction by Numerical Process*,” by Lewis Fry Richardson. I discuss Richardson’s work at length in my [review of Mark Buchanan](#), and I think we are all familiar with Darwin’s work. So let us skip directly to the big mistake made by Lawson, Buchanan, and others associated with the World Economics Association.

***Tony Lawson is conflating taxonomy and deductive logic!!!***

Like finding a car upside down in a tree, your efforts to rescue the driver are distracted only slightly by speculation on how in the world he managed to get himself into such a predicament. Taxonomy and deductive logic actually have nothing in common, as will be shown shortly.

First, let us list some quotations that make it clear that Lawson sees these two methods as being synonymous. Indeed, even when referring obliquely to taxonomy, Lawson does not neglect to put deductivist in parenthesis to remind us that it is supposedly a synonym; e.g.

lambasting “the overly taxonomic (deductivist) orientation to method (p. 972)” or yearning for the “demise of all overly taxonomic (including deductivist) approaches (p. 973).”

In the following quotations, note that Lawson uses the terms correlations, uniformities and event regularities to mean similarities in one’s look-it-up table, like the predatory nocturnal behavior and bushy tail that might lead a taxonomist to conflate *Dasyurus* with *Felis*.

*“Deductivism is just the doctrine that all explanation be expressed in terms of ‘laws’ or ‘uniformities’ interpreted as (actual or ‘hypothetical’) correlations or event regularities.” – p. 950*

*“Veblen’s assessment of the later avowedly classical economists [J.S. Mill and Cairnes], then, is that their scientific preconceptions of normality took the form essentially of correlations or event regularities... This is a method of analysis, peculiar to these classical economists, that, according to Veblen, renders them a ‘deductive school’, and their science taxonomic.” – p. 964*

*“As I noted earlier, deductivism is the term used to designate any explanatory reliance on methods that presuppose event correlations.” – p. 971*

*“What Veblen could not foresee is that taxonomy in the form of deductivism specifically was later to acquire a new lease of life by way of unprecedented developments in the field of mathematics.” – p. 973*

*“It is worth noting that Veblen was never oblivious to how a desire on the part of some to employ mathematical methods tended to preserve the taxonomic (specifically deductivist) emphasis.” – p. 974*

*“Nor, as already noted, do I suggest that Veblen anticipated that taxonomic science would persist in economics in the form of mathematical deductivism.” – p. 975*

*“There are clearly many currently who both adhere to taxonomic and specifically deductivist methods... deductivism today, the production of formulations couched in terms of event-level uniformities, is, to repeat once more, more pervasively bound up with the drive to mathematise the discipline.” – p. 975*

*“I re-emphasise that deductivism entails reliance on correlations.” – p. 976*

Also, observe that Tony Lawson makes frequent appeal to authority to support his own views. Antiquity does not give Veblen any more authority than that enjoyed by Lawson. Anyway, Veblen was not even an economist nor – in spite of his infatuation with Darwin – was he a

biologist. It is incredible that mathematicians are being banned in the name of an opinionated little man like Veblen who could not have solved a quadratic equation if his life depended on it.

Appeal to authority is a fall-back strategy for simple minded people of every stripe, so Lawson incessantly citing Veblen is not remarkable.<sup>1</sup> Indeed, the Austrians have become so dependant on appeal to authority that, just by editing out Marx's name and salting their papers with a few random Mises quotes, Marxists can get published in Austrian journals; e.g. [Burczak](#) and [Duncan](#).

More remarkable is the tactic, to my knowledge used only by the World Economics Association, of defining one's own method to be that of one's enemy and then denouncing it in people who do not use it while promoting one's own use of it under a different name. The WEA denounces taxonomy in deductivists who are not the least bit taxonomic, but simultaneously promote their own use of taxonomy in the name of pluralism.

These tactics only work on people who hate things that they cannot explain. All Austrians hate Marxism, but few can identify it where Marx's name does not appear. All pluralists hate deductive logic, but few can demonstrate even the most basic example, like proving that  $\sqrt{2}$  is not a rational number. Both groups – they overlap where Austrians do not know what praxeology is – are filled with hate, yet neither can define the object of their hatred.

## **Taxonomy and Deductive Logic Have Nothing in Common**

A good example of deductivism is ballistics. The modern use of the axiomatic method is in sharp contrast to consulting a [look-it-up table](#), as was common practice for artillerists at the same time that biologists were consulting their taxonomy tables and meteorologists were consulting their weather indexes; that is, in the pre-science era.

Historians tell us that the Confederate Army might have won if only they had had more artillery. This weakness is usually attributed to a lack of foundries, of which they had only one, Tredegar Iron Works in Richmond, Virginia. But I tell you, it was not a lack of foundries that cost the South victory; they lost that war for want of the axiomatic method. Yet over a hundred years earlier, in 1745, Leonhard Euler had given the science of ballistics a solid axiomatic foundation. How could this important work have come to be ignored? Because people who hate math were

---

<sup>1</sup> A counter-example is not an appeal to authority. [Asad Zaman](#) writes, "There is no science which uses axioms and logical deductions to derive scientific theory." I counter that ballistics is a science and is deductive, an example that depends only on the acceptance of its axioms, not on the fame of Leonhard Euler, who proposed them.

up to their usual tricks 270 years ago, blacklisting mathematicians in the name of pluralism while loudly trumpeting themselves as underdogs struggling against a dogmatic “mainstream” that does not actually exist – then as now, people who hate math *were* the mainstream.

I will discuss these historical events later, but first let us examine the slipshod approach to gunnery that was taken by both sides in the 1861 U.S. Civil War. [Civil War Artillery](#) has compiled all that was known about ballistics at the time of the Civil War, obtained from *The Confederate Ordnance Manual* and *The Artillerist Manual*. Basically, artillerists compiled charts empirically, which they then attempted to interpolate on the battlefield.

The following chart gives the range, in yards, on level ground attained by elevating the barrel at empirically tested angles of elevation measured in degrees; the standard field carriage is assumed, though no data is available on exactly how high above the ground this put the muzzle. The “increase” column is the difference in yards from the previous test firing.

Angle of Elevation		12-Pounder Howitzer 1 pound charge, shell		12-Pounder Napoleon 2½ pound charge, shot		6-Pounder Field Gun 1¼ pound charge, shot	
0	Degrees	195	Increase	325	Increase	318	Increase
1		539	344	620	295	674	356
2		640	101	875	255	867	193
3		847	207	1200	325	1138	271
4		975	128	1320	120	1256	118
5		1072	97	1680	360	1523	267

The first thing that we notice about this chart is that it does not extend beyond a 5° angle of elevation. This is a problem with the empirical method; you cannot fire farther on the battle field than you did at the practice field. But with the axiomatic method, once the parameters (in this case, muzzle speed and ballistic coefficient) have been determined on the practice field, the theory can be extended far beyond any shots fired in practice. These men’s practice range was probably not long enough for them to attempt any higher angles of fire. Also, their chart provided data only for firing on level ground. The axiomatic method is undeterred by slopes because, when solving the equations, one simply looks for the trajectory to cross a slanted line rather than the x-axis. But empiricists are completely stymied by slopes because they cannot possibly test fire their weapon on every uphill or downhill imaginable. Also, my [Android application for mortar fire control](#) takes wind into consideration; this too stymies empiricists because they cannot possibly test fire their weapon in every wind condition.

Today, mortars have short barrels and are fired at elevations above 45°; howitzers have medium barrels and are fired at elevations of about 10° to 55°. Assuming uniform air density,

the angle of elevation that maximizes range for supersonic projectiles is about  $35^\circ$ , but howitzers are fired at higher angles of elevation to get their shells into the stratosphere where there is almost no air resistance. Guns have long barrels and are fired at elevations below about  $10^\circ$ ; the T-90 can elevate its main gun to  $14^\circ$ , but this is for firing uphill, not for attempting long shots.

In 1861, the word “mortar” had the same meaning as it does today except that the shells were gigantic; upwards of 200 pounds. This meant that they were slow enough that a simple parabolic trajectory was not wildly inaccurate and it also meant that it did not matter exactly where they landed because they were timed to explode in the air and shower a wide area with shrapnel or incendiary materials. (What they could do with a 17,000 pound mortar, the Russians can do today with a shoulder-fired Shmel thermobaric weapon.) The shoot-and-scoot tactics that are common today with small man-portable mortars, especially among guerillas, did not exist during the Civil War; for lack of mortar fire control deduced from axioms, they could not possibly expect to hit anything with a man-portable mortar. Back then, mortars were initially used exclusively for seacoast defense and later adapted to sieges, hauled inland on specially reinforced rail cars.

In 1861, the difference between guns and howitzers was miniscule. The ballistics for both guns and howitzers was known only in the same narrow  $0^\circ$  to  $5^\circ$  range. The only practical difference was that guns were of smaller caliber and, with the higher velocity provided by slightly longer barrels, they could fire solid shot at masonry walls, while the black-powder-filled shells of howitzers bounced off before exploding for lack of contact detonation. (Contact detonation only works for elongated projectiles that hit pointy end first; spherical shells can strike the target on any side.) Because Civil War artillerists lacked sound gunnery deduced from axioms, they knew nothing about angles of elevations between  $5^\circ$  and  $45^\circ$  and simply never fired their weapons that high. Had they made use of Euler’s century-old work, they might have had a real howitzer, in the modern sense of the word.

This low angle of fire is also a major contributor to why the chart is so wrong, as will be discussed below. When firing at high angles near the angle that maximizes range (about  $40^\circ$  for subsonic projectiles), small variations in muzzle speed and undulations in the Earth are of no consequence. But, when firing at low angles, the shell just skims over the surface; tiny variations in muzzle speed and small undulations in the surface can change the point of impact by a hundred yards or more. For that matter, a spherical shell skips when it strikes such a glancing blow and, if the ground is hard, it may not leave a mark but will just bounce joyfully along until it finally comes to rest hundreds of yards downrange. This effect is well known to

artillerists and is why so much effort is put into the maneuver of guns so they can enfilade trenches, while high angle fire can be directed from anywhere within range of the trench.

Not only does the chart not extend beyond a 5° angle of elevation, the data that we do have is all wrong. Consider the 12-pounder howitzer. How could raising the barrel from 1° to 2° add 101 yards to the range, but raising the barrel from 2° to 3° add 207 yards to the range? And further increases in elevation again result in about 100 yards per degree? The 12-pounder Napoleon chart indicates that raising the barrel from 2° to 3° adds 325 yards to the range, but raising the barrel from 3° to 4° adds only 120 yards to the range, but then raising the barrel from 4° to 5° adds 360 yards to the range. The gun data is just as erratic. The 6-pounder field gun chart indicates that raising the barrel from 2° to 3° adds 271 yards to the range, but raising the barrel from 3° to 4° adds only 118 yards to the range, but then raising the barrel from 4° to 5° adds 267 yards to the range.

This makes no sense: Even the most casual analysis indicates that angle/range charts should be negative monotonic; that is, the greatest increase in range is achieved by raising the barrel from 0° to 1°, almost no increase is achieved by raising the barrel from 39° to 40°, and intermediate increases in range smoothly decline. To have the increase sometimes great and sometimes small is clear evidence that the data is worthless.

The men conducting these experiments should have noticed that their data did not make sense and tried again with more care. This is another problem with the empirical method; interpolation only works if you fire in increments of one or – better yet – half degrees. But that requires constantly adjusting the angle of elevation and there are sure to be mistakes made with so many adjustments. The data compiled by *Civil War Artillery* shows evidence of mistakes having been made in the firing of every one of these weapons.

The axiomatic method requires firing at only one angle of elevation to determine the ballistic coefficient. Thus, the test barrel can be set in concrete so it does not budge even one minute of angle between shots. This one angle can be chosen to be 40° to minimize the effect of variations in muzzle speed and undulations in the Earth. There is no reason to have the shells skimming inches over the surface and then skipping when they hit, which makes it unclear where the first touch down was. The empiricists are doing these tests all wrong!

The axiomatic method also requires that the muzzle speed of the weapon with each powder charge be known precisely. *The Confederate Ordnance Manual* and *The Artillerist Manual* are conspicuously silent on muzzle speed; where it is known today it was measured by modern hobbyists firing replicas past electronic chronographs and is reported only as a gee-whiz fact,

not for actual fire control purposes. But Benjamin Robins invented the ballistic pendulum in 1742. How could this simple device have been forgotten? It was not forgotten but *suppressed* by the pluralists, who insist that all of science consists of compiling empirical charts and all of mathematics consists of linear interpolation of empirical charts.

Given the available budget for practice ammunition, many shots can be fired at this one angle of elevation (40°) so, if one shot is a “flyer” because something went wrong with the firing of it (e.g. the carriage got wedged against a rock and bounced under recoil), that data can be discarded. When you fire only one shot at each of many different angles of elevation, flyers go unnoticed and throw a monkey wrench into the whole procedure. Also, sometimes there are mistakes in the loading of the charge or variations in the dampness of the black powder; the axiomatic method allows designers to notice these intermittent problems when firing repeatedly into a ballistic pendulum, while they would go unnoticed when firing at the practice range.

But to assume that one can hit targets at any range based on having zeroed the weapon at only one angle of elevation requires axioms that are always true. What are these axioms? Leonhard Euler proposed three:

1. Constant atmospheric density from the ground to the apogee.
2. Drag is proportional everywhere to the square of the speed.
3. Gravity is everywhere pointed downwards; e.g. the Earth is flat.

And, yes, I am well aware that that high-pitched shrieking noise in the background is all the empiricists informing us that exactly none of these three axioms are always true. Admittedly, they are not... But trench mortars, which a Civil War vintage cannon aimed upwards basically is, do not go high enough for the air to become noticeably thinner. They do not fire at high enough speeds – 240 m/s is the limit – for drag to be proportional to higher powers of speed than two. And they do not fire far enough for it to matter that the Earth is a sphere.

The beauty of the axiomatic method is that the axioms can always be modified later to deal with more complicated situations. For instance, I developed an [Android application for mortar fire control](#) based on three similar but slightly modified axioms. The atmosphere becomes progressively thinner as altitude increases, as described by the axiomatic system proposed by [Lewis Fry Richardson](#), which I take into account. And drag is proportional to the cube and then to the fifth power of speed at higher speeds, which I also take into account, as well as the

effects of decelerating through the sound barrier (343 m/s). But I am sticking with gravity being everywhere pointed downwards, in spite of the sneering “flat Earther” comments that it generates from those who insist on interpolating from empirically generated tables as Civil War artillerists did.

Modern howitzers can fire on targets over the horizon and do take the curvature of the Earth into consideration, as well as many other things, like humidity, that have a negligible effect on mortar gunnery. (Incidentally, almost everybody, including [FM 23-10](#), has it backwards; the more humid the air, the thinner it is. Clouds float, don't they? H<sub>2</sub>O has an atomic mass of 18 while N<sub>2</sub> has an atomic mass of 28.) But the theory employed by the modern artillerist is essentially that of Euler. If he could be resurrected and given the opportunity to talk to them, he would immediately recognize everything they are doing as being based on his 1745 annotated translation of Benjamin Robin's 1742 book, *New Principles of Gunnery*.

If Civil War era artillerists could be resurrected, they would be astonished to see modern howitzers being fired at angles of elevation well above 5° and hitting point targets over the horizon. And they would be absolutely appalled to learn that the theory which defines modern gunnery pre-existed them by 100 years and had been blacklisted by the self-described pluralists who insist that all of science consists of interpolating empirically generated tables.

Obviously, taxonomy and deductive logic have nothing in common. Taxonomy as was employed by pre-Darwin biologists is similar to the look-it-up ballistic tables employed by Civil War artillerists and is 180° opposite of the deductive logic employed by Leonhard Euler that is the basis for all modern gunnery. I challenge Tony Lawson to deny it.

### **The Saints, the Sinners and the Damned**

There must be some motivation for Tony Lawson to vainly conflate taxonomy and deductive logic, in spite of the fact that they are exact opposites. So what is he up to?

*“The successful application of economist's mathematical tools require event regularities or correlations. Systems in which such event regularities occur can be called closed. Deductivism, as already noted, is just the doctrine that all explanation be couched in terms of such (closed systems of) event regularities. Modern mainstream economics, if to repeat, is just a form of mathematical deductivism. A social ontology or worldview that guarantees such event regularities is a world of isolated atoms.” – pp. 953-954*

*“The conception of social ontology I have in mind is processual in that social reality, which itself is an emergent phenomenon of human interaction, is recognised as being (not at all atomistic in the sense just noted but rather) highly transient, being reproduced and/or transformed through practice; social reality is in process, essentially a process of cumulative causation.” – p. 954*

I will interpret: Event regularities or correlations mean similarities in one’s look-it-up table, like the predatory nocturnal behavior and bushy tail that might lead a taxonomist to conflate *Dasyurus* with *Felis*. Isolated atoms mean that an individual’s subjective values matter, while cumulative causation means that people are just swept along with big processes affecting their entire species, specifically the historical materialism of Marx and Engels. When Lawson writes (p. 955) that “all such constitutive relations are relations of power couched in terms of differing rights and obligations,” he is explaining what is sweeping the people along.

Tony Lawson’s oft-repeated call to acknowledge the social world everywhere as historical, as processual, is a call to Marxism. His infatuation with Darwin’s theory of evolution is based on his seeing a similarity between the way new species evolve from existing ones and the way socialism is supposedly destined to replace capitalism, and then communism next. I do not believe that actual biologists share Lawson’s disdain for isolated atoms. The survival of a species does not depend on any one individual surviving, but it does depend on *some* individuals surviving, and they do so by fortune or prowess, which are traits known only to individuals, not to species.

The fact that Lawson equates evolution with all individuals being swept along by big processes explains why he damns me: [My axioms](#) are all about individual’s subjective values. The fact that the Post-Autistic Economics Network became (May 2011) the World Economics Association explains why he damns me as a taxonomist: Damning me as an autistic worked too, but this tactic is no longer allowed, so he had to think of *something* to accuse me of.

For Tony Lawson, neoclassical economists are the sinners that can still be redeemed, those misguided souls who acknowledge the social world everywhere as historical, as processual, but – without Lawson’s help – do not have the strength to resist the siren song of deductivism.

*“Veblen’s neoclassical economists, then, can be characterised as acknowledging the social world everywhere as historical, as processual, but nevertheless simultaneously treating it using taxonomic and specifically deductivist methods that presuppose that social reality is anything but.” – p. 971*

*“Although recognition of a causal-processual ontology is regarded by Veblen as an advance of neoclassical over classical thinking, the persistence with taxonomy (in the*

*form of deductivism) is the dominating feature that determines the form of the research findings.” – p. 972*

*“I re-emphasise that the group under focus here is not the set of mathematical deductivist modellers per se, but that subset of the latter who at some level simultaneously accept a historical or causal-processual ontology.” – p. 975*

*“I suggest that the core feature of neoclassical economics is adherence not to any particular substantive features but to deductivism itself in a situation where the general open-processual nature of social reality is widely recognised at some level.” – p. 976*

Tony Lawson’s partitioning of academia into the saints, the sinners and the damned is made particularly clear in this passage:

*In short, I am suggesting that there are three basic divisions of modern economics that can be discerned in the actual practices of modern economists. These are:*

*1) those who both (i) adopt an overly taxonomic approach to science, a group dominated in modern times by those that accept mathematical deductivism as an orientation to science for us all, and (ii) effectively regard any stance that questions this approach, whatever the basis, as inevitably misguided;*

*2) those who are aware that social reality is of a causal-processual nature as elaborated above, who prioritise the goal of being realistic, and who fashion methods in the light of this ontological understanding and thereby recognise the limited scope for any taxonomic science, not least any that relies on methods of mathematical deductive modelling; and*

*3) those who are aware (at some level) that social reality is of a causal-processual nature as elaborated above, who prioritise the goal of being realistic, and yet who fail themselves fully to recognise or to accept the limited scope for any overly taxonomic approach including, in particular, one that makes significant use of methods of mathematical deductive modeling. – pp. 978-979*

(1) are the damned; those who are irredeemable and must be expelled from the economics profession at all cost. It was these who were “diagnosed” with autism by the Post-Autistic Economics Network.

(2) are the saints of the Post-Autistic cult, people like Tony Lawson and Asad Zaman who have B.S. degrees in mathematics but who only like statistics and, on obtaining editorships, are banning every other type of mathematics.

(3) are the sinners who might still be redeemed if they can just find the courage to renounce the axiomatic method of Euclid, Newton, Euler, Einstein, *et. al.* Kool-Aid, anyone?

Note that, while Lawson has rejected the three defining characteristics of neoclassical economics given by Varoufakis and Arnsperger that I review [here](#), they do have one thing in common. Varoufakis and Arnsperger offer to “liberate neoclassical economists from the temptation to barricade themselves behind infantile arguments viz. the non-existence of their school of thought.” Lawson, Varoufakis, Arnsperger and, indeed, everybody at the World Economics Association, are united in their belief that neoclassical economics is fully defined by its practitioners’ willingness to practice self deception and denial of what the WEA has discerned to be their “true” beliefs.

This is not a constructive attitude; the WEA is not trying to open a dialogue with neoclassical economists, if there even are economists still alive who self-identify as neoclassical. They are forcing them to either join the WEA or to be banned. Ontology is just dialectical materialism without mention of Marx. Today, proving the Pythagorean Theorem or the impossibility of expressing  $\sqrt{2}$  as a fraction is taboo because ontologists like Tony Lawson insist that the objects of our inquiry – right triangles and irrational numbers – simply do not exist. To deny even the existence of a man’s life’s work<sup>2</sup> is just another way of saying that he is banned from academia.

## REFERENCES

Aguilar, Victor. 1999. **Axiomatic Theory of Economics**. Hauppauge, NY: Nova Science Publishers, Inc.

Buchanan, Mark. 2013. **Forecast**. New York, NY: Bloomberg USA

Richardson, Lewis Fry. 1922. **Weather Prediction by Numerical Process**. Cambridge, England: Cambridge University Press [Weather Prediction Numerical Process.pdf](#)

---

<sup>2</sup> I think we all know that feminist economists and Marxists are exactly the same set of people. The leading indicator that one is dealing with a Marxist is his use of the pronoun “she” to refer to anyone with a real job. Observe the paper I review [here](#) and note that Tony Lawson is director of the Cambridge Centre for Gender Studies and edits the journal *Feminist Economics*, which has a lot to say about male mathematicians. While I am well aware of the existence of female mathematicians – I have dated more than one – I thought I would amuse myself by giving that hornet’s nest a poke by referring to the sort of thing Lawson is banning as “a man’s life’s work.”