THE IMPORTANCE OF PHILOSOPHY TO POLITICAL ECONOMY:

REFLECTIONS AND PROPOSALS

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While philosophical analysis and critical thinking are important in all disciplines, this paper makes a case for including a philosophical component in the education of tertiary-level political economy students. This strengthens political economy in three areas. It creates internal critiques of Neoclassical economics that are more powerful than external critiques. It shows that mathematical logic is not to be conflated with propositional logic. And it helps ensure that political economy itself reposes on logically sound foundations. The arguments are illustrated with the author's history over fifty years which gave him exposure to multiple domains − civil engineering, politics, philosophy, orthodox economics, political economy, and teaching tertiary-level students.

Intellectual formation

After 1962-65 secondary schooling in Brisbane, my next step was university. As I had no particular preference, my tertiary-educated mother suggested engineering as her father had had a successful career as a mining engineer. I enrolled at the University of Queensland in civil engineering (due to my above-ground preferences). A 1966 Bachelor's degree and a 1968 Master's degree preceded my first employment in Brisbane working on bridge design in rural and urban areas. As a member of UQ's bushwalking club, I also learned that the best way to see as much as

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possible of any territory (rural or urban) was to climb to a good vantage point, with a plurality of routes, methods, and times available.

The late 1960s were also politically formative through protests against the Vietnam war and subsequent attempts by Bjelke-Peterson's government to ban the CBD marches in which many students had participated. In reading about the war, I became more aware of the huge economic inequalities across the world, and their possible alleviation via development projects. Prior to my Brisbane employment, I volunteered in late 1967-early 1968 as the engineer responsible for the design and construction of a 50-metre suspension bridge over a fast-flowing river in PNG that had claimed local lives. After 3 years in Brisbane (1968-1970), I then joined Australian Volunteers Abroad, spending two years in northern Nigeria, an often-dry region except for the rainy season, where I assisted in constructing a one-kilometre earth dam and other water-related structures.

Lessons learned from engineering…and beyond

First, if theories are to be useful, they must be connected to *reality*, even if reality needs simplification for theoretical purposes. Second, whatever engineers create, it must *work* in the ways intended – structures must not collapse, and ships must not sink, *etc*. Third, theories must be grounded on *logical reasoning* with conclusions following from premises.

Two years living in Africa in an ex-British colony and visiting neighbouring ex-colonies gave me direct exposure to the extreme income and wealth inequalities I had earlier read about. I became dissatisfied with the narrowness of my education, and decided to learn more about how economic and political systems work, and interact, to produce such disparate inequalities in wealth and contentment. On return to Australia, I moved south, left full-time engineering, enrolled at Sydney University in economics and philosophy (as well as government subjects), all seen as essential to understanding why the world was the way it was.

In the 1970s, each department became embroiled in internal dissent and protests concerning (i) what should be taught and researched in the modern world, and (ii) who had the power to decide such matters. Philosophy split in 1973 into two departments: General, and Traditional and Modern (Grave 1984: 213-7). Economics also split into two departments, Political Economy and (orthodox or Neoclassical) Economics, but only after prolonged contestation and drama from 1969 to 1983, largely because it

was opposed by the orthodox professors and two Vice-Chancellors (Stilwell 2006; Butler *et al.* 2009). The philosophy split was undone in 1999, but the economic one fortunately remains.

I was far more attracted to political economy because it dealt with reality in its theorising and policy-making, rather than Neoclassical economics and its unrealistic axioms. Major, ongoing, involvement in the Political Economy Movement ensued, including making posters in the Tin Shed Galleries,[1] election as a student Fellow of the Senate; election as a student member of the Academic Board; becoming an organiser of, and participant in, various protest marches and meetings; and, finally, after the 1976 occupation of the office of Bruce Williams (the then Vice-Chancellor), suspension from the university, along with Lance Baker and Martin Hirst. In the proctorial board meetings, assisted by witnesses, I was declared not guilty by a vote of 4 to 1 (John Ward, the chair, being the lone dissenter). I also took the history of economic thought course taught by Peter Groenewegen who, for reasons never disclosed to his students but probably related to preference for a quiet studious academic life, sided politically with the *status quo* despite his intellectual position being closer to political economy.

In philosophy, I chose General Philosophy. Bill Bonney taught me deductive logic, and Professor John Burnheim supervised my final year thesis on Hollis and Nell's 1975 book, *Rational Economic Man*. Two other students and I edited a book of philosophical readings entitled *Paper Tigers, An Introduction to the Critique of Social Theory*. My two chapters provided an overview of its general themes, and a critique of Neoclassical economics, including its reliance on theoretical individualism (see O'Donnell *et al*. 1978). Much later, aided by more philosophical reflection, I presented impossibility theorems concerning that doctrine and Neoclassical economics (O'Donnell 2024b, c).

In my final year, I won a scholarship to Cambridge University, where I did my PhD on J.M. Keynes's philosophy and its relations to his economics (O'Donnell 1982). Midway through my Cambridge years, I had an unexpected but amusing (for me) encounter. While walking down Senate Passage, I saw someone approaching who looked familiar. On drawing closer, I realised it was Bruce Williams. Having quickly to decide what to

[1] See: *https://archives-search.sydney.edu.au/nodes/view/142663*.

do, I chose to greet him and started with the words, 'Good morning, Professor Williams, you may not remember me, but...'. Before I could finish, he said very seriously: 'I remember you very well'. After we parted, I couldn't help but smile.

On returning to Sydney, the Economics Department at Macquarie University employed me to revitalise its very large first-year macro course which had about 1500 students per semester. In my research, I expanded my PhD to include politics (O'Donnell 1989). My interests in logic and probability also allowed me to show that a criticism of Keynes's theory by Karl Popper was mistaken (O'Donnell 1992).

Despite the contextual differences, my Sydney education reinforced the lessons learned in engineering:

- Political economy and socially useful philosophy concern the real world, the one that engineers by necessity deal with.
- If scientific disciplines are to be relevant to this world, their theories must deploy axioms based on *realism*, not *idealism*. Idealism is commendable as a motive for improving reality, but is hopeless as a foundation for understanding reality.
- For theories and arguments to fulfil their functions, they must 'work', that is, obey the rules of whatever logic is chosen to express them. Propositionally, that logic is normally classical deductive logic. Here valid arguments and theories only function without collapsing if they avoid contradictions. Even if only one contradiction is present, an infinite number of other contradictions follow, so producing greater theoretical chaos.

In orthodox economics, unseen contradictions can persist undetected for decades for two main reasons. First, orthodoxy relies on mathematical logic, and ignores the different nature of propositional logic, on which see below. That reliance allows propositional contradictions to be present in its explanations of reality and for these to remain undetected. Instructors trained in Neoclassical theorising then pass on propositionally invalid theorising to students. Second, students are trained to believe that theories that are invalid are actually valid. Those with high grades get good jobs, rise to leadership positions, use the same theorising in these positions, and employ graduates with similar training.

Propositional logic and mathematical logic

Most economists are unaware of the distinction between mathematical logic (ML) and propositional (or verbal) logic (PL). The first works brilliantly in natural sciences such as physics because its *explananda* concern inert or unconscious material. That success generated 'physics envy' and hence attempts, mainly by Neoclassical economists, to emulate by imitation − if economic theorising could be grounded on mathematical foundations, it would be as successful as theoretical physics. But what works well for inert, non-conscious matter usually does not work at all for conscious, reflective, decision-making entities capable of responding in multiple ways to the same environment or changing environments. Humans are not machine-like automata, but conscious beings making decisions in situations of incomplete information and so delivering ranges of individual and global outcomes. They may *desire* maximum incomes at all times but, given their knowledge and abilities, and the way market economies function, the *realised* incomes are often less than desired.

As used here, these terms refer to *standard* PL and ML, the kinds normally used in economics and political economy, but not to *non-standard* PL and ML which exist in philosophical terms but are rarely, if ever, used in economic domains. The key difference is that PL and ML work with distinct logical categories − *contradictions* and *contraries* − which have different definitions and rules (see, for example: Copi *et al.* 2014: 180-1, 620-1). Note also that the focus is solely on logic, not the different arena of ontology.

PL focuses on contradictions, and their total avoidance. These exist between two propositions or statements where there are two opposing alternatives ($n = 2$), such that *both cannot be true,* and *both cannot be false*. Let P = Today is Tuesday, and Q = Today is not Tuesday. These cannot both be true, for today is either Tuesday or a not-Tuesday. And both cannot be false because if P is false (Today is not Tuesday), then Q *cannot* be false because whatever today is, it must be one of the days within not-Tuesday. Another simple, economic, example is P = all prices in all markets are perfectly flexible, and Q = one market has sticky or fixed prices. Here P and Q contradict each other, so that both should not be present in explanations (see also below).

Valid arguments in PL use propositions (verbal statements) that are internally consistent due to the *absence of contradictions* (AOC).

Otherwise put, valid arguments obey the law of non-contradiction which forbids the presence of *P&~P conjunctions* and possess the property of truth-preservation. If the premisses are true, the conclusion must be true. PL explores the forms that verbal arguments must have to satisfy logical validity, with the focus on form, not on content, making it a general discipline applicable to all fields (economics, other social sciences, physics, daily life etc).

Contraries, as a *term*, may be less familiar to economists, but the *idea* will be very familiar as it is present in counting, daily life, classifications, and sets. Contraries are foundational to ML and are defined as follows. Two propositions are contraries when both cannot be true, *and* both can be false. When we count things, or refer to collections of items in general terms (say cars or buyers), we use contraries. If there are 5 people in a room, it is false to say either that (i) there are 5 or 8 (both cannot be true), or that (ii) there are 11 or 15 (both are false). Reasoning in ML is grounded on the *presence of contraries* (POC) and the rules logically following therefrom.

The key point is that PL and ML have related, but different, foundations. PL depends on $n = 2$ alternatives and the absence of *P&~P* conjunctions (or contradictions). ML depends on $n > 2$ alternatives and the presence of *Pv~P* disjunctions (where *v* means 'or'). In short, only two alternatives exist in PL, but more than two in ML. Both are logical, but in different ways.

Consider a square, a two-dimensional figure with four equal sides. To say that a square is a triangle or a pentagon is to utter a propositional contradiction, namely, that P (a square) is actually ~P (something that is not a square). But given its definition, an infinite number of possible squares exist of different sizes. The set of all squares is thus a set of contraries in which all members are of the same kind, yet are all different due to having different dimensions. A 10cm square co-exists with, and never contradicts, any other square (say of 1cm or 10^6cm). Contraries allow for differences *inside* the set of alternatives embraced by the definition. The same applies to humans, institutions and economies. Here each individual item in a given set is different, but all are members of the same set. As a result, contraries underpin general theory-special case theorising, a key economic example here being Keynes's general theory of employment which is general because it explains all the particular levels of employment that occur in market economies.

In summary, both contraries and contradictions are important in scientific analysis, the former being included and the latter excluded. Contraries differ significantly from contradictories because more than two possibilities exist (up to ∞); any two alternatives cannot be simultaneously true, but any two can be false due to another alternative being true. Otherwise put, contraries are items with potentially limitless alternatives, as in $n = 3, 4, ...\infty$, whereas contradictories only have $n = 2$ alternatives, P and ∼P. Contraries thus belong to single multi-membered sets, and contradictories to two single-membered non-intersecting sets.

Contraries are present in Neoclassical theory in one particular sense, namely, that individuals can differ in their preferences and resources. But these contraries play *no* role whatsoever in determining outcomes (individual or social) because only one kind of outcome is allowed by external decree, namely, universal optimisation. The 'production function' of pure Neoclassical theorising is 'perfections in, perfections out', with that excluding contraries in outcomes.

Why contradictions destroy propositional reasoning

It is a basic theorem in PL that from a contradiction, any proposition can be deduced. That proposition may be an empirical falsehood (Adam Smith was an American), an irrelevant proposition (Pierro Sraffa liked peanuts), or a nonsense proposition (David Ricardo was a diagram). In isolation, or within a theory, contradictions generate absurdity. The theorem is also called the law that 'from a falsehood anything follows', or the 'principle of explosion'.

By contrast, contraries are necessary and beneficial. They concern multiple alternatives, are unrestricted within their specified range, and do not generate the 'anything goes' theorems that contradictories deliver. Finally, deductive conclusions either do, or do not, follow from premisses. Valid arguments cannot involve 'degrees of truth', or deliver nearly or roughly true conclusions, unless such qualifications appear in the premisses. Approximation is possible in mathematics and physical reality, but has no place in deductive logic. A 'near truth' is not a truth, but a falsehood (Jeffrey 1967: 3-4).

How *valid* ML can deliver *invalid* PL in economics

Pure Neoclassical theorising is grounded on ML. Its verbal assumptions of perfectly flexible prices, combined with other perfection axioms, provide continuous upward-sloping supply curves and downward-sloping demand curves, with their intersections delivering market-clearing prices, and optimised buyers and sellers. Reality, however, often delivers non-optimal outcomes with some sellers and buyers left unsatisfied, as in unemployed workers during recessions. To explain such non-optimal realities, Neoclassicism resorts to Synthesis Neoclassicism, the view that pure Neoclassicism provides the correct initial framework for economic science but may need expansion to explain cases of non-optimality occurring in reality (see: O'Donnell 2024b). To its pure theory, it adds one or more extra axioms referencing the cause obstructing optimality, say the use of market power by unions engaged in wage-fixing, or by oligopolistic firms engaged in price-fixing.

In terms of ML, this is correct, algebraically and diagrammatically. One starts with equations or diagrams providing oppositely sloped market supply and demand curves that have single intersection points representing equilibria (E) in which all agents enjoy maximum satisfaction given their preferences and resources. If reality then displays excess supplies and some unsatisfied agents, the cause is attributed to prices that are not perfectly flexible due to being controlled by non-competitive forces. To explain such non-optimalities, Neoclassicism supplements its pure analysis by drawing a horizontal line above E at a fixed price, so generating excess supplies/unsold items. The non-optimalities have now been mathematically explained so that everything appears logically impeccable in both micro and macro domains.

Consider the following example. Let the supply and demand curves respectively be $Q^S = 12 + 3P$, and $Q^D = 42 - 2P$. Their simultaneous solution delivers equilibrium, E, at $P = 6$ and $Q = 21$. Now suppose some cause absent from the framework of perfect competition fixes the market price at $P = 10$. This gives $Q^S = 42$ and $Q^D = 22$, and an excess supply of 20 unsold items, whether of labourers or commodities. Readers might draw the relevant diagram to make the two cases visible. In ML terms, this is all logically correct.

But in PL terms, it is entirely illogical. Mathematics *per se* is just mathematics and cannot offer a *theory* of anything that is non-

mathematical. To deliver theories in a verbal domain, the mathematics must be interpreted in propositional terms. When that is done here, three inter-related, contradictions emerge.

First, consider axiom A_1 = *all prices are perfectly flexible,* which, combined with other perfection axioms, produces optimal outcomes at E, i.e. no unemployed resources. To explain any non-optimalities observed in reality, the Neoclassical theorist adds an extra axiom, say A_2 = *one price is fixed*. In PL terms, that is equivalent to A_2 = *not* all prices are perfectly flexible, which means $A_2 = \sim A_1$. One is thus attempting to *explain* a real event using a theory containing the contradiction $A_1 \& \sim A_1$.

Second, the analysis began with A_3 = the market is perfectly competitive, but then added A_4 = the market is not perfectly competitive, which now means the expanded analysis now reposes on $A_4 = \sim A_3$, and the attempted explanation on $A_3 \& \sim A_3$. Third, an equivalent initial assumption is A_5 = no agent has market power, to which is added A_6 = some agents do have market power. This time invalid explanation occurs via $A_5 \& \sim A_5$. The validity of the *mathematical* reasoning based on POC remains intact at all times, but the validity of the *propositional* reasoning delivered by the mathematics is destroyed for it reposes on P&∼P.

Once one has the philosophical tools for distinguishing ML and PL, and for contradiction-detection in PL, it is evident that contradictions are a universal feature in all versions of Synthesis Neoclassicism. Whenever a given axiom is supplemented with an opposing axiom, the only outcome, one way or another, is A&∼A, which leads to P&∼P.

The validity of ML, combined with the mistaken view that ML and PL have the same foundations, deceives orthodox theorists into believing that ML validity automatically generates PL validity. That would be true if ML and PL had the same foundations, but as they do not, valid ML is capable of generating invalid PL in the social sciences.

The *fundamental* cause leading to ML-PL conflation is that orthodoxy's initial assumptions are based, not on realism but idealism, on axioms referencing *perfections* concerning individuals, environments, causal mechanisms, and outcomes, with all such perfections capable of mathematical expression. By contrast, realism-based scientific accounts in the social sciences are expressed in propositional terms that remain logically coherent, either without, or with well-chosen, extra axioms.

Note also that the realism-idealism divide is related to another important philosophical topic, the difference between induction and deduction. Realism is based on inductions from experience delivering axioms that deduction then uses in theorising to explain reality. Idealism in Neoclassicism begins with perfect worlds that exist only as ideas never instantiated in reality, and then assumes that such ideas are necessarily the best way to develop theories helping us understand reality.

More ML-PL dissonance

Pure Neoclassical theory is grounded on its particular version of general equilibrium theorising, one developed mathematically using simultaneous equations. This ML-based framework, initiated by Walras in 1870, reached a highpoint in the Twentieth Century work of Debreu and Arrow. Here commodities are defined as time-and space-dependent items over finite time and space. All agents have perfect knowledge of their preference orderings over all possible combinations of these commodities until the end of time when the economy ceases to exist. An invisible auctioneer (that is not an economic agent) is inserted into the theory to provide an explanation in PL terms of how the mathematical equations are solved so that universal agent optimisation occurs. This fictional entity calls out a set of prices for all commodities; agents then decide their supplies and demands; and transmit them back to the auctioneer. If the respective totals are unequal, disequilibrium obtains and the auctioneer repetitively calls out new sets of prices until all supplies and demands are equal, so producing universal optimisation. At that point, which is still time-zero (!), the auctioneer informs all agents; economic decision-making and the economy cease to exist; and all that occurs thereafter until the end of time is the delivery of quantities of goods and services according to previously agreed contracts.

In ML terms, the equilibrium solution, as given by the solution of a finite set of simultaneous equations, is impeccable. But again, mathematics is just mathematics. To be explanatory in a social science, it needs interpretation in PL terms, in this case of how universal optimisation could always occur. Since reality has no candidates here, Neoclassicism necessarily resorts to idealised fictions, such as (i) an omniscient auctioneer repeatedly running economy-wide auctions that take zero time at time-zero for (ii) economic agents who, *as decision-makers* only exist

at time-zero, and (iii) who thereafter only deliver and receive the correct physical quantities until the end of time. Note that money is absent because it has no role whatsoever. Theory-reality contradictions abound, with generations of Neoclassical economists seeking remove them by adjusting their core theory in various ways, but with all failing. As Rogers (2024) explains, Hahn tried to insert money into general equilibrium theory, but never succeeded for it is logically impossible.

The problems with core Neoclassical theory are plain. It is entirely fictional and unrealistic; it does not correspond to, and cannot explain, any human reality; and all later additions or modifications aiming to create explanations of reality just create internal PL contradictions.

Econometrics

The above critique of ML does not apply to econometrics used a tool for determining empirical information about reality. But it does apply to theorising that introduces false, idealised, claims about the nature of econometrics, such as viewing it as providing a perfect forecasting tool. That claim is used as an axiom in orthodox economic theorising as the 'rational expectations hypothesis' illustrates.

The centrality of contraries in political economy

Contraries have no relevance to outcomes in pure Neoclassical or Austrian economics due to their requirements of universal optimisation. But they are central to approaches in political economy such as the Post Keynesian, Institutionalist, Marxian, Behavioural, Ecological and Feminist schools. These allow for variability in outcomes and satisfaction levels across agents due to realistic assumptions concerning agent knowledge, abilities and objectives, and how economies function. It is thus important that political economists be aware of the contrary-contradiction distinction, and the resulting PL-ML differences, for at least three reasons.

First, it delivers powerful *internal* critiques of all forms of orthodox economics. It shows how PL, a crucial tool that Neoclassicism needs to offer verbal explanations of how its ML-based theorising relates to reality, delivers unanswerable critiques of Neoclassicism by showing that its theorising, based entirely on fictions, cannot possibly be abstractions

drawn from reality, and that it always generates contradictions when attempts are made to explain reality. In PL terms, what Neoclassicism advances as valid theorising helping us to understand reality is actually invalid theorising due to the inevitable presence of contradictions in all its attempts to explain reality.

Second, it alerts those political economists using ML to be aware of its dangers, and thus to ensure that similar mistakes are avoided. It is possible to use ML in PL-consistent ways, but the opportunities are more limited due to the need for realism.

Third, key lessons can be taken from the history of economic thought where famous political economists were philosophers before becoming political economists. In the 18th century, all the writings of Adam Smith, who held chairs in logic and moral philosophy at different times, had philosophical and logical foundations regardless of their subject matter. His awareness of contradictions, and of genera-species relations (involving contraries), is evident across his works. And the theorising in his *Wealth of Nations* has clear foundations in his philosophy, including the scientific, realism-based, meaning given to his 'invisible hand' remark' which, contrary to Neoclassicism, does not involve universal optimisation (see: O'Donnell 2024a).

In the Nineteenth Century, Marx held a doctorate in philosophy, criticised and developed Hegelian philosophy, wrote *Economic and Philosophical Manuscripts*, and produced *Das Kapital* (1867-94) which mainly focused on economic theorising. While certainly aware of propositional contradictions, he more often used the notion of contradiction in a different 'material' sense, namely, of things in the real world that oppose each other, as in the contradictory interests of capital and labour. His writings also implicitly reference contraries, as in a general theory of history involving a succession of different modes of production. But he did not, to my knowledge, explicitly focus on the contrary-contradiction distinction, even though it implicitly informed his thinking due to his concern with historical reality.

In the Twentieth Century, J.M. Keynes used the distinction explicitly in his philosophy and implicitly in his economics. His university studies began in mathematics and hence ML but, being far more attracted to philosophy, he wrote his fellowship dissertation on the philosophy of probability, with this advancing his 'logical theory' as a general theory covering all probabilistic arguments, non-numerical and numerical. In chapter 5 of the

1907 and 1908 versions of the dissertation, he explicitly utilised the difference between contraries and contradictories, this continuing in the 1921 published work as illustrated by two key instances. First, his diagram (Keynes 1973: 42) where the two endpoints, 0 and 1, are contradictories, 0 representing logical impossibility, and 1 logical necessity, and all the other lines represent non-numerical probabilities in which probabilities only have ordinal relations of larger or smaller. Second, his discussion of situations in which statements have more than two alternatives, as in 'the colour of this book is *x*'. where *x* references not just the two contradictories, red and not-red, but a range of contraries, such as red, blue, green, black, yellow, etc (Keynes 1973: 45-7). These philosophical ideas later emerged in his economic writings, especially his *General Theory* of 1936 and his subsequent theorising (see: O'Donnell 1989, 1991).

Theoretical individualism

The doctrine of theoretical individualism (TI), an essential foundation of Neoclassical economics, provides further illustrations of ML-PL conflation. TI asserts that wholes are the sums of their parts, no more and no less. This is true of entities that are independent of each other, as in sand grains, sailing ships and numbers. Adding these inert things together produces sand piles, fleets of ships, and bigger numbers. But TI is false when applied to *interdependent* entities such as humans who, by their nature, cannot exist independently of other humans and hence necessarily exist in in societies with social institutions.

If n is the number of economic agents, TI allows mathematical Neoclassical economists to view economies as having the range, $1 \geq n \leq \infty$. While both extremes are possible in ML terms, they are impossible in PL terms due to producing internally contradictory accounts. The lower limit is impossible as there is no such thing as a one-person economy ($n = 1$) because, by definition, *exchange* requires a minimum of two agents. The upper end is also impossible. An infinite number of humans on a planet with finite total resources, F, cannot exist because $F/\infty = 0$, which means many or all individuals have nothing, which both means no trading, and that these individuals will die. Both extremes, however, have been deployed by Neoclassical economists with disastrous outcomes in PL terms (see O'Donnell 2024c).

Pluralist economics

In broad terms, pluralist economics embraces the following ten schools: Neoclassical, Austrian, Post Keynesian, Institutionalist, Marxist, Behavioural, Ecological, Feminist, Neo-Ricardian, and Complexity economics. Within this group, some oppose others in core respects, but the majority display concordances. A key difference arises between the minority positing *single* equilibrium outcomes for agents, i.e. universal utility maximisation as in Neoclassical and Austrian economics, and the majority allowing *multiple* outcomes to occur with varying levels of agent satisfaction, as in in Post Keynesian, Institutionalist, Marxian, Ecological, Behavioural, and Feminist economics.

The question now arises as to whether the large sub-set using realism-based assumptions and contraries in outcomes can be combined into a more general theoretical framework in which they become contraries in the sense of analysing different aspects of a single multi-faceted reality. This large, important, and engaging topic is not pursued here, but Anderson (2004), Stilwell (2006), and Stilwell *et al.* (2022: Ch. 31) broach relevant aspects.

A wrong road

Some previous discussions have advanced the idea of *accommodation* or *convergence* between schools. The late David Colander, whom I liked and respected more as a person than as a logician, was a leading exponent of this muddled strategy. Colander (2010) sought to move beyond 'the rhetoric of pluralism' to what he called 'an "inside the mainstream" heterodoxy', as opposed to the current pursuit of "outside the mainstream" heterodoxy. That such a move was even possible reveals a deficient understanding of PL, as it involves contradictions seeking to reconcile the irreconcilable. By definition, orthodoxy and heterodoxy are opposites, P and ∼P. It is then impossible to relocate ∼P inside P as a member of P, for that creates the contradiction that P and ∼P are reconcilable in some way. The only logical path is to abandon convergence and uphold non-convergence. What Colander advanced was just an expanded, meta-level, form of Synthesis Neoclassicism.

Conclusion

My life-journey, via civil engineering, politics, philosophy, orthodox economics, political economy and tertiary education, has led me to the following conclusion. To ensure that vitally important philosophy-related issues are well understood, and practised, by political economists, a philosophical component dealing with the above issues is desirable in undergraduate political economy syllabi.

While ML can be a useful tool in economic theorising, care is needed if it is to deliver theories satisfying PL validity. The belief that the mathematical approach underpinning Neoclassicism is the necessary and best foundation for all economic theorising is a pernicious doctrine needing total abandonment. To my knowledge, deploying the distinctions between (i) contraries and contradictories, and (ii) ML and PL, represent new contributions to political economy and the history of economic analysis.

As a social science, political economy is linked to multiple disciplines − politics, sociology, psychology, and histories (of nations, the world, and economic thought) – with these topics already receiving attention to varying degrees. But as a *scientific* discourse, it must also have foundations both in valid propositional logic and realism. To ensure that such requirements are met, its teaching and research can benefit greatly from the addition of philosophical components dealing with these matters. While I am far from alone in such a call (*e.g.* Boumans *et al*. 2010; Davis 2025), Sydney's Political Economy Department is in a position to actually implement such a change.

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