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RONCAGLIA ON SRAFFA AND WITTGENSTEIN:  
FURTHER COMMENT

BY

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# Roncaglia on Sraffa and Wittgenstein: Further Comment

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## **Abstract**

This paper considers whether, as suggested by Roncaglia (1978), there exists, in how they relate to foregoing ideas, a similarity between Sraffa's approach in the *Production of Commodities by Means of Commodities* to the theory of value and Wittgenstein's later linguistic philosophy as expressed in the *Philosophical Investigations*. McLachlan and Swales (1998) take the view that no such affinity exists. We dispute the McLachlan and Swales assessment on the grounds that, in the works in question, Sraffa and Wittgenstein – each with reference to his own sphere of interest – are, in an analogous manner, denying the possibility of analysing, as previously (neoclassical orthodoxy, the *Tractatus* theory of language) thought feasible, all problems in economics or linguistics in terms of a single, all-comprehending *general* theory, and implying or indicating that the appropriate approach is instead to seek to understand economic and linguistic phenomena by analysis which is specific to the problem in hand and which sets that problem within the appropriate social context.

## Introduction

McLachlan and Swales (1998) – henceforth MS – in their paper on “Sraffa, Wittgenstein and the Nature of Economic Theory” comment on the suggestion that certain links may exist between the ideas of Sraffa and those of Wittgenstein. They refer specifically to the “fascinating claim” made by Roncaglia (1978) that (as they put it) the difference between the economics of the marginalist school and the economics of Sraffa is related to the difference between Wittgenstein’s earlier and his later philosophy, or that (equivalently) in Roncaglia’s own words, “while . . . the marginalist school seems to adhere to an epistemology similar to that proposed by Wittgenstein (1961) in the *Tractatus*, Sraffa’s analysis seems to draw more directly on the methodology embraced by Wittgenstein (1968) in his *Philosophical Investigations*”. MS refer also to the “commonly held view” that Sraffa was influential in producing the change between Wittgenstein’s earlier and later philosophy. On both these matters MS are sceptical: they find no affinity in the relationship between neoclassical economics and the economics of Sraffa and that between the earlier and later thinking of Wittgenstein, and seem moreover to doubt whether Sraffa did in fact have any influence on the development of Wittgenstein’s philosophy.

On the issue of Sraffa’s influence on Wittgenstein MS do of course recognise Wittgenstein’s acknowledgement (in the preface to *Philosophical Investigations*) of his debt to the “criticism . . . which a teacher of this university, Mr P Sraffa, for many years unceasingly practiced on my thoughts” and his further statement that “I am indebted to *this* stimulus for the most consequent ideas of this book”. Nevertheless they still question whether Sraffa could, as Monk (1991, p.260) puts it, have had “the power to force Wittgenstein to revise his whole perspective” and wonder whether or not “Sraffa’s criticisms (whatever they happened to be) could have been consequential, whether in fact they were consequential and, if so, how were they?” The fact that MS evidently find it difficult to conceive of any link between the thinking of Sraffa and that of Wittgenstein, does not in itself justify their casting doubt on the possibility that Sraffa did have an important influence on Wittgenstein. Unless therefore MS can suggest any reason why Wittgenstein himself might have been mistaken in attributing a significant influence, on his thinking, to Sraffa (and they make no such suggestion), it would seem sensible to accept Wittgenstein’s own opinion that Sraffa’s criticism was indeed an important factor in causing him to give up the method of the *Tractatus* and to choose a different angle of approach in his continuing quest to clarify the limits of language. We do not propose in this note to speculate further on the issue of

Sraffa's influence on Wittgenstein, or to go into the question of the precise significance of Sraffa's "Neapolitan gesture".

It is, however, with the other issue that we are primarily concerned – the validity of Roncaglia's "claim" that, because methodological similarities seem to exist between, on the one hand, neoclassical economics and the theory of the *Tractatus* and, on the other, between Sraffa's economics and Wittgenstein's procedure in the *Philosophical Investigations*, the relationship of the later to the earlier philosophical thinking of Wittgenstein is somehow similar to that between the Sraffa and the neoclassical versions of economic theory. On this MS's conclusion (p.270) is pretty definite: "Roncaglia's claims about the relationship between Wittgensteinian philosophy, marginalist economics and Sraffa seem to us to be untenable." We do not think, however, that MS succeed in dismissing Roncaglia's thesis.

### **General theories: marginalist economics and the *Tractatus* theory of language**

In appraising Roncaglia's claim MS (p.258) take the line that he is suggesting that Wittgenstein, in the *Tractatus*, "prescribed that scientists should adopt a particular approach" and that the marginalist theory has in fact been constructed on that basis. MS then go on to emphasise the "non-prescriptive nature of Wittgenstein's enterprise" and to argue (p.261) that Roncaglia is mistakenly running together and treating as equivalent components of the two analyses which bear no more than a superficial similarity to each other.

Roncaglia gives the impression that the propositions of marginalist economic theory are what Wittgenstein means by "elementary propositions". Indeed, if he does not want to give that impression, it is not clear why he wants to compare marginalism with Wittgenstein's early philosophy. However, it seems clear that marginalism does not consist of elementary propositions i.e. a combination of names. Individually at least, such propositions can be contradicted and this suffices to show that they are not elementary ones. It is not clear why Roncaglia thinks that "economic agents" and "goods" are, in Wittgenstein's terms, "objects". Are "economic agents" and "goods" unalterable; how can they be thought to constitute the "substance" of the world? However, it is clear that the propositions of marginalist theory do not simply name such a phenomena (*sic*): they contain assertions about the behaviour and nature of such phenomena and

hence they cannot be elementary propositions. And such phenomena cannot be “objects” since objects can only be named.

What MS are saying here about the non-correspondence of specific elements of the respective models may be all very well, but they appear to be interpreting Roncaglia in far too literal a way. His purpose is to draw attention to a *general* similiarity which he perceives to exist between the *nature and method* of Wittgenstein’s theory of language as presented in the *Tractatus* and the theory of value developed by economists of the neoclassical or marginalist school. While each theory is understood to apply in its own sphere, to its own particular subject matter, Roncaglia’s point is that, despite their different fields of application, there is a common *character* to these linguistic and the economic analyses. The focus is on the similar manner in which, in each case, the theory in question relates the object of explanation to the features of the real world. Wittgenstein is concerned with understanding how language is grounded in reality; the marginalist theorists wish to explain how relative values reflect the given conditions of demand and supply which exist within the economy. There is no need to suppose, as MS apparently do, that Roncaglia fails to distinguish between the features specific to each analysis: it is missing Roncaglia’s point to interpret him as naively identifying the propositions of marginalist theory with Wittgenstein’s “elementary propositions”, or as identifying the “agents” and “goods” of economic theory with the (obscure) “objects” of which, in Wittgenstein’s theoretical conception, the world is composed.

What Roncaglia does do is, in the first place, refer (1978, p.119) to

the marginalist school’s search for a ‘general’ theory capable of solving the ‘general’ problem that they believe to be identified with the science of economics. All the various problems that might present themselves in reality are then considered as particular variant representations of this more general problem. A unique method of solution is is therefore thought to be applicable to the ‘general’ problem and to its various permutations.

From the neoclassical point of view the ‘general’ economic problem is of society’s making the best (utility-maximising) use of given resources. Roncaglia emphasises that the essence of neoclassical (or marginalist) economic theory is a theory of choice, of constrained optimisation, whereby rational agents, be they consumers or producers, attain their optimal

situation via substitution at the margin. Each agent, seeking utility or profit maximisation, responds to market prices and the actions of all agents are coordinated through the working of the price mechanism. From this perspective, economic theory possesses an elegant unity: all issues of consumption, production and distribution are understood to be resolved in the same way as competitive markets reconcile the self-interested maximising activities of individual agents. As is evident from Walras' sequential development of progressively more elaborate models, the theoretical analysis developed to explain the working of the simplest (exchange only) conceptual system is taken as equally applicable to the most complex (and supposedly most realistic) representation of economic reality.

The neoclassical understanding is indeed, as portrayed by Roncaglia, that the one general mode of analysis serves to elucidate all economic issues (which are all represented as being of the same essential character), and further (we shall return to this matter later) that the relative values which emerge from the working of the market mechanism constitute, for *all* goods and services, "indices of scarcity" which, under the given conditions of demand and supply, *uniquely reflect* marginal contributions to utility. Roncaglia draws a parallel between the marginalist theory as a (supposedly) all-encompassing account of value phenomena, and the theory of language presented by Wittgenstein in the *Tractatus* as an all-encompassing account of how language relates to reality. Wittgenstein's general theory of language – his "picture-theory" – may be considered to represent the meaning of language as, in a similar way, *uniquely reflecting* the state of the world.

Wittgenstein proposes a theory to explain how the meaning of language – all language – corresponds to reality. Reality consists ultimately of "simple objects" which are "named" in "elementary propositions". The non-elementary propositions actually employed in ordinary communication are derived from elementary propositions and obtain their sense from the one-to-one "pictorial" relationship of these elementary propositions to the constituent elements of the real world. Malcolm (1993, pp.32-3) describes Wittgenstein's "picture-theory" in the following terms:

According to the *Tractatus* there is a hierarchy of ordered structures. A state of affairs in the world is a structure of simple objects. A thought is a structure of mental elements. A proposition of language is a structure of signs. If a particular proposition is *true* there are three structures which, in a sense, are equivalent. There is a configuration of simple objects which *constitutes* a state of affairs.

There is a configuration of mental elements which *depicts* that state of affairs. [Wittgenstein held that the constituents of a thought must correspond to the words of language.] There is a configuration of signs [names], which also depicts that state of affairs. These are three parallel structures in the three different domains of reality, thought and language. Two of these structures are pictures of the other one. . . . Wittgenstein, in the *Philosophical Investigations*, gives precisely this account of his previous conception in the *Tractatus*: ‘These concepts: proposition, language, thought, world stand in line one behind the other, each equivalent to each.’ (*Philosophical Investigations*, 96).

Malcolm continues:

This grand design was what the intellectual world had been waiting for. It explained how a thought, whether or not it was expressed in words, could depict external reality. A thought does this by virtue of being a *model* of the reality it depicts. A thought is a picture; and ‘A picture is a model of reality’ (*Tractatus*, 2.12). The conception of the *Tractatus* explained how one could say something. The sentence one utters, just like the thought it expresses, will be a model of the situation that is being described. Both a proposition and a thought *reproduce*, in a sense, the situation they describe.

Thus Wittgenstein in the *Tractatus* may be said to offer a universal theory of language, which purports to show that there exists a unique connection between meaningful or true propositions and states of reality. The theory implies that, if an ordinary statement can, in principle, be analysed until it appears as a truth-function of elementary propositions, which uniquely correlate via simple names to the simple objects that compose reality, the truth of that statement is confirmed. Compare the neoclassical theory of value. An account of supposedly universal applicability is presented which explains the relative values of all goods and services (including factor services) as determined in exactly the same way by market forces and as uniquely corresponding to the given conditions of demand and supply. The economic theory presents a model of reality, of the inter-relationship between given material conditions and given subjective preferences, in terms of which observed value relationships are explained. In a similar manner, according to the *Tractatus* theory of language, the meaning of a word or proposition is related one-to-one to the atomistic components of reality. According to the respective theories, under all circumstances, all the

meanings we understand and all the (relative) values we perceive each correspond in a specific and unique way to the state of the world – to a state of affairs which we have to accept as the context in which we live. In each case, with regard to phenomena of language or of economics, a general, all-encompassing theory provides the interpretation.

***New directions: Philosophical Investigations and the Production of Commodities by Means of Commodities***

Wittgenstein came however to reject the picture theory of meaning developed in the *Tractatus* and was later to present in the *Philosophical Investigations*, as a critique of the *Tractatus* theory, a new account of language. Sraffa in the *Production of Commodities by Means of Commodities* put forward an analysis of equilibrium relative values in the context of a surplus-producing economic system – an analysis which is likewise presented as being in opposition to preceding ideas – in Sraffa’s case presented as “the basis for a critique of the [marginal theory of value and distribution]”. The question we have then to answer is this: is there something in common between Wittgenstein’s later approach to understanding the nature of language and Sraffa’s treatment of the theory of value, such that these latter theories, each in their own sphere, can be regarded as constituting a similiar critique of, or departure from, the earlier theoretical conceptions advanced respectively by Wittgenstein himself and by the neoclassical school of economists?

MS seem somewhat uncertain as to the precise nature and the extent of the difference between Wittgenstein’s earlier and later positions on the nature of language. They do, however arrive (p.266) at the correct assessment that:

Perhaps the main change in Wittgenstein’s later philosophy is that in it he is more faithful to his avowed intent to describe language. Rather than say that, logically, all language must be like such and such, he attempts to look at various activities which would normally be called linguistic ones and concludes that, as a matter of fact, there are various differences between them. He abandons his claim to have produced an account of all language or of all languages. It is in this connection that his notions of “language-games” and family resemblances” are crucial to his later philosophy.

And they continue (p.267):

It seems to have been [Wittgenstein's] previous view that all languages must possess essential features. . . . He is now saying that different linguistic activities need not possess such essential features and that his attempt to produce a general account of the nature of all language was misconceived. Rather than present an account of all language, in the *Philosophical Investigations*, Wittgenstein points out the diversity of linguistic activities. Different language-games are used to analyse different particular linguistic activities.

But MS seem pretty much at a loss as to how this change in Wittgenstein's thinking can be considered analogous to the way in which Sraffa's economic conception parts company with neoclassical orthodoxy. They remark (p.268) that "it is not clear why there should be considered to be a disaffinity between Wittgenstein's later philosophy and marginalist economic theory and an affinity between this philosophy and Sraffa's work." They do nevertheless come close to recognising what we believe Roncaglia has in mind when they observe (p.268) that "a wariness of general economic theories might be provoked by Wittgenstein's discussion of games and family resemblances . . . [so that] it might be thought that economists should produce particular theories of particular economic phenomena". But having said that MS fail to develop the point, commenting that "it does not seem that in this sense, Sraffa's approach is any less general than that attributed by Roncaglia to the marginalists". They do not appear to take on board the fact that, in the *Production of Commodities by Means of Commodities*, Sraffa is concentrating on one (key) issue only – the dependence of equilibrium values on the division of the surplus – and making no claim that this particular analysis applies to any other problem.

From here onwards MS's discussion of a possible relationship between the ideas of Sraffa and those of Wittgenstein tails off unsatisfactorily. Noting (p.269) that Sraffa is attempting to mount "a purely logical critique" of neoclassical theory, Wittgenstein is quoted to the effect that "the propositions of logic are tautologies [and] therefore the propositions of logic say nothing (they are the analytic propositions)". This leads on to the curious contention (p.270) that Sraffa may not have meant his theoretical analysis to say anything about the real world.

Wittgenstein's account of logic raises intriguing questions about Sraffa's work interpreted as a logical system of tautologies. It would seem reasonable to assume that Sraffa was familiar with Wittgenstein's theories of logic and tautologies. If Sraffa accepts these theories, then *Production of Commodities by Means of Commodities* would not be considered by Sraffa to be saying anything about the world nor about economic phenomena if he considered it portray a tautologous system. If Sraffa rejects these Wittgensteinian theories and yet considers his work to be tautologous, the what theories of logic and of tautologies does he hold in opposition to those of Wittgenstein?

Surely the status of Sraffa's theoretical construction is quite simply that the logic of the analysis draws out (tautological though the process may be) and makes explicit the otherwise hidden implications of the assumptions (presumably empirical or synthetic propositions) made by Sraffa about the nature of economic reality? Sraffa supposes that an essential feature of the sort of (real-world) economic system with which he is concerned is that it is "surplus-producing" – that the economy is capable, period by period, of producing an excess of output over that required to replace the inputs used up in the current cycle of production. (The significance of an economy's possessing that capability is neglected by the neoclassical school.) The logic of his analysis reveals the implications of this conception with respect to the theory of value, demonstrating that the neoclassical explanation of relative values as unique indices of scarcity cannot apply in the case of an economy possessing that physical surplus-producing capability. Sraffa's theory is certainly intended to reveal something about real world economies.

Given that MS's treatment is inadequate, further consideration of the question of a possible affinity between the later thinking of Wittgenstein and the ideas of Sraffa as presented in his *Production of Commodities by Means of Commodities* is required.

Wittgenstein, it would appear, abandoned the *Tractatus* theory of language when he came to realise that it was not generally possible to define the precise meaning of a word (sign) or proposition as used in ordinary discussion by tracing the linkage (supposed by the *Tractatus* theory to be traceable) from non-elementary to underlying elementary propositions and so to the "simple objects" which would give an exact meaning to the linguistic usage. There seem to be two factors involved in Wittgenstein's rejection of the theory of language which he had propounded in the *Tractatus*.

(1) Wittgenstein came to realise that it was impossible carry out an analysis whereby the meaning of an ordinary proposition was unambiguously identified, via “elementary propositions”, with the relevant “simple objects” of reality. Ayer (1985, p.69) explains that Wittgenstein in fact gave up the fundamental idea of “there being simple states of affairs to which the elementary propositions of the *Tractatus* were thought to correspond. Instead he argues . . . that the distinction between what is simple and what is composite depends on the way in which the question is raised, and indeed that the question has no meaning except within the rules of some language-game”. Thus, there cannot be “any unique analysis of propositions into their intrinsically unanalysable elements” (Quinton, 1968, pp.12-3, quoted by Roncaglia, 1978, p.123); the “picture theory” which grounds the meaning of language in the ultimate, supposedly “simple”, elements of reality can no longer be maintained.

(2) From consideration of how language is actually used, Wittgenstein came to recognise that the same word can be used to convey different meanings, and is not confined to a unique sense as implied by the “picture” theory. Pears (1971, p.98) describes Wittgenstein’s change of perspective, as he shifted from concentrating on uniqueness in linguistic usage, to focusing on differences. In the *Tractatus* “his whole endeavour was to prove that, however striking the specific differences between the various forms of factual propositions might be, they can all be reduced to elementary propositions.” But, as Pears explains, Wittgenstein subsequently took a new interest in diversity in the use of language (1971, p.97):

. . . his early theory of factual propositions was a theory about their essence, and so he did not pay much attention to the specific differences between the various forms of factual proposition. There were two distinct dangers here. First, the so-called ‘essence’, which was the centre of interest, might have no better claim to recognition than the specific differences which were neglected. Secondly, it might not really be the essence, because a closer look at the different varieties might reveal that it was not really shared by all of them.

That is what the “language-games” of the *Philosophical Investigations* reveal – the variety of usage of individual words in actual language, so that we are given to understand through linguistic demonstration, that it is not necessarily possible to identify the “essence” - *the* meaning - of a word. Meaning does not, as the old theory had supposed, derive uniquely from an objective state of affairs, but depends on the circumstances and the purpose for

which the word is being employed. Examples of Wittgenstein's language-games are his analyses of the uses of the terms "game" (Wittgenstein, 1972, I, 66-71) (as cited by MS, p.266), "to read" (Wittgenstein, 1972, I, 156-71) and "belief" (Wittgenstein, 1972, I, 574-8), which demonstrate that the words in question do not have a "unified employment".

Roncaglia (1978, pp.122-3) says of Wittgenstein's altered view of the nature of language:

. . . Wittgenstein developed a new theory of language and a new theory of the relation between language and the world it is meant to describe. In Wittgenstein's new theory published in *Philosophical Investigations* there is not just one kind of language, but "there are countless kinds: countless different types of use of what we call 'symbols', 'words', 'sentences'. And this multiplicity is not something fixed, given once for all; but new types of language, new language-games, as we may say, come into existence, and others become obsolete and get forgotten". In general, says Wittgenstein, 'the meaning of a word is its use in the language', but the word does not correspond to the 'simple elements' of reality, as it is impossible to define them. It is not possible to build a general theory of language, rather, instead of producing something common to all that we call languages, I am saying that these phenomena have no one thing in common which makes us use the same word for all – but that they are *related* to one another in many different ways'.

In comparing the later thinking of Wittgenstein with Sraffa's mode of economic analysis, what Roncaglia emphasises is the fact that Wittgenstein eventually gave up, as misconceived, the idea of formulating a general theory of language - a theory of universal applicability in explaining all linguistic usages - in favour of piecemeal investigation of particular issues by the method of "language-games". Noting that "in every field of science the idea that a general, all-embracing theory is superior to 'partial' theories has shown its appeal", Roncaglia (2000, p.57) draws a direct parallel between Wittgenstein's change of method from the *Tractatus* to the *Philosophical Investigations* and the difference between the "methodology of general economic equilibrium analysis" (which so appealed to the neoclassics) and "the methodology of the 'distinct and separate pieces of analysis' that . . . underlies Sraffa's approach".

Sraffa demonstrates in the *Production of Commodities by Means of Commodities* that the marginalist school has over-stepped the mark in claiming to be able to offer a universally valid theory of value. It is made evident by Sraffa's analysis that the neoclassical explanation of relative values as indices of scarcity cannot be applied in the case of a surplus-producing economic system – which is what any ordinary, real world economy necessarily is. The neoclassical theory is applicable to certain special cases – to Walras' desert island where castaways trade goods on the beach, or to a prisoner-of-war camp – but only because no production takes place in those economies. While the neoclassical approach may, for a starting point, be applied to explain the situation in a simple exchange system, the conclusions arrived at for that simple case cannot simply be extrapolated to cover realistic cases involving production, saving and accumulation; the simple case, that is to say, cannot be treated as a “parable” which tells us something about more complex and realistic instances. The problem is that when surplus production is involved, the neoclassical intuition that relative values reflect relative scarcities is undermined by the fact that the relative quantities of “factors of production” is indeterminate unless values are already known. The difficulty derives from the fact (encountered also in the past by Ricardo and Marx) that equilibrium relative values depend on the distribution of net income, so that the “quantity of capital” has no meaning independently of the structure of prices. The supposedly general theory of the neoclassics is therefore shown to be of only very limited applicability. If interpretation is required of the situation of a typical real-world economy, a different analytical approach, such as offered by the old classical tradition, must be employed.

The inapplicability of the neoclassical theory of general equilibrium beyond the simplest case of the exchange economy is indicative of the basic problem with the marginalist approach – that while the favoured analytical method is appropriate for certain problems, the neoclassical school extend, or attempt to extend, application of the methodology beyond its legitimate limit. In consequence the analysis loses touch with reality; rather than finding a theory which demonstrates how the real world works, we encounter instead an artificial world created so as to fit the requirements of the analytical method.

We suggest that the conclusion to be drawn from Sraffa's implicit critique of neoclassical orthodoxy is that economics needs to break away from the marginalist habit of seeing all economic issues in the same terms and as explicable by the same analysis of constrained optimisation, and adopt where necessary more applicable lines of approach which do not

force the subject under investigation into a pre-conceived and distorting conceptual framework. Just as Wittgenstein in the *Philosophical Investigations* appreciates that the “one size fits all” theory of meaning does not capture the diversity of actual linguistic usage, so (mainstream) economists need to open their eyes to the contributions which, in particular areas, analytical traditions, other than the neoclassical – e.g. old classical, Keynesian, institutional – can make to understanding.

### **Neoclassical economics: false uniformities**

In the *Philosophical Investigations* Wittgenstein, as we have said, rejected his earlier conception of reality as composed of “simple objects” and with it the associated general theory of language which represented all language as modelling or depicting a given objective reality. In a not dissimilar manner Sraffa’s implicit critique of neoclassical orthodoxy calls in question the supposed applicability of the marginalist approach to all economic problems and its explanation of all relative values as unique indices of the abundance or scarcity of goods and services of whatever sort. The danger of a universal theory, in linguistic philosophy or in economics, is, it would appear, that non-conforming features of reality are misrepresented through being forced into an inappropriate conceptual framework.

Consider some further instances of what may be described as the “theoretical imperialism” of the marginalist school – a propensity to extend the marginalist approach beyond its proper limits of application into areas where other modes of analysis would be more appropriate. The marginalist method was of course first introduced to economics to explain, more satisfactorily than before, the utility maximising behaviour of the consumer and resolve the “paradox of value”. It was however soon extended to cover production and distribution. Such was the marginalists’ enthusiasm for the new methodology that, rather than question the applicability of the favoured approach to these areas of inquiry, they, in effect, opted to tailor and (no doubt unthinkingly) distort the subject matter under investigation in order to aid its handling by the new analytical method. Notice how, while the field is widened when production and distribution are tackled, the methodology remains unchanged.<sup>1</sup>

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<sup>1</sup> Schumpeter (1954, pp.1010-1), discussing Walras’ treatment of production observes: “We perceive immediately that Walras strove for a solution of this problem that was entirely symmetrical with the solution he had previously worked out in his final theory of barter in a multi-commodity consumers’ goods market. In fact,

To deal with production and distribution the neoclassical *utility* function is, to all intents and purposes, reinvented as the *production* function, with indifference curves re-labelled as isoquants; the decision-making agent is now the producer rather than the consumer, but is represented as behaving in exactly the same way, attaining a constrained optimum (minimum cost rather than maximum utility) by means of substitution at the margin. While the utility function may make sense as a framework for the analysis of consumer behaviour, the parallel production function is much more difficult to rationalise in terms of the realities of industrial production. For instance, if (as typically) output is represented as a function of labour and “capital”, it is not possible to attach a realistic meaning to “capital” as employed in this context. It is supposed that reference is to a real (physical) factor of production, and the assumption is made that “capital” is subject to diminishing returns when applied along with a given input of labour. But to justify that assumption, the factor in question would have to be *homogeneous* in nature – thus the references in the literature to “butter”, “jelly”, “leets” or perhaps “porridge”. In the real world of industry, however, plant and equipment and buildings are not composed of such a substance. The idea of a factor of production with the properties of porridge is literally “nonsense”. What we have here is not (as has been claimed) a “parable” which conveys in a simple form what is true in more complex circumstances; on the contrary the implications of the model are wholly dependent on the literal truth of the “porridge” assumption, and do *not* apply more generally to the real world.

Likewise in the context of the production function, while the marginalist theory attributes identifiable marginal products to factor inputs, it is, under real conditions, difficult, if not impossible, to “unscramble”, as the marginal productivity theory of distribution requires, the contributions of the various complementary inputs. (It is not without significance that Alfred Marshall, in expounding in his *Principles* (1956 p.427) the marginal productivity story, dodged the issue by selecting as his illustrations the “marginal shepherd”, and the “marginal railway guard” – workers who could perform their duties without need for the employment of additional complementary resources.) Again, with respect to technology, the neoclassical production function depicts an opportunity of choice amongst a wide spectrum of production techniques by which a particular commodity may be produced. Investigation of this matter, in connection with the erstwhile quest for technology “appropriate” for developing countries, demonstrated that this is a misleading picture, failing to correspond with the

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his theory of production may be described as an attempt to resolve . . . the case of production into the more general case of exchange between services and goods, and, in the last analysis, simply between services.”

realities of technological choice. There can be little doubt that the conventional neoclassical analysis derives from facile generalisation of the basic model of consumer choice, rather than from empirical study of industrial conditions.

It seems clear that these anomalies characteristic of the neoclassical theories of production and distribution are occasioned by the incautious extension of an analytical method that had been found to yield fruit when initially adopted for the explanation of consumer behaviour, but was less well suited to the elucidation of other issues to which it was subsequently applied. [One has only to read Jevons's (1871)<sup>2</sup> or Walras's (1874)<sup>3</sup> proclamations of their ambitions to reconstitute the discipline to appreciate how powerful was the thrust of the neoclassical research programme with its intent to comprehend the whole subject matter of economics within the one theoretical framework.] An elegant *general* analysis covering consumption, production and distribution was created, but at the unfortunate price of misrepresenting (and sometimes neglecting) elements of reality not naturally compatible with the neoclassical theoretical treatment.

Without going into detail we may remark that there are other areas of economics - for instance, relating to macroeconomic fluctuations and unemployment – where the general neoclassical interpretation that coordination through the market of the optimising decisions

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Pasinetti (1981), p.16 (footnote) comments in similar vein: "In what is known nowadays as general equilibrium analysis, all problems, all theorems are first of all framed and proved within a pure exchange model, i.e for a hypothetical world in which the process of production does not exist. Only then – when all things look fine for a pure exchange model – is a production process introduced. But at this stage, obviously, a production process can be introduced only if it does not upset the already built scheme. And what inevitably happens is that all aspects that might upset such a scheme are taken away by assumption. All important problems concerning production are either ignored altogether or stripped of their relevant features, devitalised and reduced by one assumption over another, to an innocuous form that does not upset the pre-conceived scheme of the optimum allocation of scarce goods."

<sup>2</sup> "Pleasure and pain are undoubtedly the ultimate objects of the calculus of economics. To satisfy our wants to the utmost with the least effort – to procure the greatest amount of what is desirable at the expense of the least that is undesirable – in other words, *to maximise pleasure*, is the problem of economics." (1871/ 1971, p.101) As Jevons sees the situation, there is a major task ahead: "When at length a true system of economics comes to be established, it will be seen that that able but wrong-headed man, David Ricardo, shunted the car of economic science on to a wrong line, a line on which it was further urged towards confusion by his equally able and wrong-headed admirer, John Stuart Mill. . . . It will be a work of labour to pick up the fragments of a shattered science and to start anew, but it is a work from which they must not shrink who wish to see any advance of economic science." (1871/1971, p.72)

<sup>3</sup> "Everyone competent in the field [of economics] knows that the theory of exchange based on the proportionality of prices to the intensities of the last wants satisfied. . . which was evolved almost simultaneously by Jevons, Menger and myself . . . constitutes the very foundation of the whole edifice of economics." (1874/1954, p.44) Walras looks forward to the day when: "The establishment sooner or later of economics as an exact science . . . need no longer concern us. It is perfectly clear that economics, like astronomy and mechanics, is both an empirical science and a rational science. [Eventually] mathematical economics will rank with the mathematical sciences of astronomy and mechanics: and on that day justice will be done to our work." (1874/1954, pp.47-8)

of rational agents can be expected to lead to a socially desirable outcome needs, for reasons of logic, to be replaced by an alternative theoretical approach - say, in that context, one of a genuinely Keynesian character.

Thus, in that Wittgenstein abandoned his early idea of attempting to describe, by an all-encompassing theory, how language drew its sense from reality and adopted the position that particular usages of language need to be analysed with reference to the context of each, a methodological parallel may be said to exist between the change in Wittgenstein's approach to linguistic philosophy and the change in economic analysis - a movement away from the universal utilisation of the marginalist approach - which Sraffa was attempting to promote via his implicit critique of neoclassical orthodoxy in the *Production of Commodities by Means of Commodities*.

There is a further, related, similarity between the implications, in philosophy, of Wittgenstein's *Philosophical Investigations* and the implications, in economics, of Sraffa's *Production of Commodities by Means of Commodities*. *Philosophical Investigations* makes the point that, in real world usage, words do not have a "unified employment" such that a word, whenever it is used, is intended to convey exactly the same sense, or meaning, with that meaning uniquely representing a basic element of reality.

MS (p.255) quote Monk (1991, p.261) as saying:

Wittgenstein once remarked to Rush Rhees that the most important thing he gained from talking to Sraffa was an "anthropological" way of looking at philosophical problems. This remark goes some way to explain why Sraffa is credited as having such an important influence. One of the most striking ways in which Wittgenstein's later work differs from the *Tractatus* is in its "anthropological" approach. That is, whereas the *Tractatus* deals with language in isolation from the circumstances in which it is used, the *Investigations* repeatedly emphasises the importance of the "stream of life" which gives linguistic utterances their meaning: a "language-game" cannot be described without mentioning their activities and the way of life of the "tribe" that plays it.

In an analogous way, an implication of Sraffa's critique of the neoclassical theory of value is that the relative values of goods and services cannot be understood as uniquely reflecting, as

the “givens” of the economic situation, the existing conditions of demand and production. On the other hand, the neoclassical conception is that, with specific resources, production and utility functions, a unique set of equilibrium values (of all goods and “factor services”) is expected to exist. Factor incomes are determined by market forces, simultaneously with commodity prices, as “indices of scarcity”. In effect, the law of value is regarded as having a similar (“natural”) status to, say, the law of gravity, in determining the conditions under which members of the community have to make their lives.

But Sraffa implies that that is not so – for the reason that the parameters of the value system are understood to include not only conditions of demand and supply, but, along with these, the institutional factors which determine the economic power and income shares of different groups within society. Relative values, that is to say, are not independent of the socio-economic relationships which exist between members of society. It follows that, other things being equal, values would differ between, say, a capitalist society and a socialist commune, or between a capitalist system in which laws and institutions favoured the employers over the workers, and one in which the bargaining position of labour was much stronger. From the perspective of the *Philosophical Investigations* meanings are not independent of the social context in which language is being used; from the perspective of the *Production of Commodities*, relative values are not independent of the nature of the social order in which economic activity is taking place.

To illustrate the dependence, *ceteris paribus*, of relative values on social conditions, consider a couple of what we might call, in the economic context, not “language-games” but “value-games”. (These are “thought experiments” exploring the logical implications of the classical / Sraffa-type theory of value; we do not need to imagine the postulated changes in distribution to be actually occurring events.)

### Case 1.

The example is drawn from a study (Grieve, 1993) of the economics of the eighteenth century banker and economic theorist, Richard Cantillon. Imagine a simple, primarily agricultural economy, but with some manufacturing activity carried on as well. The socio-economic state of affairs as recognised by Cantillon would be that a class of private landowners own the land and extract rent from the farmers who do the actual work in the fields. It is supposed that the incomes (wages) of workers in both agriculture and manufacturing are (reflecting labour’s weak bargaining position against the landed

proprietors) at near subsistence level. Profits – this being the mid-eighteenth century – are not yet recognised as a category of income. Given these wages and the surplus-producing capability of the economy, the landlords enjoy substantial real incomes from their rents.

For simplicity, we suppose all agricultural produce to consist of “commodity A” and all manufactures as being in the form of “commodity M”. We make the following assumptions about the production system. Each year, in agriculture, 200 workers working on 650 units of land (of uniform fertility) use 80 units of A (seed corn) to produce 390 units of A; in manufacturing 160 workers work up 80A (materials) to produce 140M. The real wage is taken to be  $0.5A + 0.25M$  per worker, per annum. On these assumptions the real value of the rent received by the landlords, i.e. the annual net surplus over replacement of materials and maintenance of the workforce at subsistence level, is  $50A + 50M$ . (Note that the proprietors’ income is in the form of absolute rather than differential rent.)

What we wish observe is how (from the Sraffa / classical perspective) equilibrium relative values (made up of costs of production, including labour, materials, and where applicable, rent and profit) within this system depend, *ceteris paribus*, on social relationships and the consequent distribution of income (i.e. division of the surplus between competing claimants). By contrast, neoclassical theory would (as we have already mentioned) predict that, if resources together with conditions of production and demand are fixed, a unique set of equilibrium relative values, of commodities and of “factor services”, will emerge as “indices of scarcity”. In undertaking the following “thought experiments” we do in fact make the assumption that no changes occur in available resources, technology, or utility functions. (We suppose, specifically to isolate and make clear the effects of alternative distributional states on relative values, that industrial input-output coefficients remain the same, even if, in response to changes in relative incomes or commodity prices, the pattern of production – the relative output levels of commodities A and M - alters.)

*First instance:*

(i) as described above, wages are determined by relative bargaining power.

Taking the real wage (W) as the numeraire, and setting  $W = 1$ , under these

circumstances  $P_A$  (price per unit of A) = 1.11;  $P_M$  (price per unit of M) = 1.78.

Thus  $P_M / P_A = 1.78 / 1.11 = 1.60 / 1$ .

*Alternative circumstances:*

(ii) Imagine that increased competition amongst workers for employment has caused the real wage to fall to, say 75% of its previous level; equilibrium relative values (keeping  $W = 1$ ) would then, *ceteris paribus*, be:  $P_A = 1.63$ ;  $P_M = 2.07$  and  $P_M / P_A = 1.27 / 1$ .

(iii) On the other hand, if the workers were to expropriate the proprietors, all income would go to labour. In these circumstances, with  $W = 1$  (and again *ceteris paribus*),  $P_A = 0.65$ ;  $P_M = 1.51$ ;  $P_M / P_A = 2.32 / 1$ .

(iv) Now imagine a quite different social order, though with the same resources, technology and demand conditions; but in this instance the land is owned by capitalist farmers and manufacturing also is conducted by capitalists for profit. Suppose initially the real wage of the workers is as we first took it to be, at the subsistence level of  $0.5A + 0.25M$  per worker; the rate of profit is then = 30.5%; with  $W = 1$ ,  $P_A = 0.92$  and  $P_M = 2.18$ ;  $P_M / P_A = 2.37 / 1$ .

(v) Finally, if, in this capitalist system, profits were to increase at the expense of wages, pushing real wages down to 75% of their previous value, *ceteris paribus*, we would have, with rate of profit = 58.9% and  $W = 1$ :  $P_A = 1.21$  and  $P_M = 2.92$ ;  $P_M / P_A = 2.41 / 1$ .

This manipulation of a rather crude model of a surplus-producing economic system illustrates the proposition suggested by Sraffa's analysis, that the structure of equilibrium relative values, *despite given resources, technology and demand conditions*, differs according to the social order and the property relationships within society which determine "who gets what". Relative values are not, as the marginalist theory of value and distribution holds, determined simply by conditions of supply and demand: they must also be such that wages and rents or profits command output shares as determined by the underlying institutional factors of property ownership and economic power. In other words, equilibrium

values are more than merely market clearing prices (as in Walras' desert island), but correspond to the "natural values" of classical political economy.

### Case 2.

Malcolm (1993, pp.43-4) tells how Wittgenstein, when asked (the year was 1948) what he thought of Hegel's philosophy, replied:

"Hegel seems to me to be always wanting to say that things which look different are really the same. Whereas my interest is in showing that things which look the same are really different. I was thinking of using as a motto for my book a quotation from *King Lear*: 'I'll teach you differences.'" Then laughing: "the remark 'You'd be surprised' wouldn't be too bad a motto either."

Malcolm observes that

'You'd be surprised' would indeed be a fitting motto for the *Philosophical Investigations*. That is exactly what happens when an unexpected difference comes to light. One is surprised: it isn't what one would have thought – even though it is in *one's own familiar language* that the differences are shown!

Malcolm is of course referring to surprising aspects of language usage as brought to the attention of readers through the language-games of the *Philosophical Investigations*. The Sraffa theory of value too throws up some surprises for economists brought up within the neoclassical tradition.

Consider another simple example or "value-game" (Grieve, 1992, mimeo). Two techniques, X and Y, of producing the same commodity are considered. What, from the neoclassical perspective, is startling is that the two techniques cannot be uniquely compared in terms of capital-labour ratios – i.e. in terms of value of capital per worker employed. (Bear in mind that the only feasible or relevant way of making heterogeneous capital goods commensurate is in terms of value.) Because the relative values of the capital goods involved depend on distribution, we find that in some circumstances X is the more capital intensive technique, in other circumstances, Y. One of the certainties of the neoclassical conception is dissolved.

Let us now see how that happens. Alternative techniques (X and Y) of producing a net output of consumption goods are compared. We define a technique as a complete production system. Each system, or technique, produces and uses two commodities, a capital good and the consumption good. Each system is comprised of a capital goods industry and a consumption goods industry. Capital goods are the “basics” of the systems – they are required in the production both of consumption goods and of the capital goods themselves. We suppose that, while each system constitutes a particular method of producing the same consumption good (c), the capital goods produced and used in each system are physically different commodities with different technical properties; the capital goods k and k' are employed for techniques X and Y, respectively. (We may, if we so wish, follow Mrs Robinson in supposing that each technique is employed in a separate “island of equilibrium”.)

Specifically, the two techniques (systems) for producing commodity c are as shown below. [Outputs are per annum;  $p_c$ ,  $p_k$  and  $p_{k'}$  denote the prices of the consumption good and the two forms of capital good;  $\pi$  is the rate of return on capital, and w the annual real wage per unit of labour (L), in quantities of the consumption good.]

#### Technique X

Physical relationships:

60k + 75L produce 105k

45k + 25L produce 220c

-----  
105k + 100L

[“Standard system”

80k + 100L produce 140k; maximum  $\pi = 60k/80k = 75\%$ ]

Value relationships:

$60p_k (1 + \pi) + 75w = 105p_k$

$45p_k (1 + \pi) + 25w = 220p_c$

#### Technique Y

Physical relationships:

48k' + 40L produce 80k'

32k' + 60L produce 200c

-----  
80k' + 100L

[“Standard system”:

120k' + 100L produce 200k'; maximum  $\pi = 80k' / 120k' = 67\%$ ]

The structure of equilibrium values in each of the two systems depends on the distribution of the surplus between wages and profits. Table 1 below shows some of the feasible ways of

distributing available output, with rates of return varying between the minimum value of zero and maximum possible values of 75% (in the case of system X) and 67% (system Y). The technique selected for use would be that which, under whatever circumstances (social order, income distribution and relative values) offers the higher rate of return on capital.

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*Table 1: profit and wage possibilities.*

<i>Technique X</i>		<i>Technique Y</i>	
<i>Profit rate</i>	<i>Real wage</i>	<i>Profit rate</i>	<i>Real wage</i>
	<i>per unit of L</i>		<i>per unit of L</i>
(%)	(in units of c)	(%)	(in units of c)
0	2.22	0	2.10
10	1.83	10	1.79
20	1.49	20	1.56
30	1.17	30	1.29
40	0.88	40	1.00
50	0.61	50	0.67
60	0.35	60	0.29
70	0.11	67	0.00
75	0.00		

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The manner in which the structure of equilibrium values differs in each system according to the division of the surplus is shown in Table 2. The source of these variations in relative values is to be found in the different patterns of the streams of “dated labour” inputs to which the costs of production of each commodity can be reduced. The present values of these streams (the commodity prices) depend on the division of net output between wages and profits.

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*Table 2: relative values*

<i>Technique X</i>					<i>Technique Y</i>				
$\pi$	$p_k$	$p_c$	$w$	$p_c/p_k$	$\pi$	$p_{k'}$	$p_c$	$w$	$p_c/p_{k'}$
0	1.67	0.45	1	0.27	0	1.25	0.50	1	0.40
10	1.92	0.54	1	0.28	10	1.47	0.56	1	0.38
20	2.27	0.68	1	0.30	20	1.79	0.64	1	0.36
30	2.78	0.86	1	0.31	30	2.27	0.77	1	0.34
40	3.57	1.14	1	0.32	40	3.12	1.00	1	0.32
50	5.00	1.65	1	0.33	50	5.00	1.50	1	0.30
60	8.33	2.83	1	0.34	60	12.50	3.50	1	0.28

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Table 3 shows how the capital/labour ratios (value of plant and equipment per worker) of the two techniques do not stay constant, but vary with the distribution of income. Moreover, we cannot say, without knowing distribution and relative values, which technique is the more “capital intensive”. At lower rates of profit X is more capital intensive than Y, but at high rates the situation is reversed, with capital per worker higher in Y than in X. *The “quantity of capital” has no unique meaning independently of the social order and the distribution of income.* The marginalist theory of the return on capital as its scarcity price must be replaced by a different explanation (one perhaps deriving from the old classical tradition).

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*Table 3: Capital / labour ratios*

$\pi$ (%)	<i>Capital / labour ratio technique X</i>	<i>Capital / labour ratio technique Y</i>
0	<b>1.75:1</b>	1:1
20	<b>2.38:1</b>	1.43:1
50	<b>5.25:1</b>	4:1
60	8.75:1	<b>10:1</b>

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## Conclusion

We earlier posed the question: is there something in common between Wittgenstein’s later approach to understanding the nature of language and Sraffa’s treatment of the theory of value, such that these analyses, each in their own sphere, can be regarded as constituting a similar critique, or departure from, the earlier theoretical conceptions advanced respectively by Wittgenstein himself and by the neoclassical school of economists? We conclude, contrary to MS, that a similarity does exist (which may be some indication of the effect of Sraffa’s criticism on Wittgenstein’s thinking). Each theorist has arrived at the position that the phenomena – linguistic or economic in which they are interested – are not amenable to analysis by one all-encompassing theoretical approach: that efforts to elucidate all issues in the terms of the one pre-conceived theoretical framework will fail to capture the ways in which, in the real world, linguistic usage and value relationships derive from the conditions of life and social relationships of the communities concerned.

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