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THE TACIT DIMENSIONS OF NORMATIVE RULES

abstract

All rules are normative. Using Polanyi's tacit integration, this article shows that all rules have tacit dimensions in their creation by recognition of regularities, application and modification, all of which cannot be made wholly explicit. J. Searle holds that some regular actions are not the following of unconscious rules, but ignores the fact that they have been tacitly formed by recognising of regularities. Tacitly known and practised rules are transmitted by apprentices observing the actions and judgements of masters, and then across generations by tradition. Thus knowledge and belief cannot be neither clearly distinguished nor separated. Justificatory, critical and foundational philosophies are to be replaced by a fiduciary and fallible one.

keywords

Michael Polanyi, tacit rules, skills

© The Author(s) 2019 CC BY 4.0 Firenze University Press ISSN 2280-7853 (print) - ISSN 2239-4028 (on line) 1. The Necessity of Regularities and Rules in All Awareness All our cognition depends upon making sense of our perceptions, and that depends upon developing the ability to recognise what we now perceive as the *same sort* of object as previously perceived, and then, especially with regard to faces and voices, as the *same one*. That is, to recognise regularities. A specific regularity is especially important: that of sequences, that *B* will follow *A*. All intelligent life requires such regularities upon which it can rely in order to act intelligently and not at random. Such regularities therefore provide rules for action. All this in animals and human infants is performed tacitly, and the tacit following of rules continues throughout our adult life, as we shall see from Michael Polanyi's account of tacit knowledge.¹ But before that it is more convenient to consider three other items: the normative character of all rules, the distinction between mere habits and the tacit following of rules, and John Searle's objection to all unreflective and repeated actions as the tacit following of rules.

2. Rules and All rules are normative and give us guidance in one way or another in the activities and practices of life. Constitutive rules define a practice or activity and formulate what we need to do, may do, and may not do in respect of it, such as the rules of a game, acting and speaking politely, and, in the case of moral rules or laws, of how to conduct ourselves in life generally. Technical rules and those of skill formulate how we can achieve something or prevent it within the constitutive rules, such as keeping ourselves fit and healthy, making or mending something, running a business, and persuading others to act or think as we wish. Constitutive rules set the boundary conditions of a practice or activity, and the technical rules and those of skill offer ways of succeeding and avoiding failure in it.

3. Searle, Habits John Searle argues that often we 'simply know what to do' and do not unconsciously follow rules, although he also allows that at times we do so and also that we may consciously follow them. For example, he finds it implausible to say that someone shopping with an explicit list of what to buy, has a desire in addition to the desire for the items she is buying, 'to follow the constitutive rules of money or that she is unconsciously following the constitutive rules of money?' (Searle, 1995, pp. 137-138). Rather, we often 'just know what to do, we just know how

¹ On the development of awareness and cognition in children, see the many books by Piaget, especially Piaget 1929. Polanyi frequently cites Piaget.

to deal with the situation. We do not apply the rules consciously or unconsciously'. (Searle, 1995, pp. 142-3).

'Just doing it' is typical of mere habits which are relatively simple and unchanging actions such as scratching the head when puzzled, saying 'like' after every three words or so, or crossing the road at the same place every day on the way to work. They can appear to be indistinguishable from following a rule, because both consist in repeating the same respective action. But to conflate them is to take a wholly external view of them, and not to reflect upon our own experiences which inevitably include those of others. We may be unaware that we have such habits, though we can find some hard to break. Moreover, because habits are not essentially normative, they differ from actions which follow rules. But some habits are good in one way or another and others are similarly bad. In such cases, I suggest that the good ones have been explicitly cultivated while the bad ones would have been explicitly given up. In both cases, as with all learning, the rules can be so interiorised that we apply and follow them in doing what they enjoin or abstaining from what they forbid, without any explicit awareness of what we are doing.

In any case, some habits, and probably all, are regular actions which rely on learned skills. For example, the habit of always crossing at the same place, depends upon learned abilities to walk and judge the speed and distance of oncoming vehicles and thus whether it is safe or not to cross there and then or to wait until they have passed; and, in the latter, learning early in infancy that certain things moving in front of us belong to us because we can immediately control them and direct them to other things, including other parts of ourselves. Thus they are not automatic reflexes ('unconditioned' ones in Behaviourist jargon) such as sucking whatever touches our lips or random smiling, which in sighted infants becomes directed to perceived smiles and dies away in those born blind, but, on the contrary, they are acquired by the exercise of intelligence in *re*cognising that objects and events are like previous ones, and also when they are one and the same object. Thus, as argued above, they are the result of the tacit recognition of regularities and then the acquired abilities to act upon them. Thus they are formed by the creation of tacit and partly tacit rules and exercised by the wholly or partly tacit following of those rules. Finally such rules are ones of achievement, which themselves can be right or wrong, and, if right, rightly or wrongly performed, as scratching the head too hard or misjudging the speed and distance of an oncoming vehicle. Hence, like all rules they are normative. Of course no rule is wholly exhaustive, as Searle says in the second passage just cited, except perhaps some very simple ones. But again, application is itself a learned skill which is either tacitly performed from the start or guided by some explicit remarks, such as to look out for some known exceptions which themselves have been tacitly inferred from the examples which have been tacitly noticed. Consequently, I see no reason to deny that rules with normative aspects can be and are tacitly followed even by beings with lesser degrees of intelligence, perhaps even right down to the lowly earthworm, which takes 60 to 80 wrigglings up a forking tube to learn not to go up the tube which gives it an uncomfortable shock. This is the fundamental difference between mere habits and tacitly followed rules: that the former are particular actions that are simply done and repeated whereas the latter are generalised and Searle's mention of the constitutive rules of money is an example of what Collingwood called 'absolute presuppositions', which he derives from his 'logic of question and answer' according to which the meaning of a proposition is a function of the question to which it is an explicit or tacit answer (Collingwood, 1940, Chaps. IV and V). 'Relative Propositions' are those which are the prepositions of given propositions and themselves also have their presuppositions, whereas 'absolute' ones do not have any further presuppositions. The practitioners of any science (or practice) when thinking logically about it, ask and answer questions about its relative presuppositions, but, in Collingwood's reformed metaphysics, it

is the task of philosophers, specifically metaphysicians, to formulate its absolute ones from what its practitioners have said or written. Amendments, additions and qualifications need to be made to this account, but it will suffice for the present. The relevant point is that in daily life both types of presupposition, and especially the absolute ones, are taken for granted. They are *logically* presupposed by the practitioners but are often or even never, not *explicitly formed and known* by them. Practices, including the sciences, e.g. mathematics and its presupposition of set theory, may be developed long before anyone begins to reflect upon them and to formulate what they presuppose, let alone what they absolutely presuppose. Likewise explicit reflection upon scientific methods began only with Galileo, and those of history in the late 18th C.² Consequently, it is only to be expected that ordinary people will not have any idea that they make such presuppositions. It was centuries after exchanges, money and prices were commonplace that in the 18th C. people began seriously to theorise about them, above all Adam Smith, who founded the modern science of an exchange economy based upon the division of labour, and to formulate the fundamental laws of supply and demand.

4. Polanyi and Tacit Integration

Using the work of Michael Polanyi, I shall now and briefly show how all our thinking and action involves the employment of skills, and that therefore their rules necessarily have their tacit dimensions, and thus cannot be completely articulated, whether in words, diagrams, physical models, or by other means. From this Polanyi develops its many implications. I shall focus upon the epistemological ones of forming and following rules, which will inevitably involve reference to, and some further development of, at least some of them. It is important to recognise that Polanyi goes beyond what many people over the ages have noted: that we can know some things without knowing that or how we know them, especially how to exercise the skills that we undoubtedly have. But most philosophers who have recognised this, have then continued to ignore it. Polanyi cites many examples from the natural sciences and medicine (he was internationally recognised as a leading figure in physical chemistry, and had trained as a doctor but practised medicine only as medical officer in the Austro-Hungarian army in the First World War), the psychology of perception, engineering and everyday experience. But they are preliminaries to the central conception to which his previous philosophical writings had led and then which would form the basis of all his subsequent ones.

Phenomenology, following Brentano (Brentano, 1874/1973), has rightly stressed the intentionality of mind: that mental acts and functions have objects: no knowing without something known, no willing without something willed, no desiring without something desired, no loving or hating without something loved or hated. Polanyi goes one step further and formulates an account of all mental functions and acts as having a double intentionality, though he does not refer to it as such. Instead of 'A attends to B' in Phenomenology, Polanyi says, in effect, 'A attends *from* B to C'. This 'from-to' relation is a functional one: C is the *focal* object of attention, and B is the set of *subsidiary details* which we use as clues to the apprehension or performance of C. For example, a blind man using his stick does not pay attention to the impressions which the stick makes upon the palm of his hand but uses them as clues to what the other end of the stick is touching and thus to what is in front of him (Polanyi, 1960, pp. 55-6). Likewise when learning how to drive a car, we have to learn to shift our attention *from* our hands and feet, the pedals, gear-stick and steering-wheel, and *to* the road and the traffic ahead. Our *focal* awareness of our hands, feet and the instruments we use,

² Of course, Herodotus and Thrasymachus did reflect upon their methods, but relied only on memories, their own and those of others.

is replaced by a *subsidiary* awareness of them as we use them to attend *to* where we are going, of which we then have a focal awareness. Likewise in learning to understand what is spoken or written in a foreign language, we have to shift our attention *from* the sounds of the words or shapes of the letters and *to* what they mean. This is especially noticeable in the cases where the same word, spoken or written, has several meanings.

Even the simplest act of perception, such as seeing an apple, which we take wholly for granted and appears to take no effort on our part except opening our eyes and looking, is the result of efforts in and since infancy to make sense of what we see, hear, feel smell and taste, and thus to recognise similarities and differences among the objects we perceive. Apples do vary in colour, size and taste, and to someone who has never seen them before, it may take time to be able to distinguish them from similar objects such as some potatoes (*pommes* de terre) or tomatoes. In doing so, we carry forward clues, such as the characteristic shape, on which we have not focused but which we have tacitly recognised and now tacitly apply in seemingly instantaneously, effortlessly and casually recognising an apple for what it is while looking for something else. All this based on previous efforts to recognise the recurrence of the same sort of object, and then the same object, above all, to recognise the face and its smile which regularly return.

It is important to understand in all this that nothing is subsidiary or focal in and by itself, but only as, respectively, we attend from the former and rely on it in order to attend to something else. 'We know the first term only by relying on our awareness of it for attending to the second' (Polanyi, 1966, p. 10). The relation is an essentially functional one. Thus what was focal and to which we attended, the word itself, then becomes subsidiary to its meaning. Conversely the word becomes again the focal object when we revert to attending to it when suspecting that it may be incorrectly spelt or pronounced or not the apposite word in this context. Polanyi cites many examples of subsidiary and tacit attending from in order to attend to a focal object: the invisible signs by which a psychiatrist could distinguish genuine from hysterical epileptic seizures, and the mere humps and hollows, when seen on the ground, but which aerial photographs showed to be traces of prehistoric settlement (Polanyi, 1996, p. 123); the features by which we can pick out a familiar face from many others but which we usually cannot recognise when shown them one by one, as when a photograph is cut up (Polanyi, 1966, pp. 4-5; Polanyi, 1969, p. 123); people learning to anticipate electric shocks which come after only certain nonsense syllables among groups of others, but having no idea that they did brace themselves nor as to which syllables they responded (Polanyi, 1966, pp. 7-8); the way in which swimmers remain afloat—by not emptying their lungs when breathing out and by inflating them more than usual when breathing in, but without knowing that they do this (Polanyi, 1960, pp. 49-50); and maintaining one's balance on a bicycle by steering to the side to which one is falling in order to produce a centrifugal force to counter the force of gravity pulling one over, again with knowing that this is what one does, which Polanyi himself worked out for the first time (Polanyi, 1960, pp. 49-50). But if we shift our attention away from the focal whole and to the subsidiary details of the action or object, then we shall cease to apprehend the object, and our performance of the action will breakdown, if not immediately, then soon. Such clues can be classified as (a) details of the object of attention, such as the facial features, stance and tone of voice which express a person's attitude, emotion, desires, etc.; (b) the context linking ourselves to the object, such as a drama or story and not a real event nor history nor a deception; and (c) what we bring from ourselves, such as our memories, expectations, and emotions evoked by the object.

At times the details can be known, if not by the persons who attend from them, then by observers who attend to what they are doing, such as the experimenters in the example just cited or a sports coach who attends to his own actions as well as those of other players in

order to become explicitly aware of what succeeds and what fails. Such 'destructive' analysis can bring to explicit awareness and formulation what was previously only tacitly known by the practitioners of the relevant skills and crafts (Polanyi, 1960, pp. 50-2). Nevertheless, the explicitly known and taught rules have to be applied and integrated into the whole action or procedure, which cannot be done by yet further explicitly known and taught rules but only tacitly and learned by practice. For example, as Polanyi said, no one can explicitly apply the rule which he formulated for keeping a bicycle upright.

As mentioned above, when we practise a skill more fluently and successfully, so we conversely become less aware of its details and of any explicit rules we were taught, so much so that we can be unable, or only with an effort, to recall their explicit formulation. Moreover, we can practise at least some skills while thinking of something else entirely, such as driving with due care along a familiar route while thinking about something else, so that, when returning to focusing upon our driving, we have no memory of what happened and what we did at that time. Yet we are confident that we drove correctly and would have responsibly and immediately responded to any emergency, which would also have simultaneously redirected our attention to it.

5. The From the above two further questions arise: How can rules be formulated? and How can rules on and which are known only tacitly, be taught?

As has been shown, all rules are either formulated from attending to successful performances of what is already practised wholly tacitly, or depend upon such rules. The most obvious are those of languages. Highly complex ones such as Greek were spoken for centuries before the first rules, and lists of exceptions, were explicitly inferred from what people actually said and from their judgements of what was correct or incorrect. Once explicit rules of the mother tongue are formulated, then they can be taught formally, and artificial languages such as Esperanto, can be invented—it is notable that Esperanto, as its name implies, is based on Spanish. But every rule has to be tacitly judged to apply or not to each apparent case. Exceptions can often be classified in a sub-rule, such as occasions when it is right to overtake other vehicles by driving on the wrong side of the road and the moral sub-law of choice of the lesser (or least) evil when even doing nothing would be an evil as well as all the feasible actions in the situation at hand. But it still requires the personal judgement of the person in that situation to judge which is the lesser or least evil and just how to realise it in the particular situation. No casuistry of any kind can ever be complete, not only because of the infinite progress of having further rules for applying every rule, but also because no set of rules can provide for novel events and situations. That we tacitly, or 'implicitly' or 'unconsciously', follow such rules, wholly so in the long evolution of language and in each individual case, is beyond doubt. But to show how this is done, it will be better to use some of the examples already cited, because in them we tacitly infer a rule from an observed or felt regularity: that after a certain group of syllables, otherwise insignificant in themselves, an electric shock will occur; that by turning the handlebars in the opposite direction we can correct the increasing leaning of a bicycle to one side; and that by not emptying our lungs when breathing out and by inflating them more than usual when breathing in, we can stay afloat. It is important to note what is happening in these examples: that we are not following a rule at the outset but are coming to recognise a regularity, either in something apart from ourselves or in our own actions which, with practice, then become tacit rules which we tacitly follow. Only later still can we or someone else observe and experiment with what we do, and then formulate an explicit rule or set of rules which we may be able explicitly to apply.

Formulation and Transmission of Tacit Rules It would seem that what one person knows only tacitly cannot be communicated to others. But in the example mentioned above, the expert on epilepsy knows that he cannot tell how he distinguishes genuine and hysterical epilepsy by means of subtle clues to which he cannot point. He therefore urges his students to attend to his practice of that skill and so they eventually will acquire the tacit ability to distinguish the two forms, and then to become models from whose practice their students will tacitly learn the skill. This relation between expert and pupil is that of master and apprentice.

In turn the transmission of tacitly acquired and practised skills across the generations requires a living tradition of masters and apprentices, and of some of the latter becoming masters, without which all the tacit elements of practical knowledge would be lost, and any textbooks, which can include only the explicable elements, would be useless and perhaps meaningless (Polanyi, 1958, pp. 50-3). For example, the initially liberal phases of the French Revolution failed because none of politicians had any experience of conducting politics, and especially by doing so with free debate, mutual respect and compromises. In addition, too many were dominated by abstract schemes to be forced on reality, rather than by the formation of concrete measures by reference to the practicalities of the current situation. This was the inevitable result of the corralling of the aristocracy in Versailles, who were made powerless while retaining their privileges, and of personal rule by Louis XIV and Louis XV via senior clergy and technocrats made *noblesse de la robe*, which reinforced social divisions and deprived France of a body of men with the position, attitudes and skills needed for a more constitutional, consultative and representative form of government.

That all rules have essentially tacit and unspecifiable foundations has important epistemological implications, and further ones for such human activities as morality, law, education, arts and crafts, medicine, technology, intellectual disciplines, and social life generally. For it is the foundation of all awareness and knowledge, from that of the lowly earthworm which takes 60-80 wriggles up a forking tube to learn that up one of them it will feel an unpleasant sensation and thus does not go up it again, to the most developed of our natural and human sciences today. It constitutes all the awareness of animals and that of the human infant. The latter, having few 'instincts', that is, pre-formed habits, has nearly everything to learn and initially experiences a series of confusing and kaleidoscopic experiences of which he tries to make sense by coming to recognise recurrences in it, recurrences both of the same sort of thing and of the same thing. This is the truth of Plato's *Meno*, that a priori knowledge is a remembrance of apprehending the Forms in a previous life. In fact, all knowledge begins with and depends upon recognising regularities. That means that all cognition is *re*-cognition. In turn, that means that there is no clear line between knowledge and, say, confident belief, tentative belief, estimation, intelligent guessing, and blind guessing. They could be arranged in a scale of forms of knowledge, with blind guessing at the bottom and full knowledge at the top.³ But nevertheless explicit knowledge still rests upon tacit knowledge, and, if knowledge were wholly distinct from belief, it would incur the infinite regress of, 'Do I really know or merely assume that I know?', etc., etc. 'Justificatory' or 'critical' philosophies, which aim at finding tested and secure bases for our knowing, cannot but beg the very question from the outset. Thus the Empiricist search for a method, an explicit rule, for distinguishing memory images from illusions, true from false ones, presupposed all along that we can and have already sorted out some genuine and some false ones, and, furthermore,

7. Further Epistemological Implications of the Tacit Dimensions of Normative Rules

^{6.} The Transmission of Tacit Knowledge Which Cannot Be Made Explicit

³ See Collingwood, 1933, on philosophical scales of forms in which the essence itself is the variable, from almost zero at the bottom to the full realisation, either absolute or reached so far.

that we can now genuinely remember them and can rightly tell which were genuine and which were false. Likewise, Descartes, Kant and others cannot but *a*critically rely upon the very meaningfulness and appropriateness of the Latin, French, German or other languages which they employ. We can doubt if we have used the right word, *le mot juste*, for what we are trying to say, which itself disproves any claim that there is no thought without language and so that all thought must be explicit, but we cannot doubt and test each word, but must again *a*critically rely on those which we are employing and our judgement of their appropriateness, plus yet again upon our memory of what we have already learned of that language. The 'standard' account of knowledge, as 'justified true belief' or 'true belief supported by evidence', cannot cope with evidence which cannot be specified. As already noted, the experts in any field of human activity cannot point to some of the clues by which they make their judgements, and likewise connoisseurs in their fields of expertise. It is not enough for a doctor to read about a given symptom, but he must personally know it, for which he must experience cases where it is authoritatively known to be present and ones where it is absent, and thus he can demonstrate that he knows the difference in practice to the satisfaction of expert.

The large amount of time spent by students of chemistry, biology and medicine in their practical courses shows how greatly these sciences rely on the transmission of skills and connoisseurship from master to apprentice. It offers an impressive demonstration of the extent to which the art of knowing has remained unspecifiable at the very heart of science (Polanyi, 1960, pp. 54-5. The same applies to mathematics, p. 125).

The only 'justification' or 'evidence' that can be given is *post facto* success, but that may well be something that the expert alone can judge.

In general, claims to know something cannot be dismissed simply because the person concerned cannot explain why he believes what he has said, while some people, like those whom George Orwell called 'the silly-clevers', who are highly knowledgeable in some special field but have lost all common sense and contact with reality, can produce all sorts of arguments to support their opinions, which the 'plain man' can counter only with a reassertion of his convictions and keeping to himself his suspicions that their arguments are specious. At some point we all fall inarticulate.

8. The Rule of All Finally, we come to the ultimate 'absolute presuppositions' of all our thinking and action: that Rules there is a real world around us and that it is ordered, therefore intelligible, and therefore we can discern and infer regularities in it, without which knowledge, intelligence and life itself would be impossible. Thus the rule of all rules is that by which we recognise regularities, primarily tacitly and then, but not always, explicitly: namely, induction. J.S. Mill was right in saying 'all our knowledge, not intuitive, comes to us exclusively from that source' but which 'professed writers on logic have almost entirely passed over. (Mill, 1882, Bk III, Chap. II §1.) Induction has always been the recalcitrant and illogical prerequisite of all formal logic, and thus it is the bane of rationalists who put their faith in formal logic and necessary entailment. All the sweeping syllogisms of Aristotelian and Scholastic logic, all the 'if-thens' of later logic and the universal quantifier in symbolic logic—'for all values of x, x', rest upon what no logic can prove or 'justify' but can only presuppose, that valid general and universal propositions can be made. Philosophers like J.S. Mill have tried to 'justify' induction, but have inevitably had to assume this in their very 'proofs'. Mill's attempt inverted both the epistemology and the logic. He acknowledged that 'the proposition that the course of nature is uniform, is the fundamental principle, or general axiom of Induction', although it cannot be the explanation of induction. Instead he held it to be itself an instance of induction, 'one of the last, or at all events one of those which are latest in attaining strict philosophical accuracy', but only a few philosophers have recognised it for what it is, while later laws of nature were discovered by using it, previous and more recognisable ones were found without its explicit use as a premise. (Mill, 1882, Bk III, Chap. III §1.)

Mill rightly grasps that the principle of induction is the foundation of all our knowledge, but has the categories only of induction and deduction, and therefore, since induction is not deduction, concludes that it must be itself an induction. He therefore immediately lands himself in having to assume the validity of the very process which he is seeking to validate. What he cannot conceive is that it is an absolute presupposition, not just what I have called a 'Regional Absolute Presupposition', which is what Collingwood himself discussed, that is, one of a given intellectual discipline or of a practice, but a 'Global' one of all our thinking and action (Allen, 2019; Collingwood, 1940). Global Absolute Presuppositions cannot be coherently doubted nor justified precisely because they are global. Thus what Mill presents as a justification of induction is really an account of how we modify those which we do make, and thereby increase or decrease our confidence in them, by recognising exceptions and that some are themselves are regular and others not so. Indeed, the only conclusion we can come to about some people is that they are completely unreliable, constant only in their inconstancy. Mill's justification of induction is also a rough history of how any body of knowledge develops, with, as Mill rightly says, the explicit formulation of its presuppositions appearing only at a late stage. Polanyi develops further epistemological implications of tacit integration into a 'post-critical, fiduciary and fallibilist philosophy which is self-coherent. Furthermore he develops its ontological implications. For by means of it we integrate, among other things, the subsidiary details into the apprehension of comprehensive entities, such as mounds and hollows into archaeological sites, and the performance of complex actions, as when playing tennis. All these depend on our fundamental ability tacitly to recognise regularities in the world around us and likewise to follow rules in our cognition and actions. Finally, the ontological consequences result in a multi-level universe in which the laws or rules of each higher level determine the boundary conditions of the next lower level, with personhood as the highest level of all.

REFERENCES

Allen, R.T.,(2016). 'Philosophy as the Articulation of Absolute Presuppositions' in *Collingwood and British Idealism Studies*, 22, No. 1.

Brentano, F. (1874/1973). *Psychology from an Empirical Standpoint*. Trans. A. Rancurello, D.B. Terrell and L.L. McAlister, London: Routledge and Kegan Paul.

Collingwood, R.G. (1933, 2nd ed. with added material, 2004). *Essay on Philosophical Method*. Oxford: Clarendon Press.

(1940, revised ed. 1988). *Essay on Metaphysics*. Oxford: Clarendon Press. Kant, I. *Critique of Pure Reason*, A (1st ed.) 1782, B (2nd ed.) 1787.

Mill, J.S. A System of Logic. (1843; citations from 8th ed. 1882), London: Longman's Green & Co. Merleau-Ponty, M. (1962). *The Phenomenology of Perception*. Trans. C. Smith, Routledge and Kegan Paul: London and Henly. This book converges with Polanyi and almost formulates the from-to structure of all awareness.

Piaget, J. (1929). *The Child's Conception of the World*. Trans. J. and A. Tomlinson, London: Routledge and Kegan Paul.

Polanyi, M. (1960). *Personal Knowledge*. London, Routledge, and Chicago: Chicago University Press, 1958, 2nd ed. 1960.

(1966). *The Tacit Dimension*. New York: Doubleday.

(1969). *Knowing and Being*. Chicago, Chicago University Press.

Searle, J.R. (1995). The Construction of Social Reality. New York: The Free Press.