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Embeddedness and entanglement between the methods of Articulation and Calibration

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ABSTRACT

This paper outlines how the intersection between the literatures on embeddedness and entanglement has been usually explained through the method of Articulation. It then contrasts Articulation with Calibration, a method of thinking grounded within Spinozian philosophy of Substance and Critical Realism. While acknowledging the merits of Articulation, this paper emphasizes the value added nature of Calibration and its implications on various literatures related to the study of contemporary capitalism.

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1. Introduction

The literature on New Materialism has recently revitalized classic ontological debates on the material and ideational in the last decade or so. Predicated on a relational ontology of difference and through the concept of entanglement, this literature advanced an argument centred around the multiplicity and differentiation of relations and processes within the ongoing constitution of subjects, objects, and artefacts (Barad, 2003, 2007; Braidotti, 2000). As such, New Materialism asserts an embodied and embedded materialism that is concerned with the way that the material feels, converses, and interacts, stressing, 'the concrete yet complex materiality of bodies immersed in social relations of power' (Dolphijn & Tuin, 2012, p. 21). With its focus on the multiple speeds involved in the actualization and realization of events and phenomena, the movement seeks to transcend mind–body dualism to show 'how the mind is always already the material (the mind is an idea of the body), [and] how matter is necessarily something of the mind (the mind has the body as its object)' (Dolphijn & Tuin, 2012, p. 48). This Deleuzian understanding of entanglement[1] hence maintains that all social phenomena are understood to be unique assemblages comprising interactions that are necessarily relational and contingent and devoid of any fixed and a priori essential properties. Knudsen aptly summarizes this proposition by showing how, '*in these [new materialist] variants of relational ontology, reality is considered as constructed not of essences but through events or in the relations of manifold actants that form networks*' (Knudsen, 2023, p. 4).

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That which is real is in a perpetual state of becoming, meaning a world where objects can be multiple and differentiated but not possessive of an essential core (Knudsen, 2023, p. 8).

Yet, entanglement is not solely confined to the literature on New Materialism. Prior to these debates, the concept centrally figured within the debates on embeddedness where Callon (2005) introduced the notions of entanglement/disentanglement to processes of markets exchange to overcome the total enmeshment of the economic within the social. Herein, Callon demonstrated how the necessary entanglements associated with commodity qualification and singularization processes (accrued via framing and value attachment practices and performed by relevant protagonists) are followed by necessary disentanglements from the same protagonists when the commodity is in circulation. In his own words, 'There can be no disentanglement without entanglement, and no entanglement that does not lead to disentanglement' (Callon, 2005, p. 6). This is what Callon means by the problématique of *agencement*[2]: the differentiation between entanglement and disentanglement does not entail a separation between structural arrangements (situations) and agency (capacity to act). On the contrary, it implies a continuous flowing and interwoven movement between these concepts/moments where the performativity of diverse agency (calculative, non-calculative, adaptive, reflexive etc.) is exhibited through the manner in which these agencies mix, merge, and transform each other.

This notion of entanglement/disentanglement belongs to a fourth version of interpretations pertaining to the debates on embeddedness, or hereafter the embeddedness problématique. While the first version (1.0) is normally associated with Polanyi's (1944) classic work itself and his first coinage of the term in the *Great Transformations,* the second version (2.0) could not have been any further away from his legacy. It speaks to Granovetter's research agenda which analysed embeddedness as a form of interconnected mechanisms existing between individually based social networks (Granovetter, 1985). The return to Polanyi's legacy however was spearheaded by a third version (3.0) introduced by Block's (2003) seminal work on the 'always embedded' economy which problematized the existence of concepts such as 'disembeddedness' and 'double movement' from the edifice of Polanyian thought. It is against this background that a fourth version (4.0) can be identified within this literature. On one hand, Mark Harvey's focus on the Instituted Economic Processes (IEP) attempted to re-emphasize the specificity of the economic and sought to avoid any elision between the economic and the social (Harvey, 2007). Callon's work, on the other, advances the merits of 'disentanglement' over 'disembeddedness'.

This paper will focus on the intersection between versions one, three and four of the embeddedness problématique,[3] and differentiate between them through an explanation of their particular usages of the method of Articulation. The paper will then present a methodological alternative, Calibration and highlight its value addedness and implications for complex causal, time and temporality analysis in International Political Economy (IPE).

2. The Articulation method

Articulation is a method for tracing the movement between (i) the abstract and the concrete; and (ii) the simple and the complex via identifying the articulations that exist between them. Rooted in the works of Hegel and Marx,[4] Articulation begins with making complex abstract determinations about the state of the world. These can be understood as holistic theorizations about the overarching structure underlying the reality we are confronted with. These are then broken down into systematic simple abstractions that we iteratively develop over the course of our interactions with the outside world.

Within Articulation, every observation we make of the world is process of simple abstraction. The concentration of the multiple factors identified through the iterative sequence of our abstractions with the world produces concrete information about it within thought. In Marx's own words, '[t]he concrete is the concrete because it is the concentration of many determinations' that comprise the concrete (Marx & Nicolaus, 1973, p. 34) and appear in our processes of thought. As we move through time, our abstract determinations reproduce the concrete in thought and enable us to analyze the totality of concrete determinations and engage with complex abstractions to ultimately identify the unity behind the divergence of things.

The concepts that we form though engaging with Articulation are both abstract, insofar as they are removed from reality, as well as concrete, insofar as they are representative of reality and rooted in our experience and conceptual linkage of them to other concepts and aspects of reality (Blunden, 2018, p. 4). This process of critique therefore entails examining how theoretical categories emerge from and reflect real social relations, understanding their historical specificity and limitations, and identifying the contradictions within both theory and social reality that point toward possibilities for change. In Marx's own words,

> the method of rising from the abstract to the concrete is the only way in which thought appropriates the concrete, reproduces it as concrete in the mind. But this is by no means the process by which the concrete itself comes into being. (Marx & Nicolaus, 1973, p. 34)

Articulation thus focuses its analysis on distinctions between the abstract and concrete in thought as it methodologically adds a double movement that combines 'movements from abstract to concrete across two or more axes of abstraction, it moves from simple to complex by articulating concepts that belong to more than one plane of analysis' (Jessop, 2009, p. 9). Importantly, at the heart of the Articulation method[5] is its understanding of objects in terms of their relata. Later on, we will see how this vastly differs from the Calibration method, which is engaged with substances that exist independently of their relata, properties, and the events they create to try and explain *exactly how the concrete comes into being*.

2.1. Contemporary usage of the Articulation method in the problématique of embeddedness

The three versions pertaining to the problématique of embeddedness examined in this paper engage with the Articulation method in particular ways. Specifically, these literatures share four common factors that underlie each of their respective analyses. These factors are as follows:

(1) Each approach studies the relations that exist between the economic and non-economic. They all implicitly acknowledge that there is a complex interdependence between these domains that characterizes market societies.
(2) All of these accounts are anti-essentialist in their scope, meaning that they do not subscribe to the idea that the inherent possessed powers of a thing necessarily explain the totality of a phenomenon. This logically presupposes that essences and identities must be both socially construed, as well as socially constructed alongside other variables.
(3) Their use of the method of Articulation invariably evokes a movement from abstract to concrete. This is also reflective of Karl Polanyi's substantive critique of formal economics or 'anti-formalism' (Polanyi, 1944). Polanyi rejected any notion of economics as a formal science based on rationality and conditions of scarcity, instead arguing that economics substantively concerns how humans interact with their environment to meet material needs. He outlined

how economic activities in pre-market societies weren't distinguishable as a separate sphere but were 'embedded' in political, social, and cultural institutions. He emphasized that the attempt to create a 'disembedded' self-regulating market economy was historically unique and utopian, inevitably generating protective counter movements as society resists the subordination of social life to market logic. This highlighted the historical specificity of economic organization and the necessity of understanding economic systems within their broader social context. In terms of Articulation, Polanyi's anti-formalist legacy represents the movement from simple abstract determinations to complex concrete ones that try and identify how particular arrangements of institutional forms became instituted in time and space. Polanyi's notion of *fictitious commodities* is instructive here. One can start with the simple abstractive concept of interrogating land itself as a commodity and contextualizing it in relation to the complex concrete processes that were required to make it as such. These range from, amongst other things, the specific Parliamentary acts that enabled the enclosure of land to initially occur to the subsequent legal frameworks concerning private property rates; the social resistance that arose in light of these policy changes; and emergent class relations that resulted out of the fundamental social reorganization that was required for abstract market principles to become institutionalized with regards to the commodification of land in market societies. Ultimately, this is reflective of Articulation's method of abstracting about the world through process.

(4) The particular movement from abstract to concrete means that all of the accounts share the Articulation method's analytical focus on *unity in difference.* This premise is originally rooted in Hegel's expressive dialectics of sublation, often used by Marx's dialectics of difference, which both imply a unity of opposites. Articulation is a method whose abstractive process occurs across *multiple planes of immanence*. Here, theories about the world are contested with one another over the course of iterative engagements with abstracting the relations that underlie the particular institutional configurations that we observe over time. That is, one begins with an abstract claim about the state of the world and identifies the contradictions within it by testing it against a backdrop of historical cases. The multiple dimensions represent distinct yet interconnected analytical planes or heuristics. Each plane offers a unique lens for understanding a social phenomenon. While each can be examined separately, the method of Articulation emphasizes that these dimensions are fundamentally interrelated, and that comprehensive understanding requires moving between and integrating these different perspectives. Social processes are recognized as complex and multi-dimensional, and the movement between the relations that unify the different analytical planes that we develop to interrogate the world underpins Articulation's layered approach to understanding social phenomena. For Polanyi, the abstract notion of self-regulating markets is shown to be fallacious through the use of historical cases to demonstrate the role of state interventions and non-market institutions that underlie the existence of any so-called 'free market'. The movement of abstract to concrete therefore begins with a simple, non-analytically permissible abstract determination about a whole (self-regulating markets) viewed against historical cases (concrete instances of market creation and the relations that exist between different structures, agents, and institutions), which demonstrate a more complex notion of the social construction and complex interdependence of markets. The object of Articulation therefore becomes identifying that which must logically unify the relations underlying the differentiated configurations of institutional forms that we engage with over time.

The contrast between Articulation and Calibration will later be explored in this paper. For now, this article will highlight how the embeddedness problématique literatures understand complex dynamics of market societies, where each entails particular and diverse methodological applications of the Articulation method across relations of scale and kind.

2.2. Applications of the Articulation method in the embeddedness problématique literatures

2.2.1. Articulation of relations of scale

The common denominator of different embeddedness problématique literatures is that of the *complex interdependence* that exists between the economic and non-economic domains of market societies, and the relations that exist between them. The starting point for the forthcoming analysis is derived from Mark Harvey's five theses that underpin his *Instituted Economic Process (IEP)* approach. The IEP

> starts with a view that processes of human transformation – transformation of the qualitative characteristics, the place, the control over, and the use of, an entity – only emerge as economic within societies when they are articulated together, so becoming respectively forms of production, distribution, appropriation, and consumption. (Harvey & McMeekin, 2013, p. 668)

The focus is on the specificities of the economic processes that are themselves situated within a wider complex of causalities. As Harvey and Metcalfe state, 'by developing a concept of instituted economic process, it is possible to differentiate between 'self-regulating' markets in terms of differently instituted forms of circular flow, intermediation, supply, demand, organisations of exchange, price fluctuations, and competition' (Harvey & Metcalfe, 2004, p. 14). The focus then is understanding those different articulations between organizations of supply, demand, exchange, and intermediation (Harvey & Metcalfe, 2004, p. 18). Harvey provides five propositions that collectively form the IEP approach (Harvey, 2007, pp. 166–167). These are contained within the Table 1 below.

Harvey's five theses provide a useful foundational lens through which to provide deeper ontological interrogations of authors' different applications of Articulation in their accounts of economic embeddedness and entanglement in market societies. The five theses are valuable insofar as they represent multiple dimensions and analytical plains for interrogating the complex networks of relations that exist in market societies. Each of the forthcoming literatures that are discussed prioritize particular combinations of these theses within the ontological foundations of their respective analyses. This fact allows us to distinguish between two different types of Articulation that are presented: *Articulation oriented towards relations of scale* (Harvey, Block & Gemici) and *Articulation oriented towards relations of kind* (Callon).

Table 1. Derived from Harvey (2007, pp. 166–167).

Thesis	Main premise
Specificity	Economic processes have distinctive institutions, powers, constraints, and causalities
Variable differentiation	Specifically economic processes and power relations, such as the reproduction of labour or control over resources, are differentiated from non-economic processes in manners particular to the spaces in which they occur
Complex interdependence	Economies are not autonomous from other social, political, legal, and cultural processes
Multiplicity	Economic processes, while institutionally differentiated, are still expressed via cultural, institutional, political, and ideational processes; and thus, highly unlikely to ever be totally abstracted from them
Complex causality	Different causal domains are interdependent, creating intricate networks of causation

In Harvey's own account, all five theses are relevant for his argument. For the author of this article, the most foundational theses to Harvey's argument are those of *specificity, interdependence, differentiation and causality but not necessarily multiplicity*. The creation of markets is a political process of de- and re-institution where economies are de- and re-instituted with changing boundaries, borders, legal and regulatory regimes across scales. Harvey does acknowledge the distinctness of the economic ('*specificity*'), and the economic process is itself understood to be comparatively and historically variable across different times and places. This distinctness of the economic is, however, only understood in terms of its political constitution through processes of de- and re-institution that are articulated in contextually specific ways. This is clear in his statement that, 'rather than talking of instituted economic processes and their context as socially "embedding", the specificity of economic instituted processes can be seen to find their "place" in different articulations with legal, political, and civic institutions' (Harvey & Metcalfe, 2018, 80). For Harvey, there are no universal economic laws per se and the shifting place of the economic in society is depicted within the multi-scalar lexicon of IEP. This following quotation is both telling and highlights the importance of the *interdependence* thesis to this argument, 'the plurality of economic organizational dynamisms, their interdependencies, and interactions, undermine any simple, or binary, ontological divide between a source of variation and an environment of selection' (Harvey & McMeekin, 2013, p. 668). The lens of interdependency facilitates analysis of different forms of regularity of economic processes and their instituting (Harvey & Metcalfe, 2004, p. 14). Further, Harvey's application of the IEP entails a *differentiation* between the organization of exchange and the instituted processes of exchange, within and across the spaces in which they are active (Harvey & Metcalfe, 2004, p. 14). This is also accompanied by a complex account of *causality* which maps the intersection within and between processes of production, consumption, appropriation and distribution. *Multiplicity* however is less foundational to his argument in my analysis, as the varied institutional and cross-domain expression of economic processes within non-economic processes is implicit, albeit not pivotal, to his contribution. The alternative conception of *multiplicity* being provided in this paper argues that the idea of multiplicity must surely entail the conceptual interwovenness of the economic and the non-economic rather than the institutionally differentiated expression of the former in the latter. This presupposes an interwoven movement tracing the economic in and through the non- economic and vice versa- the non-economic in and through the economic. In this sense, both the economic and the non-economic possess their own configurations of properties that (have) evolve(d) in conjunction with one another to constitute an emergentist whole. This will be further explained later in this paper.

In Harvey's multi-scalar approach to IEP, his analysis is readily combined with a method of Articulation to avoid an unnecessary reductionism of interdependent causal processes that are intertwined in dynamic interactions across different domains. Harvey's argument begins by focusing on the different theses representing specific kinds pertinent to processes of production and consumption. Yet, the focus of the argument is the traversal of these propositions across different domains of social reality. That is, the spatialized differentiations in the forms of economic institutional processes rather than the specific properties and relations underlying each case. It is therefore an Articulation that is focused on relations of scale.

Block provided another scalar application of Articulation in his making of the argument that it would be impossible for a self-regulating market to ever exist (Block, 2003, p. 282). Given the political, cultural, and economic practices entailed in the surplus extraction fundamental to all market economies, Block sees that economies can never be disembedded. What is instead implied is an *always embedded* economy wherein 'market societies must construct elaborate rules and

institutional structures to limit the individual pursuit of gain or risk degenerating into a Hobbesian war of all against all' (Block, 2003, p. 297). The construction of markets thus requires ongoing state action and intervention to enshrine social protections against the concomitantly institutionalized forces of marketization and commodification. This dialectic, which Polanyi termed as the *double movement* (Polanyi, 1944), characterizes the process of the market's re-regulation as a counter response to instances of its de-regulation. For Block, this is a dialectic wherein disembeddedness and embeddedness represent a *unity of opposites* and a tension around which political struggles revolve. The state's continuous involvement and regulation of the market would thus preclude any notion of market disembeddedness.

In his critique, Block analyses Polanyi's explanation that the systemic crisis of capitalism expressed during the Great Depression resulted out of a combination of liberal policies that reflected the maxim of a self-regulated market within the institutional establishment, as well as the maintenance of the gold standard. As Block writes, 'the gold standard is the institutionalization of the abstract logic of market self-regulation. When it is combined with multiple practices that interfere with market logic, the result is deeply contradictory and will inevitably produce a crisis' (Block, 2003, p. 288). While Polanyi struggled to disentangle the gold standard from the global market because of the perspectival limitations of his analytical milieu, post-hoc theorizing made it possible to understand the gold standard as 'only one of a variety of international monetary regimes that [were] consistent with the international monetary regime [during the Bretton Woods era]' (Block, 2003, p. 288). That is, the systemic crisis of the Great Depression can be explained through 'the incompatibility between what was occurring within nations [protectionism] and what was occurring between nations [the gold standard]' (Block, 2003, p. 288). Block abstracts this to the present moment to express the relevance of the always embedded theory for understanding the tension between the pressures of international finance markets and the embeddedness of domestic relations via the organization of fictitious commodities (Block, 2003, p. 289). Block's understanding of capitalism as 'not a coherent social system with a logic of its own but rather, a contradictory set of practices given artificial unity and coherence by market ideologies' (Block, 2000, p. 97) resonates here.

Block's argument, meanwhile, is rooted in Harvey's theses of *interdependence* and *differentiation*. In his specific refutation of the possibility of a disembedded economy, Block conceives of capitalism's reproduction in terms of its material and ideational mutual constitution. The point that is emphasized is that the very ideological attempt to create a self-regulating market is itself institutionally based and adheres to norms and values taken from the society within which it is embedded. That economies are always embedded logically necessitates their interdependence with other social, political, legal, cultural, and institutional processes. Capitalism is thus conceived in terms of different projects, reflecting spatially particular market ideologies, that organize institutions along the lines of economic de/re- regulation. Analysis thus becomes a presentist endeavour looking at the institutional organization of projects across different scales. The differentiation of specifically economic processes is implicit insofar as they provide one side of the double movement dialectic around which all political struggles revolve. Block's argument centres around understanding different projects of institutional organization through the articulation of particular ideologies of market de/re-regulation that are instrumentalized in a way so as to preclude the *multiplicity* of economic processes, which are not taken to be ontologically differentiated but ideologically conceived. Similarly, the notion that the economy is always embedded logically denotes that it can never possess its own *specific* properties and can only be understood through articulations of its specific relata.

Instead, the property of a market economy is the mutual constitutiveness of the ideational and material components of its presupposed social relations. Block writes that, '[t]he term "capitalism"

– particularly since its triumphal appropriation by the global bourgeoisie and its journalistic defenders - carries with it the implicit claim that economies organized around the pursuit of profit have a unified essence and should have similar institutional arrangements' (Block, 2003, p. 299), with market societies being embedded within different complexes of ideas (Block, 2003, p. 300). Analytically, this is expressed via the *spatialized contextual variegation* of the case-pertinent social relations informing the ideologies behind marketization and commodification processes. I.e. there are different projects occurring under the background of a homogeneous capitalism whose varying institutional configurations are shaped by the ideas of the policymakers that actively co-constitute the market. Gemici's critique of the contradictions present in Polanyi's own approach to embeddedness shares Block's notion of the always embedded economy. Gemici finds Polanyi's 'gradational' conceptualization, which traces the changing place of the economy within society throughout history via the double movement of its (dis)embeddedness, to be reifying of the untenable notion that the market can exist separately from society and function according to its own internal rules. This is seen to contradict Polanyi's other 'methodological' approach to embeddedness, which acknowledges how the economy is always embedded within social institutions and practices (Gemici, 2008).

For both Block and Gemici, there are no specificities to the economic processes comprising the monolithic capitalism underpinning these multi-scalar market societies. Their analysis is presentist in its scope and rooted in the mutual constitution of the market across time and space. Furthermore, all of the analyses mentioned in this section are wholly immanent in their respective conceptions of causality given their focus on institutional constructions and 'historically instituted process', which leaves no conceptual room to gauge external properties that historically persist to shape market societies.

2.2.2. Articulation of relations of kind

A different ontological commitment to Articulation can be found in the work of Callon – namely one focused on *relations of kinds*. Callon used the Problématique of entanglement and disentanglement to articulate the (dis)embedded nature of markets. A proponent of Actor Network Theory (ANT), which assumes the radical indeterminacy of actors, Callon's work focuses on the ways in which economics (and its disciplines) shape the economy. He argues that 'any particular market is the consequence of operations of disentanglement, framing, internalization, and externalization' (Callon, 1998, p. 181). Rationally calculating market actors are taken as being entangled in networks and relations that are, in fact, contained within them. There is thus a fluidity of calculated agencies operating on a variety of scales. The act of deliberating upon and executing a particular calculation in the form of the transaction is where a disentanglement occurs to transform, for example, a thing into a commodity. Markets imply a circulation of goods that are alienated from any a priori context (i.e. commodified) and attached into users' worlds, inducing transactions which momentarily suspend from the frame any irrelevant elements and entangle the worlds of buyers and sellers before they 'are quits' and the goods are disentangled from the networks underlying the specific interaction and thrust into new networks of entangled relations (Callon, 2005, p. 7). As Callon states, '[it] is quite impossible to separate the two issues of the embeddedness and of the alienation of (commercial) goods' (Callon, 2005, p. 7). The transaction is where the disentanglement of commodities from a seller's heterogeneous world occurs. The commodities are temporarily alienated from the overflowing relations of their networked context. Once in the possession of the buyer, the commodity is reattached and reframed in accordance with its embedding in new networks of relations – exemplifying the continuous and overflowing movement characterizing the performative agency of the agencement problématique. This continuous flow is evident in Callon's

observation that 'complete framing is a contradiction in terms' (Callon, 1998, p. 189), and that framing is not eternal and can be challenged at any time (Callon, 2005, p. 7). The embeddedness and alienation of goods are thus taken to be two inseparable issues (Callon, 2005, p. 7), with the entanglement Problématique ultimately enabling, 'us to think and describe the process of commoditization which, like the process of framing or of disentanglement, implies investments and specific actions to cut certain ties and internalize others' (Callon, 1998, p. 190). Entanglement in this context thus refers to those relations and networks that express themselves through the performative actions of diverse agents, which themselves simultaneously constitute and embody the market.

Analysing Callon's argument about embeddedness through Harvey's theses demonstrates the presence of the *multiplicity* and *differentiation* theses at its core. While the agencement problematique does not entail a separation between structuring situations and agency, differentiating between moments of (dis)entanglement implies the continuous movement between performative instances of diverse agency. Embeddedness is thus conceived as the overflowing primitive context underlying the performative co-construction of markets. Agencement is inherently tied to the thesis of multiplicity. That the overflowing ties of objects can only ever be temporarily alienated in the moment of interaction before they are reframed and attached into new fluid networks of relations demonstrates the very impossibility of extracting economic processes away from the contextual embedding that they are expressed through. Similarly, the diverse performative and intersubjective agencies involved in the co-construction of markets demonstrate the differentiation of economic processes and relations between different agencies. This notion of embeddedness also implies the *interdependency* of the economic, though its multiplicity and differentiation receives a more explicit focus. There is no mention of the *specificity* of economic processes in Callon's argument. The dynamic of (dis)entanglement(s) contained in Callon's notion of agencement entails the *articulation of relational kinds of kinds.* That is, the relational networks conditioning and comprising the (re-)alienation of commodities via the processes of (dis)entanglement that occur in market transactions. Callon's research interest in 'the production of agencies and the spaces in which they circulate and meet, and particularly the role of economics at large in that shaping' (Callon, 2005, p. 13) and argument concerning the (dis)entanglement of goods from/in networks of relations is relevant here because it is concerned with qualitative shifts in the specific kinds of market relations that are present across scales. There is a specificity to the constituted and embodied relations of constellations of entanglements within market economies. Therefore, and instead of unique assemblages of relational and contingent interactions, agencies expressed in the continuous (dis)entanglements within the agencement problématique are never separate from their structural contexts/situations. In this sense, Callon's argument is thus focused on the qualitative specificities of performatively co-constructed markets across multi-scalar networked expressions of agencements.

3. Calibration and systemic persistence

The main objective of this paper is to demonstrate the value of the author's method of Calibration for the embeddedness problématique literatures and contemporary International Political Economy (IPE) research. Studying the social world presents researchers with unique complexities that natural scientists do not necessarily encounter. In fact, social science research often displays a complex intersection between the problématiques of semiosis and structuration in and over time. If semiosis specifies how agents apprehend (sense) and comprehend (sense making) the

world against the background of a double hermeneutic process of observation, structuration entails how the (re)production of social structures within social systems are both internal and external to agents. In other words, both the existence and reification of social structures are forged in and through agents' shared conceptualization and iterative engagement with them. Social science research thus requires an appreciation of the epistemologically complex process of 'complexity reduction' (Jessop, 1997) in tandem with an ontological commitment towards the complexity of structural systems characterized by multiple causal mechanisms operating simultaneously at any given time.

Given this background, the Calibration method is firmly embedded within a Critical Realist (CR) and Spinozian philosophy of substance tradition, which focuses on the systemic persistence as perseverance problématique – understanding how complex social systems and structures maintain themselves over time despite being dependent on human activity (Knio, 2023). That is, for complex social systems to continue to exist and exert influence over our daily lives necessitates that they must have internal properties that condition their evolution in, through, and over time. The identification of these persistent properties and the specificity of their interactions with persevering agents is therefore the object of the Calibration method. The following sections will outline the philosophical tenets and the value 'addedness' of this particular method.

3.1. The method of calibration: philosophical tenets

Calibration is a method of thinking rooted at the intersection between Spinozian Substance philosophy and Critical Realism. It constitutes one of the problématiques associated with Knio's work (2018, 2020, 2023) on the Immanent Causality Morphogenetic Approach (ICMA) and Morphogenetic Régulation (MR). Key to this method is Spinoza's doctrine of parallelism where he demonstrated how the interaction between distinctive yet relational objects necessitates a certain unison which accounts for their differentiation. Concepts such as 'ontological tangentiality', 'calibre', and 'calibration' further operationalize this doctrine across various related debates. While it is impossible to cover all of these notions in such a space, the first part of this section will elaborate on important philosophical distinctions that comprise the method's ontological grounding. These are the distinctions between:

- Objects and Events
- Substance, Essence, Attributes, and Modes
- Calibres and Calibration

3.1.1. Objects and events

In *A Realist Theory of Social Science,* Bhaskar outlines how reality can be stratified into three domains: the Empirical (what we observe and experience), the Actual (events that occur when the causal powers of objects are activated), and the Real (underlying structures mechanisms and powers that exist whether or not they are observed) (Bhaskar, 2008). The Real domain contains those objects whose causal powers have the *potential* to produce events. Objects can possess causal powers that do *not* produce events – i.e. they possess the *dispositional capacity* to do so, while it remains the case that events can logically occur *without* being observed. The relevance of this insight here is that it demonstrates the importance of philosophical inquiry to critical IPE scholarship. That is, *how do we demonstrate what must have been there for things to have manifested exactly*

as they did. This distinction between object and event is a critical foundation of the Calibration method's substantivist philosophical approach.

3.1.2. Substance, essence, attributes, and modes

The Philosophical meaning of Substance is often misunderstood and conflated with essence in social sciences (Lowe, 2001). Essence refers to the structures and relations of an object. That is, the specific ways that objects are made up and composed of. In this sense, essences speak to a *permissive condition that captures the qualities, characteristics, and mechanisms of an existing object; its immanent parts. Substance* refers to the powers of an object that are predicated on nothing but themselves. This non predication condition does not necessarily entail a metaphysical commitment to an absolute entity. Instead, it refers to the *generative, productive and sufficient conditions* underlying essences. Put differently, substances ground essences. Engagement with substance occurs at the highest plane of abstraction where we are dealing with *the condition for the possibility of existence in itself*. Therefore, substances are transcendental and extrinsic in their nature given that their generative and productive conditions cannot be present in their properties, relations or events. Herein, it should be noted that the notion of absence refers to a de- presence or out of presence (extrinsic) as opposed to a non or lack of presence situation. Essences exist at a relatively lower plane of abstraction. They can be either inherent or intrinsic qualities to their objects while their permissive conditions (condition of a condition) can be momentarily present (presence of absence) or not (absence of presence). In short, this crucial distinction between substance and essence allows us to capture the relations between an object's generative and permissive conditions. It also allows us to relate and distinguish objects' presence of absence and absence of presence from the higher notion of de-presence or out of presence.

In Spinoza's philosophy of substance, attributes are the essences of substance (Spinoza, 1994). The attributes represent how a thing is and how it is conceived by an intellect through itself, meaning through its own distinct qualities (Spinoza, 1994). Each of these attributes are different expressions of the same fundamental reality and of Substance's essence in a characteristic way. Attributes refer to the infinite differentiations in intellect that we as people can have in our endeavours to conceive of substances. That is, there are infinite ways through which we can use our intellect to try and interrogate the world and identify what must have been there all along for things to manifest as they do. Amidst this infinity, Spinoza reminds us of two well-known attributes which are also crucial for any IPE analysis: *the Material and the Ideational* as expressed in his doctrine of parallelism. Tønder (2010) explains this doctrine by demonstrating how the ideational (thought) is an ideation of something, the material (extension). Hence, the material for Spinoza empowers the ideational while the latter expresses the former without being reduced to it. Brown (2002) and Knio (2018, 2023) show, albeit in different ways, how Spinoza's doctrine of parallelism is complementary with critical realism's treatment of emergence. For Knio (2020), this entails a situation of ontological tangentiality; a complex interplay where the material conditions the ideational, providing the context for its actualization; while the ideational (not reducible to the material) expresses itself through the material in different forms in and over time.[6] Two conclusions can be made here. First, both the material and the ideational emerge, intertwine and redefine each other in various strata of reality. Second, rather than ascribing fixed notions and assumptions about the nature of the material, it is the ideational that leads researchers into the material and not the other way round.[7]

If transcendental substance can be expressed via immanent and distinctive attributes, then modifications of substance (modes) represent the intersection point between substance and

attributes. Modes are dispositional forms or properties possessed by the entity in question. Unlike attributes, modes are always predicated on anterior properties and hence are relational and temporally scalar in nature. A good example of modes in contemporary philosophy and social theory is the distinction often made between dispositional capability and capacity. Dispositional capability denotes an action made by an agent or a collective at a specific moment in time. Dispositional capacities however can produce events or actions without being present. For instance, the relation between a landlord and a tenant can be seen as a form of dispositional capability since the active relation between them is predicated on their respective performativity of their roles and positions in that regard. Yet, the dispositional capacity of a legal system which stipulates and enforces the rules about land ownership/renting etc, still exists throughout this case even if its concrete operationalization is not present or not made quite apparent by these protagonists. These dispositional forms are hence quite scalar and relational in their constitution.[8]

3.1.3. Calibres and calibration

If attributes are distinctive relations of kind in thought, and if modes are dispositional relations of scale, then any interaction between the two necessitates an a priori and a non-eliding unison between distinctiveness and relationality to account for their respective differences. Put differently, the possibility to distinguish between interactive and relational material and ideational dispositional capabilities necessitates in the first place a unified material and ideational dispositional capacity. For example, the material capability of a landlord to perform some tasks in their estate (material dispositional capability) coupled with the tenant's capability to contest the landlord's activities by providing an alternative meaning to the contract they have both signed (ideational dispositional capability) necessitate a legal system which does not only stipulate and organize the ideational foundations of rules of ownership but also specifies the material consequences of their (non) enforcement. This is when calibres come into the wider explanation. Calibres, or the interior dimensions of things, represent the context through which various characteristics and qualities are moulded and conditioned. They constitute an ensemble of different standards of expressions which unify kinds and scales, attributes and modes, material and ideational dispositional capacities without collapsing their distinctive qualities. It is the type of unison which is necessary for any type of differentiation, or the vector which operationalizes Spinoza's doctrine of parallelism at various levels, where a transcendental cause (substance) is expressed and inscribed in its immanent effects (attributes and modes). Calibration, not to be conflated with the process of configuration often used in orthodox economics, is the method of thinking which allows the identification of calibres in complex social systems (Knio, 2023). It is the process which tracks the movement of the ever expressive ideational leading researchers to contemplate about the nature of the always generative material. In sum, the method of Calibration seeks to explore ***the conditions about the conditions for the conditions of conditions.*** In other words, substance (de-present condition about) is expressed in calibres (ontologically tangential non present conditions for) and manifested in presentist and sequentially predicated conditions of attributes and modes. Hence, and by differentiating between various types of 'absences', the premise and promise of the Calibration method rest on the detailed and specified interaction between the ontological dimensions of existence and presence.

3.2. Calibration and its value

Given the above, there are three key value propositions to the Calibration method.

3.2.1. Essence not essentialism

The Method of Calibration ontological commitment to essences precludes any relapse towards essentialism and the construction of fixed categories of being and identity. Attributes are distinctively modal and always constructed by people. Modes are always relational and scalar. Their unison with the concept of substance demonstrates how possessed powers of things need not be inherent but intrinsic to the overall explanation in question. Consequently, and unlike the method of Articulation, the distinction between relations of scale (intertwining relations between the (non) economic as seen in the works of Harvey and Block) and kind (interwoven relations between the (non) economic as seen in the work of Callon) can only be comprehensible if a non-eliding unity of the two exists.

3.2.2. The method of Calibration entails a unity for and over difference

Whereas Articulation offers an immanent account of unity in difference as we have previously seen in this article, Calibration advances a trans-immanent account revolving around unity for and over difference. Unity for difference entails identifying the necessary conditions that must be there for differences to emerge and what must be present for differences to be possible. Unity over difference acknowledges the persistence of substance across different manifestations of a thing and the continuity of certain powers that it possesses despite variations in their expressive forms across time. Consequently, Calibration engages with a more complex account of causality where the exteriority of the cause and its extrinsic de-presence from the differences it creates is necessary for any genuine and meaningful claim about cause–effect type of relations.

3.2.3. The method of Calibration moves from the concrete (in thought) to the abstract

Unlike Articulation which moves from the simple abstract to the complex concrete in thought, Calibration brings the substantivism of Polanyi back to its intellectual home. That is, the movement from the historically institutionalized and conceived concrete practices to the abstract and material provisions which sustain the existence of these practices. Through the concept of ontological tangentiality, it becomes possible to trace the intertwining and interwoven interactions between material and ideational dispositional capabilities back to their unified dispositional capacities. In so doing, the expressive ideational permits the identification of the generative material conditions behind the actualization of the phenomena in question. The method thus makes stronger ontological claims about the nature of reality itself, not just our understanding of it.

4. Implications

I will discuss in this section the implications of Calibration by situating its value-added propositions within two capitalism related literatures in IPE: the Variegated Neo Liberalization Thesis (VNLT) and Assetization.

4.1. On VNLT

The VNLT (Brenner et al., 2010) is arguably one of the most sophisticated and advanced literature on contemporary capitalism and neo liberalization processes. Through the concept of 'variegation' defined as the 'systemic production of geoinstitutional differentiation' (Brenner et al., 2010, p. 184), the VNLT traces the tendential transformation of intensified commodification and marketization processes across two uneven and combined spatial/temporal scales. The first denotes a situation of

disarticulation characterized by the uneven nature of neo liberal processes across various geo institutional frameworks between the 1970s and 1990s. The second introduces more articulated forms of neoliberal processes emphasizing the depth and the extent of their institutional thickening around the globe between the 1990s and the 2000s.[9] This is par excellence a great example of an immanent and a unity in difference type of argumentation where the systemic production of intensified commodification and marketization processes are ever continuous through the everyday transformation of these processes across different locales and temporalities.

Undoubtedly, the VNLT multi scalar analysis has a lot of merits. Yet, from the perspective of Calibration, the dimensions of causality and temporality remain problematic and essentially incomplete. If variegation refers to the systemic production of commodification and marketization processes in geo-institutional differentiation, then how could these generative conditions be present through the continuous transformation of their forms? Such presence is indicative of permissive conditions rather than the generative ones implied by variegation. Yet, to establish a meaningful causal explanation, a generative condition must be exterior to the events, relations and properties it produces, otherwise what is generative or even systemic about it is by definition totally undermined.

The point here is not to discredit the VNLT argument but to supplement it with more ontological depth. Rather than an immanent unity in difference premise, Calibration is an invitation to take a trans-immanent ontological commitment more seriously, namely how a transcendental cause is expressed in its immanent attributes leading towards a unity for and over difference type of argumentation.

From the perspective of Calibration, the spatial/temporal transformations of neo liberalization processes in geo institutional settings represent a variety of momentarily present material and ideational dispositional capabilities carried out by various social forces and actors unevenly across the globe (attributes and modes). They are necessarily preceded by the permissive, non-momentarily presence of material-ideational systemic dispositional capacities (calibers) expressed by the acceleration of commodification and marketization (counter) tendencies prevalent in the 1980s and 1990s. Tendencies however are not and cannot be generative conditions. In other words, commodification and marketization processes (disarticulated or not) could not have existed in the first place without the rise of what was later conceptualized as an extensive regime of accumulation which, 'relate[s] to the capitalist development that conquers new branches and new markets, spreading its production relations to new spheres of economic activity, without altering conditions of production and the efficiency of labour or capital in any significant manner' (Juillard, 2002, p. 154). Consequently, commodification and marketization processes are expressions of the cause but not the cause in itself. They represent the necessary vector through which the cause is presented in everyday life but not the persistent condition behind its existence. Today, and after more than forty years of research, many scholars may comfortably talk about a certain abstract extensive regime of accumulation. In time however, many agents and people described their everyday life encounters with commodification and marketization practices without internalizing the productive system behind them. This is how Calibration avoids the conflation between generative and permissive conditions; and this is how it supplements the method of Articulation.

4.2. On assetization

The nature of assetization within the literature on contemporary techno-scientific capitalism is relevant for Calibration since it vividly portrays the importance of the material ideational debate for

the analysis of capitalist systems. Kean Birch, a leading scholar in the field, advanced an ideational led constructivist thesis of assetization which, he argued, represents a shift in the operation of neoliberalism away from commodity production to a rentierism grounded in a paradigmatic intensification of financialization where objects and relationships are transformed into assets that are valued in terms of their prospective revenue streams rather than exchange value (Birch, 2020). This has prompted a Marxist led materialist critique by Purcell who argued that such a move would no longer provide any meaningful distinction between prices and values (Purcell, 2024).

Again, the contention of this paper is not to dismiss the relevance of these arguments. To the contrary, it seeks to emphasize the necessity to avoid any type of dualism between the material and ideational. Calibration's ontological tangentiality makes it possible to bridge these partial explanations of the same phenomenon. The ideationally rooted instances of social construction that underlie asset valuation processes and those institutionally mediated forms of power and class relations that condition the dynamics of value construction within commodity production that are anterior to speculative assetization processes occur tangentially. That is, they are in constant interaction with one another and variations in value construction across different contexts emerge out of the non-eliding of these interactions across time and space. A more comprehensive analysis therefore needs to consider the ideational and material aspects of assetization and neoliberalization as tangentially related expressions and permissive conditions of the same phenomenon rather than different analytical domains in their own right. Whether these permissive conditions are grounded within extensive regimes of accumulation or not is a speculative question at this moment in time and hence requires more research in the future. Nonetheless, Calibration can be a useful method of investigation for a problématique of this sort.

5. Conclusion

This article outlined how the Articulation method and its variations can explain the intersection between the literatures on embeddedness and entanglement. To that end, it presented the method of Calibration as an alternative way of reasoning and highlighted its value addedness and implications in various literatures. By integrating Spinoza's philosophy of substance with the philosophy of Critical realism, Calibration brings back into the fore the importance of trans-immanent ontological commitment and its implications on complex causation, time and temporality. As such, Calibration could be a useful venue of research for scholars who are interested in the substantivism aspects of Polanyi's thought, and for those interested in reading Polanyi through critical realist lenses of investigation.

Notes

1. This implies an immanence rooted in indeterminacy that focuses on 'flows of becoming', and intersections between assemblages whose chaotic and fluid states reduce practice to synchronic engagements that are forever defined by unique actors' subjective interpretations across uniquely composed instantiations. Causality is thus solely understood in terms of intersubjective processes of meaning making. This dynamic is captured in the following quote by Braidotti, 'neither a sacralized inner sanctum, nor a pure socially shaped entity, the enfleshed Deleuzian subject is rather an 'in-between': it is a folding-in of external influences and a simultaneous outward of affects' (Braidotti, 2000, p. 159).

   Barad's notions of 'Agential Realism' and 'Intra-action' demonstrate another Deleuzian working of entanglement. Barad applies a specific interpretation of Bohrian quantum mechanics to provide a theory wherein phenomena are taken as the basic ontological unit of experience. Phenomena demonstrate,

'the ontological inseparability of agentially intra-acting components. That is, phenomena are ontologically primitive relations – relations without pre-existing relata' (Barad, 2003, p. 815). Thus, for Barad, quantum objects have no independent properties in themselves. The properties are instead contained within the relationality that exists between a quantum object and an experimental set-up devised to analyse it (Faye & Jaksland, 2021, p. 8237). This ontic basis is abstracted into the realms of social science and leads Barad to the assertion that, 'it is through specific agential intra-actions that the boundaries and properties of the causally related components of phenomena become ontologically determinate and that particular concepts become meaningful (that is, semantically determinate)' (Barad, 2007, p. 107). Barad's account is one of unique and differentiated instances of entanglement between co-constitutive (and ultimately embodied) meaning and matter occurring indeterminately through time for perpetuity.

2. The concept of agency for Callon and ANT is not only confined to humans but is also extended to material, technical and textual artefacts. Agencements are socio-technical arrangements that provide capacity and meaning for action (See Callon, 2005).
3. As explained in the text, the 'Granovettrian' tradition does not engage with the Polanyian tradition and hence it remains out of the scope of this paper.
4. The focus here is on Marx's articulation of the movement between the abstract to the concrete in thought.
5. For an interpretation of Articulation in cultural studies, see the work of Morley and Chen (2005).
6. For a more detailed explanation of this complex interplay see Knio (2018, 2020, 2023).
7. See the concept of Ideas as adequacy (Knio, 2018).
8. For a critical realist analytical treatment of dispositions, see Archer (1995).
9. After the global financial crisis of 2007–2008, these authors argued that neoliberalism has been interrupted but is far from being dead. See (Peck et al., 2012).

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