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Critical Realism: Re-claiming Theory for Practice

Introduction

Critical realists do not deny the reality of events and discourses; on the contrary, they insist upon them. But they hold that we will only be able to understand – and so change – the social world if we identify the structures at work that generate those events and discourses.

(Bhaskar, 1989, p. 2)

In what follows, I propose to move beyond the skills *versus* practice binaries presented in Chapter 1, because, as we have seen, neither fully captures the complexity of what makes a text academic: skills and their associated mechanistic approaches are unsatisfactory because they reduce the academicness of texts to its forms, namely formal features of grammar, lexis and genre. This foments a culture of performativity (Macfarlane, 2021b) that can encourage academic writers to display language at the expense of deep knowledge engagement and creativity. This kind of performativity would allow hoaxes and IELTS essays to count as ‘academic’, further compounding the ‘Western’ imaginary of what and whose standards of literacy are acceptable. They also make copying and plagiarizing easier because formulaic templates lend themselves to being transferred across contexts. Conversely, practice approaches to academic literacies and their associated critiques of standards and conventions risk being equally unsatisfactory because they potentially allow anything to count as ‘academic’. This, in turn, can result in relativizing and ‘romanticising’ all forms of writing, something which anthropologist and academic literacies scholar Brian Street, for example, has cautioned against in his response to McCabe, 1995, in Prinsloo and Breier (1996). Donald Judd (2003), too, has stood against relativism in his critique of the American expressivist literacy tradition of the 1960s because by

focusing on the originality, creativity and subjectivity of the author, expressivist rhetoric reifies the 'authentic self' at the expense of objective and socially just knowledge (more on this later). Moreover, as Boughey remarks in her Foreword, whilst academic literacies approaches acknowledge multiplicity and diversity – showing a deep understanding of why academic writing is difficult for some but not others – they do not as readily identify the agencies and mechanisms needed to challenge the powers that impose a one-size-fits-all literacy. To escape the fractious reductionist and relativist entanglements of the skills-practice aporia, I now mobilize the philosophical and sociological theory of critical realism. The appeal of critical realism is that it necessitates both relativism (or subjectivity) and foundationalism (or objectivity) to account for the social reality of phenomena, of which academic writing is an instance. But rather than looking for academicness in either the subjective will of the writer or the objective, i.e. standard(ized), rules and conventions of what counts and does not count as an appropriate academic text, critical realism allows us to anchor and reclaim academicness as a property that emerges from the critical judicious and reflexive *interaction* between the writer's agency (their subjectivity) and their textual environments, or structures, which are objectively real. For example, on a critical realist account, to produce his multimodal thesis, Carson (2017) enacted his agency and subjectivity by interacting with his supervisors and with the full range of modalities available to him in his textual environment. The academicness of his thesis emerged from this interaction rather than from his personal whim or from adhering to a particular set of academic writing conventions. Critical realism puts interactions at centre-stage, what Donati and Archer (2015) call 'relations' between phenomena. Interactions are ontologically real and have effects that transcend the effects of the individual phenomena involved in the interaction. For example, when individual people are part of a crowd, their individual behaviours interact in such a way as to have effects that the individual alone could not have: a crowd can attract attention, be threatening or inspire action in ways that the single individuals cannot. Similarly, an academic text can make us think and learn in ways that the individual words, sentences and references cannot. Thinking about academic writing in this way affords a conceptual space within which to understand academicness in a way that is non-reductive, i.e. irreducible to either the writer (their intentions, literacies, etc.) or the features of the text (namely grammar or style). Within such a conceptualisation, changes and innovations in writing practices require informed structural responses to the full range of skills and conventions needed to uphold the totality of standards of excellence that make writing academic. This range transcends both the writer and the text

because it is historical and potential as well as beyond our contingent empirical experience. The totality of standards may include new or unacknowledged standards that the writer (and their instructors) may be unaware of and that conventional academic texts may not possess. An 'informed structural response' presupposes that agents are able to knowledgeably interact with the total potential range of standards of excellence. It is this interaction that allows academicness to emerge. In the case of A. D. Carson, these standards of excellence included his values of social justice and his literacies, namely his ability to communicate through poems and music. Because he wanted his thesis to be understood by the communities he was researching, he chose to rap his thesis 'chapters' as five-minute podcasts of performance poetry to ensure they reached his intended audience. In doing so, he democratized his knowledge. But he similarly wanted his PhD examiners to acknowledge his intellectual contribution and to confer his doctorate in compliance with institutional requirements. His thesis, therefore, duly referenced social theories, histories and literacies in order to satisfy his institutional committees. The interaction of his individual intentions and values with his knowledge of the deeper structures that lead to the award of a PhD allowed an academic text to emerge. Moreover, it is unlikely that this kind of thesis could ever be commissioned to an essay mill to be ghostwritten or that its author would even be motivated to plagiarize. If academia were a culture where writers had the space to explore the most fitting ways of communicating their knowledge, their values and their research, they would be far more likely to treat their 'writing' as acts of love, recalling Cocteau, and as an instance of what Spinoza calls 'intellectual love' (Rowland, 2008).

Now, surely love of knowledge, of thinking, of being just is a standard of academic excellence worth nurturing!

To appreciate the relevance of critical realism to what makes writing academic, I begin with an introduction to the theory, enough to then make sense of the extant literature on writing that adopts critical realism as a theoretical lens. I extend this theorization to further propose that academic writing be conceived as a complex open system in which writers interact with their textual environments to shape written knowledge. The chapter concludes with a reminder that the standards of excellence of higher education practices are wide-ranging and evolving and because of this, what makes writing academic must necessarily broaden its scope and evolve accordingly. This prepares the terrain for articulating the foundations for a future pedagogy of academic writing, outlined in Chapter 5.

Mobilizing Critical Realism to Explain What Makes Writing Academic

Critical realism is a philosophy of science and social science oriented towards change and social justice. It addresses the complex 'structure and agency' discourses that have characterized social theory since Max Weber and Emile Durkheim, through to Pierre Bourdieu, Basil Bernstein and Anthony Giddens by asking, for example, what powers do we, as agents with free will, have to enact social change or what must the world be like for our theories and practices to be correct (Archer, 2000; Bhaskar, 1989). At the same time, critical realists acknowledge that we are bound and constrained by history and its social structures and that this makes it difficult for individuals to enact change. Critical realism distinguishes itself within this sociological tradition by disambiguating the structure-agency binary and by introducing an explicit analytical construct referred to as 'analytical dualism'. The reason critical realism opts for this disambiguation is to counter the tendency of previous sociological theories to explain social phenomena by either reducing the ontology of society to the level of individuals, thus denying the existence and influence of 'society' all together (as in Margaret Thatcher's infamous claim,¹ which can be understood with reference to a sociological position known as 'methodological individualism'²) or by reifying society to such an extent that it denies the agency and powers of individuals to enact change because their choices are entirely determined by society (a position known as 'methodological collectivism'). Instead, critical realists attempt to give structure and agency their own independent realities so that they can be studied separately and so that claims about each can be made without being reduced to the other. Their relationship is then established via a 'stratified ontology' that links them via reflexive and emergent relations rather than via relative, deterministic or reductive claims. This allows critical realists to 'reclaim' the reality of agents who have 'powers' to intervene and change social structures which are equally real and which exist independently of individuals (i.e. the structures are there even if we are not). It is for this reason that the theory is generative for reconfiguring written knowledge as a socio-academic

¹ Former Conservative UK prime minister made the following claim in an interview on 23 September 1987 for *Woman's Own*: 'there is no such thing as society..... There are individual men and women and there are families' (<https://www.margaretthatcher.org/document/106689>).

² See Sawyer, R. K. (2001). Emergence in sociology: Contemporary philosophy of mind and some implications for sociological theory. *American Journal of Sociology*, 107(3), 551–85. http://iscte.pt/~jmal/mcc/Keith_Sawyer_Emergence_in_Sociology.pdf for a nuanced and comprehensive account of the philosophical and sociological tensions, contradictions and implications of methodological individualism and collectivism.

practice that can be changed by writers (namely agents) in relation to their values, abilities, capabilities and the affordances of their textual environments (i.e. their social structures). This re-configuration can then pave the way for laying a foundation for future practices that can transcend (or emerge from) standard rules and conventions (which are real social constructs) and for explaining why some writings ‘in the wild’ are academic and can be taught as such. As we shall see, critical realism seems to have had relatively little uptake in academic writing studies for reasons that are not yet clear to me but that may have to do with its associated ideology, namely Marxism. Interestingly, educationalists working in contexts where inequality of access and social injustice are prevalent, such as Jennifer Wright (2011), Jennifer Case (2013), Chrissie Boughey (2013) and Boughey and McKenna (2021), have turned their attention to critical realist theory. This suggests that it affords a generative heuristic for mobilizing change in educational practices and policies, especially those that are unjust.

Critical realist philosophy is associated with Roy Bhaskar (1989, 1998) and further developed by sociologist Margaret Archer (1995, 1998, 2000, 2003), amongst several others, including Keith Sawyer (2001) and Andrew Collier (1994), who has helped to introduce the theory to a wider audience. It is underpinned by three fundamental notions of reality which are referred to as ‘stratified’: the first is that there is an objective reality that exists beyond our human perception. This reality is made up of causal mechanisms, such as the physical laws of nature and the structures that constitute the social world. It is not a relative or subjective reality, it is a reality made up of facts that have effects, it is ontologically real and intransitive and is referred to as REAL.³ So, for example, in the case of the laws of nature, gravity is real and exists regardless of whether we perceive it or not. Similarly, social phenomena are also real. For example, poverty is real: it exists regardless of whether we perceive it or experience it because its effects are real: people are objectively homeless, hungry, ill and uneducated. In this sense, reality is intransitive and objective because it is independent of human enquiry (e.g. the sciences, social sciences, humanities and other methods of enquiry, such as writing). The second fundamental notion is that there is an actual reality where specific events emerge, or don’t emerge, from the intransitive mechanisms and structures. For example, trees may or may not fall because of gravity and people may or may not die because of poverty. This is what is referred to as the ACTUAL. It is the visible and potential manifestation of underlying powers and structures, whether the event

³ I am capitalizing the terms that Bhaskar uses. For the original systematic and nuanced articulation of his theory see Bhaskar, R. (1989). *Reclaiming reality: A critical introduction to contemporary philosophy*. London: Verso.

takes place or not. The final level of Bhaskar's triumvirate classification of reality is the EMPIRICAL. This stratum describes how we investigate and understand the ACTUAL and the REAL through experience, measurement, observation and dissemination at the individual level. This investigation takes place via our methods of enquiry, such as disciplinary research and writing. It, too, is real but not in the ontological sense. It is real in the epistemological sense of being relative and transitive because it varies according to an agent's disciplinary orientation, to their knowledge, their standpoint, their abilities, their values, their resources, their intentions and so on. In other words, agency exists at the level of the EMPIRICAL because methods of enquiry are relative to humans. As such they are contingent, they can change and they are fallible, but what they all have in common is their teleological nature, namely their shared goal of understanding the mechanisms and structures at the intransitive level of the REAL.

The three levels are related by a complex stratified ontology, a full explanation of which exceeds the scope of this book so I will limit myself to asking: how might the REAL, the ACTUAL and the EMPIRICAL map on to an understanding of what makes writing academic? I offer this initial proposal: the REAL refers to the total textual environment available to a writer, including all possible texts, genres, modalities (or, in philosophical-speak, the REAL refers to all possible worlds). This includes the full range of past, present and future semiotic and semantic resources (such as grammar, vocabulary, genres, visuals and all other textual and technological features, as well as rules, conventions and institutional requirements and standards) but it also includes all of history's contingencies and the present and future threshold concepts that account for academic writing reality as a social and academic practice. The ACTUAL refers to any given instance (or event) of an academic text: a traditional written essay, a monograph, a graphic dissertation, a dialogue, a poem, a visual essay (Thomas, 2018) or an audio/dialogic essay (see, for example, the pre-digital pioneering work of Shor and Freire [1987]). These are all potential or actual manifestations of the real and they include texts that have yet to become manifest (such as haptic essays or 3D virtual essays). These ACTUAL texts don't have to happen, but there is real potential for them to happen because of the opportunities afforded at the level of the REAL. The EMPIRICAL refers to how writers go about investigating what is available at the level of the REAL, how they experience the level of the ACTUAL (via institutional practices of assessment, for example) and how they then choose to represent what they notice at the manifest 'actual' level: the methods of enquiry at the EMPIRICAL level are multiple and transitive, allowing writers (agents) to notice a very wide range of academic texts which further

triggers their agency to investigate the level of the REAL in order to uncover what else the textual environment might afford. The ‘empirical’ allows writers to notice writings ‘in the wild’ and to then enact their agency by knowingly and reflexively making choices about how to write. Academicness emerges from the critical interactions that take place across the EMPIRICAL, the ACTUAL and the REAL. These critical interactions require reflexive judgements, referred to in critical realism as ‘judgemental rationality’ (Mirzaei Rafe et al., 2020). Figure 1 offers a diagrammatic summary of this. I also refer the reader to the work of Boughey and McKenna (2021) and Mirzaei Rafe et al. (2020), who, respectively, mobilize critical realist ontology to explain how changes can be enacted at the level of educational policy and of curriculum design.

Figure 1 A critical realist conception of academic writing.

The analytical dualism of structure (intransitive) and agency (transitive) is part of critical realism's overarching ambition to transcend deterministic and positivist accounts of social reality, on the one hand, and relativist constructivist ontologies, on the other. This is because, critical realists argue, both these theoretical frameworks have been unable to explain social phenomena: positivism fails because it reifies the epistemic virtue (or vice) of 'objectivity' as a 'value-free' judgement about the nature of reality; it also tends towards deterministic and mechanistic explanations that undermine agency. Constructivism is inadequate because it tends to relativize judgements about what counts as 'real' (Collier, 1994), potentially denying the existence of social reality by over-emphasizing the role that agents play in constructing it. Instead, critical realists argue that ontological claims about the reality of social phenomena (such as social structures) are justified because social reality is not a construct, it is 'real' and 'objective', but not in the positivist sense of being value-free: it is real and objective in the sense that humans have created social realities that embody their values – we might say that for critical realists social reality is objectively ideological. This makes the reality of the natural and the social worlds *ontologically real*. Whilst ontological reality is harder to change, the reality of the social world at the level of the ACTUAL can be changed by individuals (agents) operating at the level of the EMPIRICAL through their judgements and understandings of how social structures work at the level of the REAL: critical realists argue that individuals do not engage in neutral, objective and value-free descriptions of the world, they judge it and act upon it through their values, which include epistemic virtues and vices, namely how they value knowledge (Daston & Galison, 2010). These value claims, which are relative to the EMPIRICAL (where we experience the REAL through the manifestations at the level of the ACTUAL), are what enable individuals to intervene *critically* in changing epistemological reality. The reality of individual value judgements is thus *epistemologically real*, albeit relative to our EMPIRICAL and ACTUAL experience of the world. What this entails for academic writers is that knowledge of what is available in the textual environment can inform their choices about what kinds of texts they value and therefore wish to write. This knowledge can be accessed by learning *about* writing (as opposed to learning to write [Downs & Wardle, 2007; Mays, 2017]) through scholarship, whereby academics and writing instructors can become knowledgeable of the textual environment at the level of the REAL and make this knowledge available to their students so that they, students and their writing instructors, can make informed choices at the level of the ACTUAL, where their writing becomes manifest.

As introduced in Chapter 1 and developed here, transitive knowledge is epistemological, i.e. it is knowledge of *how* we come to know things, not knowledge of what things are. It is what I have also referred to as procedural knowledge, for example, *how* a doctor comes to establish that a patient is ill or *how* a researcher comes to write about something they wish to understand better. Intransitive knowledge, on the other hand, is ontological and declarative knowledge, namely knowledge *that* something is the case. It is knowledge that something is real (e.g. poverty is real, regardless of how – what methods we use – we come to know about it). Ontological (intransitive) and epistemological (transitive) reality includes both the social and the natural world. For example, social structures, such as capitalism, are ontologically real, until they are epistemologically shown to be otherwise. Natural phenomena, such as gravity, are ontologically real, until they are epistemologically shown to be otherwise. However, the ‘how’ (epistemology) should never be collapsed into the ‘is’ (ontology) because knowing how to do something (e.g. to detect an illness) does not entail knowing everything about what that something is: I may know how to measure my temperature, but I don’t know what caused it or even what is happening to me physiologically. Equally, I may know how to teach a student to write an EAP or IELTS essay, but I may not know all that there is to know about academic writing or the student’s future writing requirements. This is why it is misleading for academic service providers such as EAP units to claim that they teach ‘academic writing’, as if academic writing were a homogeneous and static genre.

Moreover, when we collapse the ‘how’ into the ‘is’, there is a danger of misunderstanding the world at the level of the REAL. For example, a patient may not actually be ill (REAL) despite my methods of enquiry (EMPIRICAL and ACTUAL) indicating or representing them in a way that suggests that they are: think of the many cases of false positives in science (e.g. positive pregnancy tests that turn out to be negative or misdiagnoses of cancer). When writing is understood as a method of EMPIRICAL enquiry to represent reality at the level of the REAL, then when I erroneously claim that my use of the passive voice, for example, with its putative connotations of impartiality and objectivity, makes *my writing* objective, I am collapsing the ‘how’ (how I am representing reality) into the ‘is’ (what that reality is). My use of the passive does not make my writing objective any more than my use of a thermometer makes me have a temperature: the passive is simply a rhetorical device, an instrument, so to speak, that allows me, the writer/enquirer, to tell my reader that I *believe* an event to be objective at the level of the REAL, even though that event might turn out to not be objective (just as a thermometer allows a nurse to tell his patient that he believes they may

have a temperature). Like other rhetorical devices and methods of enquiry to represent reality, the passive is epistemological and transitive, it does not establish the intransitive reality at the level of the REAL of the event I am describing: that event would exist regardless of whether or how I represent it, whether in the active or passive voice, via statistical analysis, ethnographic enquiry, a sculpture, a thermometer or a tune on a piano.

To illustrate the danger of collapsing the 'how' with the 'is', let's consider the computer-generated hoaxes referred to in Chapter 3: these were written in such a way that they persuaded the editors at Springer to publish them (Van Noorden, 2014). A tentative explanation as to how this could have happened is that the texts displayed all the surface features of *how* an academic text should look (e.g. academic jargon, passives, paragraphs, to suggest the text was 'objective' and 'rigorous'). Yet, there was nothing objective or rigorous about any of the nonsense generated in these hoaxes: how this nonsense was written, supposedly 'objectively', did not represent any objective reality whatsoever.

The ontological reification by socio-constructivists of what is in fact transitive (i. e. relative) knowledge amounts to what critical realists refer to as an 'epistemic fallacy', namely the reduction of intransitive knowledge, which is ontological, to its transitive method of discovery, which is epistemological. For critical realists, therefore, our knowledge of reality and our experience of reality are not the same because the mechanisms underlying each are different. To conflate reality with our experience of reality amounts to committing an 'epistemic fallacy' (Archer, 2002, p. 12):

Realism can never endorse the 'epistemic fallacy' and, in this connection, it must necessarily insist that the world has a regulatory effect upon what we make of it and, in turn, what it makes of us. These effects are independent of our full discursive penetration, just as gravity influenced us and the projects we could entertain, long before we conceptualised it.

The relevance of the epistemic fallacy to conceptualizing academic writing is twofold. On the one hand, it alerts us to the fact that what I am calling the 'textual environment' at the level of the REAL has a 'regulatory effect' on writing, when writing is understood as a method of enquiry and representation at the level of the EMPIRICAL. This means that the shape and form of our methods of enquiry is to a great extent constrained by what already exists at the level of the REAL. For example, institutional practices, reader expectations or technologies exist prior to anybody entering academia and they will regulate what we can and cannot change. The level of the REAL represents what 'is' in the objective

and intransitive sense of being outside of our power and agency to transform practices. For example, a student taking an IELTS test must display the standards of writing imposed by the IELTS genre. On the other, however, power and agency also exist in a transitive and subjective sense (recall that critical realism conceptualizes reality as a 'stratified ontology', meaning that there are several levels at which things are real). Power and agency exist at the level of the EMPIRICAL (where humans have values and skills) and they represent the potential we have to understand the mechanisms and structures at the level of the REAL so that we stand a chance to knowledgeably influence what then becomes manifest at the level of the ACTUAL. The level of the EMPIRICAL represents the 'how' we come to know about the 'is' at the level of the REAL. For example, that same student taking the IELTS test and who has knowledge of the expectations and requirements of the genre can, potentially, *also* exert their agency by demonstrating their knowledge of a topic and articulating an informed, thoughtful and sensitive judgement on it, rather than simply display language skills at the expense of saying anything truthful or meaningful or just. The implication of this for academic writing is that as a method of enquiry at the level of the EMPIRICAL, it can change to better reflect our values as humans and how we, as writers, interact (i.e. take into account) with what is possible at the level of the REAL. But as a standardized and de-personalized artefact at the level of the REAL, writing also limits (regulates) our powers to bring about change in how we write. It is in this sense that 'how' we (choose to) write is not the same as what writing 'is' because *how* we write could always *be* different.

According to Bhaskar, the epistemic fallacy is a legacy of Cartesian rationality which posits that our thinking can determine what there is. In this sense, Cartesianism is subjective and relative because what 'is' is determined by the human subject. It is also a relic of Kantian idealism whereby the categories of our mind (space and time) impose structures on a world that may not exist (or at least not exist outside of how our cognitive categories describe them). Critical realism dismisses Cartesianism by showing that it commits an epistemic fallacy. Critical realism flips the equally subjective Kantian ontology by asking 'what must the world be like for humans to have knowledge of it?' replacing the Kantian 'what must humans be like in order for the world to be as it is?' (Collier, 1994, pp. 137–68). This commits the critical realist to enquire about the world retroductively, namely from how the world 'must be' to the subjective knower rather than from the subjective knower to the world. Retroduction ensures that we all have something firm and REAL to investigate in the first place. If

we apply retroductive reasoning to establish what makes writing academic, we are committed to asking: what must academic writing be like for writers to have knowledge of it? We must, therefore, begin our enquiries at the level of the REAL where we encounter all possible, past, present and future instances of academic texts (because history is also located at the level of the REAL). A retroductive enquiry of this sort would soon reveal that the number of exemplars of academic writing at the level of the REAL exceeds those at the level of the ACTUAL. The implication of this, from a critical realist perspective, is that there is potential for a great deal of variety at the level of the ACTUAL because not everything at the level of the REAL is manifest in the ACTUAL (but it could be).

Transitive methods of enquiry include language, discourse and the disciplines. They allow us to designate the existence of an objective phenomenon and to understand its nature (e.g. the patient's illness). A danger of reducing ontological knowledge to epistemological methods, namely to *how* knowledge is discovered, is that this knowledge risks being understood and potentially believed, only by the communities that share the same discourses and methods of enquiry. For example, to determine the level of a nation's inequality, I might either focus my investigations on income or on wealth. If I focus on income, I may reach the conclusion that a nation is unequal (because of the huge gap in individual incomes). On the other hand, if I focus on wealth (namely accumulated monies as an aggregate), then I may reach the conclusion that a nation does not have a problem with inequality. This epistemological relativism is dangerous because it leaves no scope for being wrong since methods of enquiry are incommensurable and, as such, are rarely measured against each other because their methodological paradigms are too disparate: for example, a deductive method of inquiry can be valid and true in formal logic in virtue of the conclusion following from its premise, even if the premise turns out to be substantially untrue or wrong when measured against an inductive or abductive method of enquiry. If left unchallenged, this kind of epistemological relativism becomes an epistemic fallacy which creates the space for intransitive knowledge to become 'weaponized' (Peters et al., 2020), in the sense that the knowledge that exists at the level of the REAL becomes relative rather than objective. The post-truth politics that emerged during the Donald Trump presidency of 2016–20, in the United States, are an example of how intransitive knowledge can be weaponized by being relativized: 'alternative facts' and 'fake news' were phrases used to discredit and prevent attempts to establish the truth, understood in its common sense and well-intentioned meaning of wanting to know what is happening so that action can be taken to either prevent or initiate

change. If the objective intransitive reality of a truth such as climate change, a deadly virus or poverty, all of which are ontologically real, is conflated with its subjective transitive methods of enquiry, methods such as ethnography, logic, experimental and control groups, economic and statistical data, investigative journalism, political or dictionary definitions, writing, photography, video footage and so on, then it becomes possible to deny the existence of such truth because each method of enquiry can potentially show that no such truth exists. In this sense, a real phenomenon such as poverty or racism can be argued out of existence! This is clearly a very dangerous conclusion to reach, particularly if you are poor or belong to a discriminated group. To counter this relativist truth-denying tendency, Donald Judd, critical realist and writing scholar, reminds us that knowledge can be understood *dialectically*, rather than relatively, as an interaction between transitive knowledge and intransitive knowledge, which in critical realist theory is made possible by the 'judgmental rationality' of agents.

Judgemental rationality can be understood in critical realist terms as the ability of agents to reflexively learn from their environments and adjust their actions accordingly. This requires knowledge at the level of the REAL because it is at this level that agents can understand the structures and the mechanisms that lead to the manifestation of phenomena at the level of the ACTUAL. Judgemental rationality can be further understood scientifically as 'trained judgement', namely as an epistemic virtue that guides agents towards having knowledge of the world (Daston & Galison, 2010), or philosophically as 'practical wisdom', in the Socratic sense (Smith, 1999). The common denominator that underpins 'judgement', understood as a human rational, trained and practical disposition, is an ethical orientation towards knowledge, the truth and the common good. This explains why critical realism is a theory that is motivated by change that leads to social justice.

The dialectical interaction across the stratified ontology represented in Figure 1 is essentially an interaction between agency and structure, between a writer and their textual environment. It allows us to reclaim a realm of reality that can *potentially* be known by everybody, regardless of their methods of enquiry. With regard to writing, I have represented this dialectal dimension in Figure 1 as 'judgement' to signal that what makes writing academic is the writer's judgement about which SAP they wish to enact given their knowledge of what the textual environment affords them. This means that writers are required to acknowledge (and have as much knowledge as possible of) the existence of the vast historical and social textual environment at the level of the REAL, because by knowing what the textual environment affords, they are more likely

to make rational, trained and ethical choices about how to write. They may, of course, not be able to act upon and make those choices because of a range of constraints (such as institutional practices or lack of access to technology), but the fact that they are knowledgeable about what is possible at the level of the REAL empowers them to investigate a far greater range of ways of enacting their choices so that they can become manifest at the level of the ACTUAL. Because judgement requires knowledge of the objective deep structures and mechanisms at the level of the REAL as well as knowledge of one's own subjective values, disciplinary orientations, capabilities and skills at the level of the EMPIRICAL, constraints on what can make a text academic do exist. For example, a hoax cannot be academic because it lacks the epistemic virtue of a commitment to the truth (REAL) and it contravenes reader expectations (REAL) about what an academic text should be. The more attuned, reflective and reflexive the writer's judgement becomes through knowledge of what is available and possible at each level, the greater the range of texts at the level of the ACTUAL that can count as academic. As I explain below, these three levels of stratified reality form an open system that allows new knowledge and new possibilities to move between the different strata.

Once we agree that some things are ontologically real (unless reasonably and knowledgeably judged to be otherwise) and that they are intransitive, we stand a better chance of ensuring that different communities are able to talk about the same reality. The fact that different communities (with different theoretical and disciplinary traditions) mobilize different methods and, ultimately, different values to investigate the world does not change the ontological reality of what they are talking about (e.g. poverty is always real, regardless of which methods are deployed to investigate it). Rather, what these differences allow for is an ongoing conversation about what is possible at the level of the ACTUAL based on the objective affordances at the level of the REAL.

The relevance of all this to academic writing is that there can be far greater variation of what makes writing academic at the manifest level of the ACTUAL when we understand and know what is possible at the level of the deep structural and potential level of the REAL.

Critical Realism and Academic Writing

Not much has been written about the relevance of critical realism to academic writing, but what has been written provides generative insights to potentials

that warrant further investigation. Three theorists, all of whom are also teachers of academic writing, stand out in this regard. These are US scholars Michael Bernard-Donals (1998) and Donald Judd (2003) and South African scholar Deirdre Pratt (2011). I will review them briefly in chronological order.

The Practice of Theory: Rhetoric, Pedagogy and Knowledge in the Academy

Bernard-Donals (1998) writes from within the literary tradition of American rhetoric and composition which is rooted in the classics (Plato and Aristotle). His book is a reminder of how varied, ideological and contested writing traditions are. For Bernard-Donals, rhetoric is a method for knowing the world. This chimes with Richardson and St. Pierre (2005)'s portrayal of writing as a method of enquiry and it assumes that the world is real and composed of both social and natural structures and mechanisms that are measurable, observable and objective. Because of the foundational (i.e. objective) ontology of the world, writing (and the language it is composed of) is not *constitutive* of reality but *descriptive* of it. By being descriptive of reality, it remains ontologically distinct from it. In advancing this thesis, Bernard-Donals is positioning himself against the post-modernism of philosophers such as Richard Rorty and Michel Foucault, for whom it is the discourses of language and writing that seem to be intransitively real. However, on a critical realist reading, they cannot be intransitively real because writing is always *about* something that is external to it. This makes it an epistemologically transitive method of enquiry and not an ontologically intransitive constituent of reality. If writing were intransitively constitutive of reality, this would potentially commit us to claiming that reality can only be accessed or realized through language and writing, which further suggests that only written (or linguistic) reality exists. But this would deny other modes of representation (the visual arts, for example) the right to claim their legitimacy as constitutive of reality, or it would at least make them incommensurable with writing. Moreover, if writing were constitutive of reality, rather than its *proxy*, as I argued in Chapter 1, it would make human communication unintelligible: if there is no external non-linguistic reality to refer to, because what is real is simply language (which further begs the question of 'whose' language?), what then becomes of our shared human endeavours to understand and interpret both the natural and the social world? I have located writing at the level of the EMPIRICAL in Figure 1 because it is ontologically distinct from the REAL. This matters because it allows us to think of writing as one of many methods for

interpreting and describing the world, alongside music, the visual arts, statistics, mathematics and countless other methods deployed by disciplinary enquiry. At best, writing remains a partial representation of reality. Although Bernard-Donals makes no such normative claim, I would argue, along with Olson (1977, 1994) and Harris (2000) that because it is an empirical and transitive method of enquiry created to describe the intransitive world, writing is not inherently superior to other methods of enquiry. Indeed, writing is as fallible as other methods for interpreting the world and regularly fails to represent reality, as we saw in Chapters 2 and 3 with reference to the epistemic injustices inflicted when words fail to describe discrimination.

Crucially, what a critical realist theory of writing entails is that it is not the writing, *qua* method of enquiry, that is 'objective', it is the ontological reality at the level of the REAL that is objective in the sense that it is independent of how the observer-writer describes it. This is why I challenge the characterization of writing as 'objective' (see Chapter 1): writing choices are always at the level of the empirical and, as such, are always relative and subjective. What is objective is the intransitive reality a writer wishes to describe using their text as a proxy *for* reality, not as a substitute of this reality. For this reason, academic writing can never be 'objective'.

Having established that the social and natural worlds exist independently of their knowers (and writers) by appealing to Bhaskar's critical realism, Bernard-Donals argues that writing can then intervene critically in how it describes reality because writers make rhetorical choices. It is in virtue of their rhetorical choices (which include linguistic and non-linguistic choices) that the writer *qua* agent also becomes an agent of change and transformation whereby their text describes reality as the writer wishes to describe it from a position of knowledge. In other words, it is through informed choice about how to write about the world that writers can have an influence on and therefore change reality. For example, Piper Harron's PhD thesis (referred to in Chapter 3) was written from a position of knowledge: transitive knowledge of her agency at the level of the EMPIRICAL and intransitive knowledge of what was textually possible at the level of the REAL. This allowed a novel mathematical PhD genre to emerge by becoming manifest at the level of the ACTUAL.

Critical Realism and Composition Theory

Judd (2003) is a teacher of English and Composition Studies, what the Americans call 'Academic Writing' and which continues in the tradition of the

United States' established field of rhetoric and composition. His book is inspired by his predecessor Bernard-Donals, whom he credits for having helped him make the link between academic writing and critical realism. Judd takes to task three cornerstones of American composition studies. To varying degrees, these writing traditions have influenced the UK tradition of EAP (Russell et al., 2009), particularly the cognitivist tradition which underscores several textbooks that foreground process approaches to academic writing. The theories of writing that Judd challenges are:

- Expressivist theory and voluntarism
- Cognitive rhetoric and empirical positivism
- Socio-constructivist rhetoric and super-idealism

According to Judd, none of these three mainstream pedagogies recognize the distinction between transitive and intransitive knowledge and, for this reason, all are inappropriate academic writing pedagogies. After subjecting each to an immanent critique by identifying their theoretical inconsistencies with regard to their practical classroom implications and applications, he provides a radical transcendental critique by proposing the social philosophy of critical realism. Unlike Bernard-Donals, who recognizes that each approach has considerable merits at different stages of writing instruction and that each tradition has evolved and continues to evolve in response to very specific contexts, Judd is less forgiving. Rather, Judd seems intent on simplifying in order to magnify the undesirable consequences that each approach potentially commits its writer to and on exposing their inherent theoretical inconstancies via an immanent critique.

Judd berates expressivist theory for being individualistic and having the (un)intended consequence of becoming wholly subjective, whereby all writing counts as 'good writing'; he accuses cognitive rhetoric of falling foul to the linear, mechanistic determinism of input-output computer analogies, whereby each step in the writing process sequentially leads to a predictable outcome that takes no account of context or human agency; and he takes serious issue with socio-constructivist and post-modern theories of writing because, he argues, they lead to the kind of relativism that makes knowledge wholly transitive and incommensurable rather than intransitive and shared. His main contention is that each writing approach runs the unintended risk of thwarting the educative and epistemically transformative purpose of writing. Expressivist pedagogy is uneducative because it encourages students to dwell on individualistic, relative

and transitive knowledge (i.e. what I think, how I got there, etc.) at the expense of intransitive knowledge; cognitive pedagogy encourages students to think that knowledge is sequential, logical, linear, predictable and value-free and that academic writing is meaningful and good as long as it is well planned and well written: IELTS essays or other skills, genre and template-based approaches to academic writing might be examples of the cognitive approach, as might hoaxes, in the sense that they can be well-written but meaningless. Because this kind of writing is ultimately devoid of content, its knowledge is neither transitive nor intransitive; socio-constructivist pedagogies deny expert positions (such as the expertise of the teacher) by suggesting that knowledge is co-constructed and sanctioned by the community (e.g. the teacher and the students). This, like the expressivist tradition, reifies epistemic relativity at the expense of intransitive objective knowledge: academic literacies approaches might be an example of socio-constructivist approaches because it is not clear where or how they might draw the line between what counts and does not count as an academic text.

By not recognizing that knowledge is both epistemological (transitive) and ontological (intransitive), the three pedagogies fail to fulfil their ultimate function, which is to be educational. To be educational is to be transformative, as already highlighted in Chapter 1 with reference to Bereiter and Scardamalia (1987), who, although cognitivists in their approach to learning the process of writing, recognize the socially transformative role of building a kind of knowledge that changes beliefs, skills and attitudes. If education is to be transformative it needs to be able to change our knowledge of reality, re-configure the *status quo* and advance social justice, an epistemic virtue that underpins the mission of some modern-day higher education. To do this, writing instruction needs to foreground the development of students' knowledge of the topics they are expected to write about (rather than disproportionately focus on the myriad surface features that will allow them to write about this knowledge). The implications of a critical realist writing pedagogy are that writers must work retroductively from knowledge of the world (i.e. knowledge of the topics they are interested in) to making decisions about how best to represent that knowledge in their texts. This approach turns much current general academic writing instruction on its head because it starts with knowledge of content and then decides on the most fitting genres, modalities, languages and technologies for representing that knowledge.

Judd's more positive transcendental critique consists in proposing critical realism as an alternative theoretical foundation for academic writing. His reasons are fourfold:

1. From a critical realist perspective, the reason we need knowledge is to further human emancipation. This means that writing instruction, if it is to have educational value in the academy, must create the conditions for writers to emancipate themselves. On this reading, what makes writing academic is knowledge. Since a hoax or an IELTS essay or any other kind of writing that displays conventional or performative forms of academicness (such as plagiarized texts) does not need knowledge to be deemed worthy of publication or a grade, it cannot be considered academic. As such, symbolic citation and other forms of plagiarism would place the necessary constraints on what counts as academic. However, the use of personal pronouns or contracted forms would not constitute such a constraint because they do not prevent knowledge from emerging;
2. Knowledge is neither individualistic (expressivist), cognitive, nor relative (socio-constructivist), but always *about the social* in the sense that a writer must be knowledgeable about the objective reality of the social and institutional structures that generate the social phenomena they are writing about (e.g. poverty; capitalism; climate change, injustice). On this account, for a text to be academic, it needs to engage with deep knowledge and research. Judd proposes, in keeping with critical realist philosophy, that this deep knowledge is best approached in an interdisciplinary way. His suggestion aligns with sociologies of knowledge that require multidisciplinary approaches to understanding reality (see, for example, Michael Gibbons (1994) in Baber (1995) on the differentiation between Mode 1 (disciplinary) and Mode 2 (interdisciplinary) knowledge) and with decolonizing ecologies of knowledge so that we become better attuned to what counts as knowledge and to whose knowledge counts (Collyer et al., 2019; de Sousa Santos, 2009);
3. Knowledge is corrigible. Through self-reflexivity and an ongoing quest to understand and to know things, we can correct mistaken beliefs. Writing pedagogy should be educative in this respect, i.e. it should lead students away from mistaken beliefs and provide them with authentic and meaningful tasks to ensure they are always writing from a position of knowledge. This would imply that for writing to be academic, it must always be research-informed and truth-oriented. An implication of such a condition would be that any writing instruction that is not research-informed and truth-oriented would result in writing that is not academic; truth and consistency are epistemic virtues that involve value judgements about social and natural reality. This means that writing tasks which require

students to communicate their positions on social (and natural) phenomena need to allow students to learn content, do research and read up about the phenomena they are being asked to write about. This ensures that writing pedagogy honours its educational mission to be emancipatory and transformative. The implication of this for what makes writing academic is that writing instruction needs to engage meaningfully with content. When content becomes a pre-condition for meaningful writing, the 'myth of transience' lamented by Rose (1985) and Russell (2002) is exposed for what it is: a myth. Writing choices that depend on writing content having a meaningful purpose are rarely universally transferable, as Sam, from Chapter 1, found out in the transition from writing at secondary school level to writing in tertiary education.

To sum up, both Judd and Bernard-Donals think of writing as 'epistemological', as a method of enquiry that allows us to make value-laden claims about a world that is external to us. In this sense, all academic writing is subjective. They argue that by 'reclaiming reality' (which is Roy Bhaskar's socio-scientific project), a realist ontology does away with the reification of relativistic and anti-foundationalist ontologies and replaces these with the concept of the dialectic, namely a relational and stratified ontology whereby human agents interact with their environments by shaping them and being shaped by them. This assumes that there is an objective reality to shape and to be shaped by and that social change is possible when agents intervene critically, rationally and using their judgement. Realist philosophy acknowledges that there are material structures, mechanisms and tendencies that exist independently of language and of how we name and classify reality. Once reality has been reclaimed, language and its written forms, via the intentional agency of the author, can do the methodological and dialectical work of intervening critically on these material structures but only through research and working with content rather than by changing discourses: simply changing how we name phenomena does not change the structural nature of those phenomena (e.g. re-naming 'climate change' to 'climate emergency' does not substantially alter the phenomenon we are describing, it simply provides an indication as to how the observer views that phenomenon). Only a deep knowledge of the structures of reality at the level of the REAL can lead to change at the level of the ACTUAL, which is where writing is manifest. Re-describing these structures by, for example, changing how we name something, e. g. replacing 'writer' with 'author' to signal authority; or 'customer' with 'student' to signal resistance towards a lexicon of neoliberalism;

or 'writing' with 'composing' or 'academic literacies' to signal an ever-increasing range of nuance, goes some way towards re-configuring imaginaries, but it does little to fundamentally modify what happens at the level of the ACTUAL. Indeed, critical realists tend to be sceptical of what they see as *sui generis* language games whereby we claim to have enacted change simply through changes in discourse: 'Re-description does not change the material [real] constraints by which you are bound' (Bernard-Donals, 1998, p. 228). In saying this, Bernard-Donals is explicitly criticizing the post-modernist and socio-constructivist tendency to locate change at the level of the EMPIRICAL, which is where I have located language and discourse, rather than at the level of the ACTUAL. Instead, a critical realist framing of academic writing posits writing as a socially transforming self-reflexive and transitive methodological practice that recognizes the agency of the writer whilst acknowledging that there are material constraints to writing as one would like. However, through a process of dialectical judgement that requires knowledge of the REAL, writers can harness the opportunities that exist at the structural level. What this dialectic nature further entails is that although academic writing is *subject to* established conventions, it is not *reducible to* or *determined by* these conventions. Because of this non-reduction, change in writing forms can occur.

Modelling Written Communication: A New Systems Approach to Modelling in the Social Sciences

Writing in the South African context, Pratt (2011), too, has mobilized critical realism to provide an alternative to relativistic post-modern approaches. Her work is aimed at proposing a theoretical model for creating what she calls a 'computerized writing tutor'. I refer the curious reader directly to her book for the finer details of her technical analysis and limit myself here to quoting her at length because her words provide an apt conclusion to what has been said so far. They also afford a natural segue into thinking about writing as a 'complex' open system, which can provide students like Sam, from Chapter 1, with a sense of 'empowerment' rather than confusion (Pratt, 2011, pp. 27–8):

Critical realism offers an appropriate perspective from which to view the complex processes involved in composing [writing]. The critical realist philosophy represents reality as complex and dynamic and inquires into the way things work – particularly the deep-structure causes of events and social processes The participant focus is also favoured by critical realism, which views human

action not as governed by behaviouristic laws, nor as a conditioned response to pre-determined social structures, but as individual agency (M. Archer, 2002) with a fair amount of free will within any given social order. Human agency is both enabled and limited by the opportunities and constraints afforded by social structures, at the same time maintaining the fabric of these social structures, which are fairly stable, but capable of gradual change, usually by one or more of the complex social mechanisms which maintain these structures rather than as the result of individual human agency (or specific interest groups) per se. This means that, while learner writers often find themselves operating in a 'given' (but not fixed or static) context, where academic writing is an undisputed fact of academic life, they are able to make efforts to empower themselves by gaining insight into and expertise in academic composing, in spite of the constraints set by academic requirements and other factors (e. g. lack of experience and/or background knowledge).

To better understand the critical realist project, I now turn my attention to explaining the role that complexity theory plays in this endeavour.

Academic Writing as a Complex and Emergent Open System

In Molinari (2019), I articulated a systematic account of how complexity theory has been understood in the domains of philosophy, sociology, science and linguistics and of how its related concept of emergence can be further harnessed to conceptualize academic writing as an 'open system' in which change and novelty become possible. For my present purposes and readers, I offer the following definition of complexity by social philosopher Dan Little (Little, 2018), whose fascinating blog on *Understanding Society* provides several analyses of social phenomena that draw on critical realism:

A complex system is one in which there is a multiplicity of causal factors contributing to the dynamics of the system, in which there are causal interactions among the underlying causal factors and in which causal interactions are often non-linear. Non-linearity is important here, because it implies that a small change in one or more factors may lead to very large changes in the outcome.

Little refers to two fundamental concepts in complexity theory: change and non-linearity. These are essential to understanding critical realist philosophy and its relevance to re-conceptualizing academic writing as a complex open system.

Complexity Affords Change and Non-linearity

Several writing scholars in the sociolinguistic tradition of Academic Literacies seek to explain how writers can push back against the conventions that constrain them in order to change them by invoking the metaphor of a 'crack' in the system, which is presumably 'how the light gets in' (echoing singer-song writer Leonard Cohen's famous 'Anthem' refrain). Brian Street, for example, in conversation with Theresa Lillis and Mary Scott, claims (Lillis et al., 2015, p. 389):

One metaphor I'd use comes from the person in Algeria who was appointed to follow Kofi Annan as the UN representative in Syria. He said: 'all I can see in front of me is a wall but I know that walls have cracks in them and that's what I'm going to work on' So that's what we're doing. Universities look like walls but there are some cracks.

Writing scholar Catalina Neculai similarly refers to how she has resisted neoliberal terminology in dissertation descriptors in a 'subcutaneous' way. What she means by this is that she defied the institutional requirements to give prominence to certain information by deliberately choosing to foreground the disciplinary contributions of her students rather than focus on the neoliberal jargon of student 'employability', which she nevertheless had to refer to 'obliquely' and 'indifferently' (Neculai, 2015, p. 405).

Complexity theorists (e.g. Kuhn, 2008; Parnell, 2012) and critical realists deploy similar metaphors but they possibly conjure up a more prominent role for the agent, particularly in signalling the need for the agent to more actively 'seek' the cracks and force them open or to create the opportunities for those cracks to form in the first place. What sociolinguistics in the academic literacies tradition call 'cracks' and 'subcutaneous' acts of resistance (which conjures up a more serendipitous, happenstance image, as though you happen to be walking past the crack or you chance upon a document with neoliberal jargon), complexity theorists call 'levers' that need switching to re-direct the course of history and shift the deep structures of power (Mason, 2008, p. 38):

Complexity theory seeks the levers of history, the sources and reasons for change, in the dynamic complexity of interactions among elements or agents that constitute a particular environment. It is in this sense that seemingly trivial accidents of history may increase dramatically in significance when their interactions with other apparently minute events combine to produce significant redirections in the course of history, significant shifts in the prevailing balance of power.

It is because of the need to enact change that some applied linguists have also turned to complexity theory to explain and to justify diversity and change in linguistic practices, particularly in response to deterministic, building-block approaches to language learning. With regard to the dynamism of language and the unpredictable non-linearity of language development, they argue that when language is conceived of as a complex system, changes in language development can occur in interactive, dynamic and non-linear ways because language is an open system (Cameron & Larsen-Freeman, 2007, p. 227, emphasis added):

Complex systems are composed of elements or agents that interact in different ways. Their interactions lead to self-organization and the emergence of new patterns at different levels and timescales. Such systems are also adaptive and dynamic. The elements and agents change over time, but crucially so also do the ways in which they influence each other, the relations among them. Complex systems are open rather than closed; energy and matter can come into the system. The dynamic nature of element interactions and the openness of a system to the outside lead to non-linearity, *which in complex systems theory signifies that the effect is disproportionate to the cause.*

Here the emphasis is explicitly on the language learner as agent and how they interact with their environments to develop language competence. This competence emerges from a series of interactions, the effects of which on learning a language are non-linear and unpredictable.

What complexity theory signals, in contrast to the seemingly similar concerns of academic literacies, is a recognition that there is a 'multiplicity' of factors that contribute to phenomena (such as language development or, in our case, particular conventions in academic writing practices). For deep structural change to occur in any social practice, it may not be enough to notice a crack and presumably pick away at it until it gets bigger and the system eventually collapses, or engage in serendipitous acts of linguistic resistance, because this approach may not reveal or may even remain silent on the underlying causal factors that led to the structures that allowed a crack to form in the first place. Rather, in order for an agent, in our case, an academic writer, to stand a chance of writing in diverse ways, they need knowledge of the nature of the complex structures they belong to in virtue of being a student, an academic, or a teacher, so that they might become empowered to identify what caused these structures and where the *levers of change* might be located. The complex stratified ontology that critical realism reveals indicates that change is simply not possible at all levels of reality: the structural level of the REAL, for example, remains largely beyond the reach of any single individual. Whilst it is easy to see that there are

'cracks' in the system that can be picked at – signalled, for example, by a rise in cases of plagiarism, which indicates dysfunctionality in academic writing practices that might warrant more creative pedagogies – it is much harder to know what to do about and with those cracks. Crucially, it is hard to know *who* has the power and agency to do something about them. A critical realist response involves going beyond noticing that something is wrong to knowing where to put pressure on the system through a deep knowledge of the system. A student writer alone cannot pick at a crack and resist. Nor can a writing teacher employed on a casual and fixed-term contract, for example, because they will more likely teach to the default standard of templates and conventions. But a student writer equipped with agency and a knowledgeable teacher with a secure and permanent contract that allows them the time and the resources to engage with writing scholarship and connect with writing communities might be able to action the pressure needed for change.

To begin appreciating the significance of complexity theory and its relevance to what makes writing academic, we must also distinguish between a 'complex' system and one that is 'complicated'. This distinction is important because it affects how events are analysed and understood. A complicated system can be explained in terms of its constituent parts whereas a complex one cannot. For example, a bicycle is complicated, but it is not complex. A sailor's knot is complicated, but it is not complex. This is because although both a bicycle and a knot are intricate and are made of many inter-connected mechanical parts, a full understanding of what these parts are and how they connect to each other is sufficient to explain how the bicycle and the knot, as *whole* systems, will work. This allows us to predict what will happen when we turn the pedal or move the handlebars on the bike or when we pull at the loose end of the knot. Complex systems, on the other hand, do not allow for such predictions because their 'whole is greater than the sum of their parts' (Beckett & Hager, 2018). Complex systems include social phenomena, such as education and economics, whose constituent parts inter-relate to such an extent that they cannot be explained in isolation and without a full account of how they relate and interact to other parts: the reasons for rising inflation rest as much on human purchasing behaviour and psychology as they do on the mechanics of price increases and the value of national currencies. This means that in a complex system, changes in the constituent causal parts are not directly proportional to changes in the whole i.e. changes in individual spending habits (one of several causes of inflation) do not provide a full explanatory account of why inflation occurs. This now explains what is meant when complex systems are described as *non-linear*: cause and

effect are disproportionate in the sense that the whole effect cannot be explained by an isolated cause.

Here is another illustration of what is meant by *non-linearity* in complex systems. The seemingly simple act of dropping a single coin in a fairground coin pusher can lead to a disproportionate effect whereby the entire mass of accumulated coins suddenly drops. What caused the drop, though, was also the cumulative pressure of the mass of coins that were already in the system, the time it took for this pressure to accumulate, the timing of dropping the coin in the first place, the amount of pressure and precision exerted by the machine and the position of the new coin in relation to the other coins. From a complexity perspective, that single coin played a relatively small part in causing the whole mass to drop. Moreover, the effect of this huge drop results in the player winning a prize that by far exceeds the value or investment in time and energy of dropping the initial coin. It is in this sense that cause and effect are disproportionate and *non-linear*. By contrast, a complicated system is said to be *linear* because a change in a constituent part can more straightforwardly explain a change in the whole. For example, by taking the pedal off the bike, the crankshaft can't properly turn.

Rather than an aggregate composed of concatenated parts that add up to a whole, as skills-based, cookie-cutter and template approaches to writing encourage, academic writing is a complex social system of dynamic inter-relations whose multiple causes cannot be reduced to its constituent parts in a linear, i.e. mechanistic, manner. On a complexity account, academic writing becomes *non-linear* because what makes it academic as a whole (its effect) cannot be reduced to any specific part (the cause). This can be illustrated with reference to the effect that conventional academic forms can have on representations of knowledge. For instance, the use of personal or non-personal language (discussed in Chapter 1), such as the active or passive voice, can have a disproportionate effect on how knowledge is re-presented. The personal, active voice in ethnography, realized by the use of 'I', for example, indexes that the researcher, not the 'reality', influences what counts and does not count as 'data'. 'I' thus becomes more than a grammatical item (a personal pronoun). It becomes an epistemological rhetorical device to signal the positionality of the researcher, a statement about the researcher's orientation towards their area of research: it signals that the data aren't 'out there' and that it is the researcher who confers upon their samples the status of 'data'. As Thomson (2013) reminds us, '[t]hey aren't data until we make them data' and it is our choice of personal or impersonal language that signals where we stand, i.e. how we position ourselves

with regard to whether we deem something to count as data or not. Even when I claim 'these are samples of x, y, z' without rhetorical recourse to personal pronouns, my choice of language, in the guise of the impersonal demonstrative deictic (*these*) and the present simple (a tense that allows you to describe an event as an established fact), signals my objective stance towards the data. It does not signal that the data are objectively 'out there', but that I think and am saying that they are. By not using personal pronouns, a particular ontological stance also emerges, namely that 'data are out there', they exist. Similarly, if I claim: 'here is how I have established that samples x, y, z can be part of my data set', a more epistemological stance emerges, namely 'this is how I know they are data'. From a complexity perspective, the use or non-use of 'I' causes a disproportionate effect in terms of how knowledge is represented. The simple, almost-imperceptible and seemingly innocuous grapheme – I – generates enormous ontological and epistemological effects! Moreover, these effects cannot be reduced to the single use of the pronoun 'I' because there are far greater causes that determine whether writing, as a complex whole, is perceived as having a subjective or objective orientation towards its object of enquiry. These causes include the disciplinary paradigms that establish methods and methodologies for how research is conducted, the assumptions about the role of the researcher in the research process and the language of the text as a whole (Hyland, 2002).

Crucially, in a complex social practice such as writing and what makes it academic, the effects cannot be reduced to their causes. This explains why popular skills-based textbook descriptions of academic writing as 'linear' make no sense: they make no sense because what makes writing academic cannot be reduced to any single factor, such as structure, vocabulary, syntax or language itself. There is multiplicity of factors which explain an effect, what philosopher of mind Jerry Fodor (1974, 1997) refers to as 'multiple realizability'. This signals that a 'heterogeneity of realisers' is involved in explaining how something as complex as life itself is possible. This multiple realizability, however, does not commit us to a relativistic 'anything goes' approach to what makes writing academic, as practice-based approaches might suggest because, as argued throughout Chapter 3 and above with reference to Judd, although there are multiple ways to represent knowledge, a critical realist writing pedagogy requires that writers be committed to the truth of their claims rather than wedded to any particular form to make those claims.

It is at this point that the concept of 'emergence' becomes a useful heuristic to explain how complex phenomena can be explained non-reductively and why

insisting that any particular feature of language that forms part of a dynamic complex system is more academic than any other is confusing and misleading.

Emergence Affords Novelty

Emergence is a widely debated philosophical and scientific concept and, like complexity theory, it is key to understanding critical realism. For our present purposes, emergence can be simply understood in the terms outlined by philosopher Jaegwon Kim (2006, p. 548):

[A] purely physical system, composed exclusively of bits of matter, when it reaches a certain degree of complexity in its structural organisation, can begin to exhibit genuinely novel properties not possessed by its simpler constituents.

Examples of emergent properties include water, pain and consciousness (Chalmers, 1996, 2006). Much philosophical debate centres on whether these properties are weakly or strongly emergent (which I explain below), but at the core of the debate is the extent to which an emergent property (a whole) can be reduced to its parts, or constituents. For example, to what extent can a complex property like human consciousness be reduced to and explained by the chemical composition of the brain? This is referred to by philosopher David Chalmers as the ‘hard problem’ of science. It is also referred to in the literatures on emergence in terms of what constitutes the ‘supervenient base’ from which complex phenomena emerge (Eaton, 1994; Hohwy & Kallestrup, 2008). For example, what makes a work of art ‘beautiful’ emerges from a complex set of interactions between variables (such as the materials used to create, the symmetry, aesthetic theories, cultural background of the viewer and so on). These variables and their interactions are referred to as the supervenient base, namely the physical and social properties that give rise to a complex phenomenon, such as beauty. This debate extends to critical realist understandings of the nature of social phenomena and can be understood in the context of methodological and collective individualism referred to earlier in this chapter (Kaidesoja, 2009), namely the extent to which social phenomena such as poverty emerge from individual or collective behaviours.

Arguably, water is an example of a weakly emergent complex phenomenon: it is emergent because it is a liquid that comes into existence from two gases, hydrogen and oxygen. Its psycho-physical property of liquidity is novel because it is not contained in the property of a gas and, as such, it cannot be reduced to its constituents (Wongsriruksa et al., 2012). Liquidity, therefore, is an example of

a complex (rather than complicated) novel property because its characteristics are not possessed by its simpler gaseous constituents: in fact, it is the term 'water', rather than the chemical designation of H_2O , that is the emergent property. Emergent properties are further characterized by the fact that claims can be made about them that cannot be made of their constituents: we can describe water as thirst-quenching but cannot say the same about hydrogen or oxygen. Water is arguably 'weakly' emergent because the science of chemistry can provide stratified, finely grained explanations, or 'bridges' (Fodor, 1974), that can account for why two gases can result in a liquid. In other words, the science of chemistry allows us to predict that when two atoms of hydrogen combine with one atom of oxygen, water results. A complex phenomenon such as consciousness, on the other hand, can be considered as 'strongly' emergent because it is not possible to explain or predict its manifestation from the parts of its constituent supervenient base (there is heated debate in philosophical circles about whether there are any strongly emergent phenomena at all. See, for example, debates between physicalist philosophers of science and mind, such as Patricia Churchland, and philosophers of consciousness, such as Philip Goff and David Chalmers).

My contention is that academicness, namely what makes writing academic, be understood in a similar way: it is a weakly emergent property that is novel because it does not share the properties of its constituent, or supervenient, base. This base coincides with the three layers of stratified reality represented in Figure 1 from which academicness can be traced and explained. The SAPs that can make writing academic, referred to in Chapter 3, such as a commitment to the truth, knowledge and to social justice, can be understood as novel properties that are multiply realized by the range of constituents that exist within the complex and stratified interactions at the level of the REAL, the ACTUAL and the EMPIRICAL. This allows me to claim that the graphic dissertation of Sousanis (2015) is academic on a weakly emergent account: although few of its academic characteristics, as a whole, can be traced back to its constituent parts (he has no topic sentences or paragraphs and very few in-text references), its parts do explain why it is academic. It is academic because Sousanis complied with the fundamental requirements of research practice, such as being evidence-based, theory-led, (visually) argumentative and making an original contribution to knowledge. These requirements make his dissertation academic at the emergent level rather than at the supervenient level of its parts. This has significant implications for teaching, assessment and academic misconduct practices. Since these requirements belong to the deep structural level of the

REAL and are therefore less likely to be changed than what can be changed at the level of the ACTUAL, they are sufficient to anchor and constrain what makes a text academic. They do not entail an ‘anything goes approach to academic writing’. Quite the opposite. They show that when writing, or any other method of enquiry, is understood as transitive, it simply acts as an EMPIRICAL proxy for representing the REAL, in this case knowledge of visual thinking and of interdisciplinary philosophies. This commits me to claiming that any method of enquiry that enacts a genuinely socio-academic practice can lead to an academic text.

For example, what makes Harron (2016)’s PhD thesis academic (as a whole) cannot be traced back in a linear way to any specific words or arrangement of her text (the parts), as might be done in an IELTS essay or academic hoax. Instead, what makes it academic are the SAPs that emerge from the interaction of her agency as a writer (particularly her values and her academic need to meet the requirements of a doctorate in Mathematics) and the range of opportunities available to her in the intransitive textual environment, such as threshold concept 3.0 (Villanueva, 2015). What emerges from this interaction is a novel entity, a thesis that is unique but that can be explained by its constituent parts and interactions thereof because it met the knowledge requirements of Princeton University. But it is also a thesis that *re-sets* the ‘requirements of a doctorate in mathematics’ by transforming this knowledge: Harron’s thesis re-configures the *standards of excellence* of a doctorate to include social justice in the field of mathematics because she has introduced a new standard of excellence: being accessible to an audience that transcends her examining committee.

Open Systems Afford both Change and Novelty

Complexity is further related to the notion of permeable open systems and what emerges from them. Thinking of academic writings as open systems allows us to see that they are permeable (Molinari, 2021b). As such, they are subject to change whilst also remaining recognizable and stable because they remain systems. A human body is an open system because it emerges from countless variables and their interactions none of which it shares its properties with, when considered as a whole. For example, a human body can be described as tall, slim, large, heavy and so on, but its constituent cells, limbs and degree of attractiveness cannot. This is because a human body emerges from an identifiable and relatively finite supervenient base of multiple realizers that interact physically, chemically and biologically in a permeable system that is nevertheless open to multiple

mechanisms and variables that continue to enter the system: what makes a human being tall or short or having any other kind of physical characteristic can be explained by some of these variables and their interactions, but not all. Once a human body has emerged from its supervenient biological base, a distinct and relatively unpredictable phenomenon can be said to have emerged, i.e. a social, political, psychological human being, not just a biological body, whose specific characteristics, such as personality and looks, can be explained in a weakly emergent sense at the cellular level but whose overall essence is unlikely to have been 'written in the genes,' so to speak. That human essence is an emergent property.

Academic writings (like human beings) are similarly open to variables which have causal relevance. These variables include the purposes, languages, values, agencies and literacies of researchers (the writers) as well as myriad environmental structures (e.g. SAPs, epistemic virtues, institutional conventions and constraints). In this sense, academic writings are not 'closed', meaning that their characteristics are not determined by finite criteria that are impermeable to the complexities and contingencies of academic social reality. On the other hand, an IELTS essay could be described as 'closed' because all it needs to be successful are isolated features, such as standardized paragraphs or linguistic devices, that do not reflect the naturally occurring influences that shape academic writing and affect language choice, such as disciplinary genres, citation practices and the writer's voice (Ivanič & Simpson, 1992).

Conclusions

Whilst there are several limitations to the critical realist project, or, at the very least, there are areas that require further theorization – such as the specific nature of the generative mechanisms that take place between the three stratified realms of reality (the REAL, the ACTUAL and the EMPIRICAL) and how writers might be further empowered to shape their academic texts according to their values and their knowledge – it nevertheless offers a fresh conceptual space within which to radically re-think academic writing practices so that they can become genuinely transformative and educative. This transformation is warranted by a human need to respect the agencies, knowledge, values, abilities, capabilities and literacies of diverse writers and to uphold standards of academic excellence, which include universities' missions to further knowledge through social justice. This chapter has argued that the social philosophy of critical realism affords

these possibilities because it allows us to think of academic writing as a complex open system where both change and novelty become the norm and not the exception in the pursuit of epistemic justice.