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The use of abduction in alienation research: a rationale and a worked example.

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Abstract

Abduction as a form of inference is recommended as a means of analysis within theory-driven research. Its capacity to provide creative (re)interpretations of data that add to a theory allowing it to become a growing dynamic and nuanced body of thought is highly appealing. For Marxist research into alienation abduction has that advantage but also assists in overcoming one of the central problems that hinder the theory's development and use in the 1960s and 1970s: the inability to productively articulate theoretical insights with empirical findings.

What abduction involves as a form of analysis is laid out here before proceeding to discuss in greater depth its utility for research into alienation and the laying out of a worked example of how abduction was applied in an actual instance of research. A way forward for research driven by alienation theory is therefore established which could lead to wider re-engagement with what should be a core concern of sociology.

Keywords: Abduction, agency, alienation, Marx, methodology, work.

Introduction

In previous articles here and elsewhere I have advocated revisiting Marxian alienation theory in understanding and analysing health and wellbeing, with particular reference to the workplace (anon). The basic tow of my argument is that alienation theory is well suited to understanding the contours of this phase of late modernity. Neoliberalism, as the current historical form of capitalism, possesses certain impulses that make the workplace more fragmented and estranging. Developments such as the gig economy indicate that all fractions

of workers face a future where the stuff of alienation - lack of control and being unable to exercise creativity - will be further embedded into the everyday experiences of the labour process. Research into how that affects health and wellbeing will add insight into the hidden violence of capitalism and perhaps strengthens the case for the necessity of creating another form of working and social arrangements that provides meaning, self-realization and wellbeing for all.

That previous work was speculative and theoretical. Whilst there is nothing wrong intrinsically with adopting such positions, theory and understanding of the world can only advance if theory meets some form of empirical test. By that, I do not mean subjecting theory to a simple binary Popperian critical test of falsification or verification, but rather immersing that theory in the empirical data as a means of maintaining a progressive research programme.

Empirical engagement is especially relevant for research on alienation. One of the telling reasons why alienation theory fell from grace in the 1960s and 1970s, an otherwise highpoint of interest in the theory, was that little fertile traffic occurred between those investigating alienation theoretically and those investigating alienation empirically (anon). Both sides remained in their silos holding back the development of a theory of alienation that was theoretically and empirically informed. That impasse worked to the detriment of both fundamentally weakening innovation and leaving alienation theory open to challenges internal and external to the academy. What is required therefore is a development within Marxist methodology, and for alienation research in particular, that would allow the interplay between empirical data and theory.

In this article, I outline a technique whereby alienation theory can be tested empirically when using qualitative data[i]. The ideas of American pragmatist Peirce (1932) and his theory of abduction are central to my discussion. He advocates abduction as a superior form of inference over deduction and induction. The reason as why abduction is preferable is, for Peirce and others (for instance, Habermas 1978, Meyer and Lunnay 2013, Danermark et al. 2001), lies in its ability to generate new theoretical insights whether that be from scratch or from within existing theories. The focus will be on Marxian alienation theory throughout, but general points regarding the utility of abduction will be of wider interest to those whose work begins from a different theoretical perspective.

The article is structured in two parts. A general commentary on abduction as a form of inference forms the beginning of part one, highlighting the differences between abduction and the more familiar modes of deductive and inductive inference that are used in sociology, particularly evident in grounded theory research. Attention then moves onto the process of abduction. The central point emerging here is that abduction whilst being a creative process exists within distinct parameters that prevents from allowing anything and everything as possible hypothesis. In part two, to illustrate the preceding discussion the focus turns to a worked example of abduction drawn from case study research on how alienation affects the wellbeing of social workers.

Before proceeding further, a brief reminder of how Marx understood alienation. Humans are regarded as possessing certain capacities to meet their needs in order to survive. While being natural in origin these capacities and needs become historical over time in relation to the developments of human society. A core capacity is that of creative cooperative labour to act on nature in order to meet needs. What constitutes that labour and its object of production varies across time. In late modern society immaterial labour producing computer code or working with the emotional states of other human beings are forms of labour just as much as producing steel or factory work was in previous eras. When that capacity is allowed to activate freely then humans can achieve self-realisation. When those capacities are denied that free experience by prevailing social relations (capitalist in this case) then alienation occurs, those natural capacities are distorted and the worker is estranged from labour, other people and what it is to be human. .

Alienation, for Marx, finds expression in four different broad forms. The first two of *product* and *process* alienation speak to the immediacy of work. Here, the worker loses control and ownership over the object of labour and how that object is produced. Those losses remove the creative self-realisation of producing an immaterial or material object in the external world, and damages the ability of people to freely activate their capacities and talents in a manner that is meaningful and under control of the worker. *Other-human alienation* negates the reciprocation and recognition of the intra-subjectivity of social agents in the workplace and across society, while *human-nature alienation* is the denial of the defining attributes of what it is to be human: the ability to engage in meaningful reflective activity that reaches out beyond the self into the lives of others.

Part one: What is Abduction?

Peirce (1928 pxx) defined abduction as follows:

> The surprising fact, *C*, is observed;
> But if *A* were true, *C* would be a matter of course,
> Hence, there is reason to suspect that *A* is true.

Pierce invites us with his criteria of 'if *A* were true' to step beyond the confines of induction and deduction when making inferences from data. Rather than being beholden to the premises of an inference we are now liberated to seek plausible inference from eternal sources external to the proposition. In sociology, that freedom permits access to an array of theories and ideas. Abduction therefore concerns itself primarily with developing and creating new knowledge - synthetic knowledge in the Kantian sense - by providing fresh insights through the re-contextualization or re-description of social phenomena. As a form of inference it relies on creativity and an iterative, dynamic interplay between theory, method and data (Timmermans and Tavory 2012, Paavola 2004, 2014).

It is the emphasis on creating new hypothesis (or theory in sociology) that is central for Peirce. He identifies that reasoning should not just be about what he terms the *security* of an inferential process (how sound and certain we are about the reasoning in relation to its premises) but also on its *uberty* (ability to produce new ideas) (Psillos 2011). Each act of reasoning should therefore produce surplus or excess content that reaches beyond the immediate horizon of the data, and crucially beyond what can be achieved through induction and deduction. In his general schema Peirce demotes -but does not dismiss - those two modes of inference because they are limited in what they can achieve. Deductive inference begins and ends with a reassembling of what is already known or experienced at the empirical level - analytic knowledge in the Kantian sense - and is therefore incapable of developing the same novelty of which abduction is capable. While inductive inference may be ampliative to a certain degree, its conclusions stay within proximity to the original premises which ultimately does not yield much in the way of innovation. Magnani (2009 p12) puts it well, '… deduction does not produce any new idea, whereas induction produces very simple ideas'. So, central to the whole project of abduction is the creation of the new and the novel.

To achieve innovation abduction requires a more creative approach to inference. The reason why creativity is necessary is that abduction involves going beyond what is contained in the constituent premises and introduces new content into the process of reasoning. The same logical security that can be found in deduction and induction is absent in an abductive process. It is not, as it would be with induction, that a general rule that all the beans from this sack are white would be generated after scooping out a handful of beans. Nor is known, as in deduction, that we know that the beans from a certain bag are white and that since we have just scooped a handful from that bag that the beans in our hand are white. The connection between the result and the case is probably correct, but in a room full of sacks of beans the beans could have come from anywhere. So that is why abduction requires creativity in making associations. The obvious connection between a result and a rule will not be there and what the particular case may be is achieved with a step of creative inference. Strictly speaking doing so means that abduction is a weaker form of inference as critics such as van Frassen (1985, 1989) have maintained.

As Timmermans and Tavory (2012) assert, abduction poses interesting questions for sociology, particularly in its use of grounded theory that relies on inductive inference. They level the charge that grounded theory whilst making claims to its ability at generating theory very rarely does so. In its strictest form grounded theory prohibits the researcher from being guided by pre-existing theory during the inductive analysis. Doing so supposedly maintains the purity of the emerging grounded theory by preventing preconceptions clouding and contaminating the frame[ii]. Coffey and Atkinson (1996 p155) also note this limitation within grounded theory and that something further than fixating on the data is necessary to engage in the '…intellectual, imaginative work of ideas in parallel to the other tasks of data management'. Such abstinence from theory is also impossible in a discipline where the scholarly field is saturated in theory and theoretical debate. By ignoring pre-existing theory, and focusing on the data in a vacuum, we can lose sight of a myriad of stimulating and challenging ideas that can assist rather than hinder the development of a particular field of study (Timmermans and Tavory 2014).

Abduction's main use in social science research is therefore to assist in identifying relations between empirical events and either theoretical perspectives or normative social codes with

the intent of making innovative and novel theorization. Danermark et al. (2002 p90) identify how abduction can be utilized in social scientific research thus:

> '... (1) have an empirical event/ phenomenon (the result), which we (2) relate to a rule, which (3) leads us to a new supposition about the event/ phenomenon. But in social science research the rule is often a frame of interpretation or a theory, and the conclusion (the case) is a new interpretation of a concrete phenomenon - an interpretation that is plausible given that we presuppose that the frame of interpretation is plausible.'

Abduction also offers two further gains for theory-based research generally. As both Meyer and Lunnay (2013 2.7) and Timmermans and Tavory (2014) note it is easy to fall into a trap when embarking on theory-driven research. The researcher dusts off their favourite theory from the shelf and then constructs a research protocol that basically supports that theory from the very outset. No attempt is made to gather any information that would actually offer a substantial challenge to promote transformation or innovation. This activity is a form of system building that is concerned with maintaining the status of an orthodoxy - if not dogma - rather than a real attempt to establish new insights. Within the Marxist tradition Engels, as Benton (1996) notes, always railed against system building as it was not in the spirit of the enquiry he saw as fundamental to the Marxian scientific project. Allied to that point, is the second benefit of abduction for theory-driven research. In theory-based research the actual data can be of secondary importance, existing as a mere foil, perhaps only requiring a thin layer of data or evidence, for the grander purpose of affirming that theory. As laid out in greater depth in the next section, a wide range of rich and challenging data is essential to the process of abduction. In addition to being able to employ the data to innovate the abductive process provides an additional empirical account of a specific case (Meyer and Lunnay 2013).

The process of abduction

So, how does the researcher engage in a process of abduction? There is no formulaic approach to abduction[iii]. Partly, as Paavola (2014) notes, Peirce never completed a formal methodology (or 'methodeutic' in Peirce's terminology). Reading through the literature on abduction an array of approaches to abduction are evident. Paavola (2014) has detected

seven broad forms of abductive method across a variety of disciplines in his review of the wider literature (see figure 1 below). Each different approach does though exhibit the commonality of reasoning and making arguments where the best possible case is made with the data and a theory. In many respects Robert Louis Stevenson's famous aphorism 'to travel hopefully is a better thing than to arrive' captures the essence of the abductive methodological process where it is the movement and iteration, the travelling between various inputs that is the point of the exercise rather than the reaching some final Popperian moment of verification or falsification.

Figure 1: Seven broad forms of abductive strategies (adapted from Paavola 2014 p6-9)

- Searching somehow anomalous, surprising or disturbing phenomena and observations.
- Observing details, little clues and tones.
- Continuous search for hypotheses and noting their hypothetical status.
- Aiming at finding what kind or type of explanations or hypotheses might be viable to constrain the search in a preliminary way.
- Aiming at finding explanations (or ideas) which themselves can be explained (or shown to be possible).
- Searching for 'patterns' and connections that fit together to make a reasonable unity.
- Paying attention to the process of discovery and its different elements and phases.

Given that qualitative methods doggedly fought for credibility in the 1960s and 1970s against charges of a lack of rigour from within and without the social sciences, the lack of a prescribed or set method could be read as a weakness of abduction (Tavory and Timmermans 2014). This lack of methodological prescription is, I believe, a strength. Instead of unreflexively adopting a familiar method or the customary approaches, such as grounded theory, the researcher is required to think through and justify in greater depth and detail why their method and approach fits the aims and nature of their research.

Crucially abduction is not a licence to welcome wild speculation or improvise post-hoc rationalisation. Peevla, calling on the earlier work of Hanson, advocates the use of what he terms 'strategies'. A strategy is created by the researcher working out the frame of reference that marks the boundaries of the abduction. By delimiting the scope of what is allowable, a

strategy identifies what can be included in the abductive process and from which pool of ideas or body of work hypotheses or theories can be drawn:

> '… in abduction, strategies are especially important because it [abduction]is basically such a weak mode of inference. The force of abductive inference is much strengthened if one takes into account that the hypotheses are to be searched for in relationship to various phenomena and background information and not just in order to explain one, surprising phenomenon
>
> (p270)

Eco (1988 p206-7) posits three broad approaches to creating a frame of reference.

1) *overcoded abduction*: This form of abduction is where a single frame of reference is applied in the process of abduction. Patokorpi (2007 p172) refers to this as a 'selective' form of abduction, where the frame is suggested automatically or naturally by the situation and context in which the abduction takes place.
2) *undercoded abduction*: where different frames of reference are used and compared in order to establish which has the best fit. For Patokorpi (2007) this is akin to a multiple-choice approach to abduction.
3) *creative abduction*: as the name suggests this form of abduction requires creating a novel frame of reference.

Results in this instance would be the categories and the codes that emerged out of the inductive analysis. Rules here are the key elements within alienation theory, in particular the four expressions of alienation, and the new interpretation leads to understanding that come from the vantage point of alienation theory. It is important to clarify here what is meant by relating the empirical phenomenon to a theory, or relating the result to the rule: relating does not mean matching only results that neatly square and support the rule. It also means relating results that do not neatly fit that rule, or that suggest a gap in that rule or indeed challenge that rule.

How the data is handled and analysed in an abductive inference is of crucial importance. . The way in which the data is coded requires attention. One could say why not just code for whatever theory is being tested? Draw on the various terms familiar to a theoretical discourse

and its associated literature to save time. Following that approach would lead perilously close to the system building discussed earlier where one is already enforcing the theory by default and not allowing the data to be developed in a manner that sits outside the theory as much as possible. Codes and categories that emerge from the data can be useful here as a means to address this potential issue. In vivo codes lend themselves to this task. The identification of deviant cases (or negative cases) where the codes appeared to be at variance or in contradiction with other codes is also to be welcomed, if not deliberately sought, in abduction for two main reasons. First, rather than identifying final and fixed codes, as is the case in grounded theory, non-exclusive codes are applied instead. This allows for the inclusion of what are termed deviant cases that do not conform or contradict the prevailing 'hypothesis' or most-likely explanation. As deviant cases are identified they are not disregarded. Rather the deviant cases are included in the explanation by altering and revising that explanation to take account of the deviant case. Peräkylä (2011 p371) notes how deviant cases, though not unique to the abductive process, are useful and can be a 'treasure' for the research as they can challenge emerging and preconceived ideas that the researcher may be holding or provide deeper insights into the material once the reason for the deviant case has been adequately explained. Similarly, Seale (1999 p83) notes that accounting for deviant cases is, '…helpful in improving rigour and deepening understanding.' So when a deviant case was identified it was given attention. An attempt was made to identify why it appeared to differ from other codes and to explore what it added to the overall analysis.

Why the need for abduction in alienation theory research?

There are three reasons why abduction is useful for research into alienation theory. The first is that while I accept that alienation theory in it broadest sense is correct in that capitalism distorts and estranges human creativity no extant theory exists that connects alienation with wellbeing. Issues of wellbeing and health are definitely present in the writings of Marx (Anon). Not just as fleeting or passing comments but often as an integral element of wider theoretical investigations into economics or the nature of exploitation. As Gerhardt (1989) has noted previously, one can approach health from a Marxist perspective, but as with Marx's methodology, no specific theory of health is present in his writings. It would therefore be an addition to materialist research to establish such a theory that deals explicitly with health and wellbeing. Marxism is also a dialectical canon of work that gains its strength from the interplay of its core premises of the internal relations of capitalism with new objects of study. It was never meant to be still and static. The work of Foster (2000) in developing a Marxist

understanding of ecology and Lewontin and Levins (2007) and their materialist analysis of biology represents examples where Marxist theory has been expanded and enriched.

The second is that the empirical work on alienation undertaken in the 'golden age' of alienation studies in the 1960s and 1970s relied on deductive inference. The limits of deduction have been considered earlier. This approach, as I have discussed elsewhere (anon), did not lead to any great theoretical innovations. The preferred research method was the mass survey constructed out of a series of Likert questions that sought confirmation or rejection rather than extension and innovation of alienation.

As alluded to in the introduction, one problem that beset research into alienation in its golden age of the 1960s and 1970s was the lack of accommodation between the theoretical and the empirical wings[iv]. Each side upbraided the other for not be insufficiently theoretical or, conversely, not subjecting their speculative claims to empirical testing. One reason for this impasse was the lack of a substantial method that could provide a conduit between the two. From what has been discussed so far abduction fits the bill where a fertile dialogue between theoretical speculation and empirical findings can be brought into being.

The third reason concerns the finer details of Marxist methodology. Whilst it is true that Marx did not lay down an extant methodology that sets out his approach to analysing the world, save for a short section in *Grundrisse*, it does not mean that no Marxist methodology exists. For the purposes of this paper, it is assumed that one does exist and that the work of Ollman (1977), Hall (2003) and Zeleny (1980) brings to the surface what that methodology is. In very short summary, Marxist methodology concerns itself at different levels of abstraction with analysing and uncovering the various dialectical internal relations of which capitalism is constructed and identifying how those relations both create and recreate the overall dynamic totality of capitalism. However, that does not mean that we are out of the methodological woods yet. As Ollman and Zeleny note, one can outline Marx's general methodology of analysing the deep internal social and biological relations whose dialectical and contradictory interplay shape to the surface levels of capitalist society. However, as Zeleny (1980) ponders, that gives rise to a range of secondary questions as to how that methodology can be operationalized in a research context.

Abduction again provides an answer. As Ollman (2003) notes part of Marx's method was the continual refining of his theory. For Marx theories were not there to be proven or disproven in a single test. Hypotheses contribute instead to a dynamic and evolving understanding of capitalism, where the role of empirical research is to refine and sharpen the main tenets of the theory. This approach has prompted Callinicos (1982) and Little (2011) to argue that Marxist methodology shares common ground with Lakatos (1980) in that regard. For Lakatos research programmes are more complex than suggested by Popperian falsification theory. For Popper once empirical evidence is discovered that does not support the original hypothesis then that hypothesis falls. Research programmes are instead built around first principles or certain hard-core assumptions: the essential essence of that theory. When evidence is found that does not immediately support those first principles then auxiliary hypothesis can be developed that explain why the new data does not directly support the central hypothesis. It is Lakatos to whom Burawoy (1998) turns in his approach to Marxist research. His extended case study technique is founded on Lakatos' understanding of science:

'…we seek reconstructions that leave core postulates intact, that do as well as the preexisting theory upon which they are built, and that absorb anomalies with parsimony, offering novel angles of vision'.
(1998 p16)

The constant iterative process of refining Marx theory shifting between data and theory, or 'long chains of reasoning' as Little (1986 p172) put it, therefore mirrors the abductive process with its back and forth between data and theory. What we have here is a dialectical process. Abduction therefore mirrors the process of inference that Marx has followed in his work (Danermark et al 2002). One clear example of where Marx uses some form of abduction can be found in *Capital* in the section on the Factory. It is a unique part of the overall work. It is the sole section of *Capital* where Marx actually discusses in any depth *actual* capital and real historical events, about what was happening around him in the early phases of industrialisation. Here we find a mass of empirical evidence both observational and statistical that is recontextualise from the perspective of historical materialism.

Part two: Abduction – a worked example.

The second part of this article provides an insight into how abductive inference was used in an empirical example. The research involved semi-structured interviews with 16 social workers employed in the British state sector. The aim was to analyse the impact that alienation had on their wellbeing. Social work may not seem the archetypical group of workers to on which to focus. As a professional group they possess higher levels of autonomy than other workers in the United Kingdom and it is therefore reasonable to assume that their work will be rewarding and free of alienation. A survey of the social work literature paints to a different picture (for example, Carey). The profession has been subject to a number of transformations from the 1980s onwards. Prior to then, in the 1970s, social work was characterised by Harris (1998) as being in a state of 'parochial professionalism'. Social workers could exert considerable control and latitude over what they did, structuring their interactions with service users in ways that they deemed most amenable to their particular skills. The advent of specific neo-liberal projects ushered in by both Conservative and Labour governments in the 1980s and 1990s rapidly diminished those freedoms. Social workers may still be able to exercise a certain level of technical autonomy, where judgement can be exercised but only in context that has been defined by an external body following its and not social work's values and analysis of the world and how to work with service users (Harris 1998). Social work may still be profession with social workers commanding better rates of pay than other occupational groups.

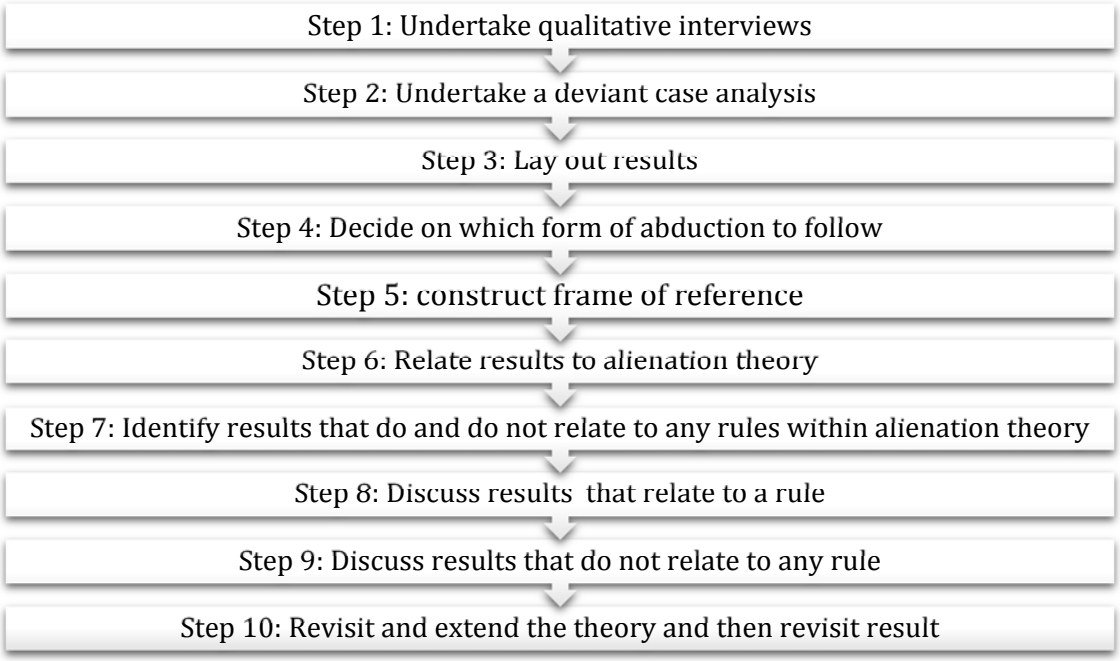
The worked example here does not present the fully finished analysis and discussion of the research, but illustrates how the abductive inference was undertaken and the strategy used to guide the overall process. As said before what follows here is not the full analysis but an illustration of how abduction can be of benefit in analysing research data and in theory innovation.

The various steps involved in the abduction process are summarised in Figure 1 below. The first three steps would be familiar to anyone engaging in qualitative research. Semi-structured interviews were carried out, the transcripts of which were analysed and coded but with the proviso of not discounting any deviant cases. It was from step 4 onwards that an abductive inference took me down a different path. I decided that an overcoded abduction was the best way forward, which informed the outlining of a frame of reference. That frame of reference was populated not just with the primary and secondary literature on alienation,

but also certain concepts from the wider medical sociology literature concerning embodiment and workplace health.

The heavy work of abduction began in steps six to eight. Tavory and Timmermans (2014 p4-5) make the point "The fundamental question organising all data analysis- "what is this data a case of" – is a semiotic question: a question of the ongoing construction of meaning." The semiotic question in the abduction carried out here took the following variation: 'what is this data a case of within alienation theory?'. If the answer was 'nothing exactly' or 'not quite' then it prompts the activity of adding, adapting or revising the theory until it is capable of understanding the data as a case within the now upgraded theory.

Figure 2: The Abduction Process Followed in this Research.



What themes emerged from the data that provide cases of alienation theory? The interviews were replete with alienation, of workers estranged from the object and process of their labour, from each other and from their human nature. They referred to how they found the demands of the work stressful, demoralising and debilitating. The following reflection by Frances, a long-serving social worker, on how she finds work captures that sentiment:

I find it stressful and demanding and exhausting. I came in with a real positive outlook but now it is very negative.

She almost channels Marx's description of alienation he presents in the *1844 Manuscripts* where he talks of , '… the external character of labour for the worker appears in the fact that it is not his own but somebody else's, that in his labour he belongs not to himself, but to someone else ... The worker's activity is not his own activity. It belongs to another, it is the loss of his self'.

Had that been the only data that had been gathered then all would have been straight forward to confirm alienation theory. The analysis could have finished at this point, but that would not have been in keeping with abduction. Guided by Paavola's strategies, outlined earlier, a search for anomalous data (the surprising fact of '*C*' in Pierce's formulation) was undertaken. One 'surprising fact' that did emerge in the analysis was that participants also reported that they *enjoyed* their work. The following from Joe encapsulates that theme: *It was kinda a good feeling to get when it did work out that time.* Rachel was more emphatic when she stated that, *I do enjoy the work. I cannot imagine not being a social worker.* This positive account of the experience of work stands in direct contradiction with what the participants reported about the stresses and strains of work in other parts of the interviews.

This surprising data also poses challenges for alienation theory. After all, this data could be interpreted as negating its core assumptions concerning suffering in capitalism. At that point a potential theoretical abyss opens up: the theory as structured cannot explain what it should and in a Popperian sense is therefore falsified. One possible explanation could be that alienation can exist alongside non-alienation, as an inductive analysis would suggest. This conclusion though steps out the frame of alienation theory. It suggests that alienation is a temporary or occasional experience. Thinking more abductively and creatively instead, it could be argued that the moments of self-realisation exist in a dialectical tension with the moments of what are seen as being alienation. The two contradicting each other. This position makes the experience of alienation more keenly felt. If alienation was an ontological constant then what produces the pain?

Abduction was a crucial moment in the whole process. Had there been a dilution of alienation to the status of a fleeting temporality then that would have been fatal for alienation theory. Now that alienation is posited as a contradictory tension that allows for a more flexible and nimble analysis. Returning to the data with this new position in mind it became clear that the social workers existed in a constant tension of trying to maintain the positive moments of work, where they could self-actualise with control over the process of labour.

That tension was manageable when certain relations prevailed: if they could rely on the reciprocal support of co-workers; if they could exert some control over their work; if they could manage the emotional demands of working with complex and chaotic service users; if they could find the time to practice the skills they learned in training. Trying to manage those challenges took place in a distinct context where those desires of how work should or could be were contradicted by objective social and economic relations that estranged the participants from realising their work in the way and the manner that they desired. What is evident now is a dialectical nexus of many different relations that support and pull against each other.

The process of abduction, therefore, brought into place a theory of *A* that could there explain the surprising fact of *C*. So, if those observations are slotted into Pierce's schema that was presented at the top of section one:

> The surprising fact, *workers find work both estranging but also enjoyable* (*C*)is observed.
> But if *alienation was a dialectical process of contradictions and tensions* (*A*) were true, *people experiencing both estrangement and enjoyment at work* would be a matter of course.
> Hence, there is reason to suspect that *alienation is a dialectical process of contradictions and tensions* is true.

That leap was useful in the process of generating an overall theory of alienation and health. It helped to establish a relationship between the agency of the worker and the structures in which they existed, and eventually how that resulted in negative wellbeing. The strategy of iteration and constant refining and revisiting both the data and the theory of alienation resulted in what I termed '*The Crash Point Theory of Alienation and Wellbeing'*. There is much to be said about this theory, but, as I said before, this paper is not the place for a full rehearsal. In brief though: after a time the contradictions and tensions became unsustainable. Certain elements and relations of the nexus exerted too strong an influences to be countervailed by other relations. A resolution was required. That resolution was negative

occurring in the bodies and minds of the participants. Nathan, a more experienced social worker, reflected on a moment in his life when he could not maintain the contradictions. He recalled reaching what he termed a 'crash point', where his overall health suffered. That crash point and damaged wellbeing was echoed in the narratives of other participants, with that *in-vivo* code supplying the name of the theory.

Conclusion.

This paper has set the general case for abduction and the particular case for its use in researching alienation theory. The superiority of abduction lies in its permission to go beyond syllogistic reasoning. Inferences beyond the premises are allowable. It is that freedom to be creative that recommends abduction. New ideas, new insights and new theories can be produced through a mode of inference that is concerned with innovation rather than adherence to the rigidity of thinking associated with deduction and induction. That is not to say that a free license exists to engage in whatever reasoning one wishes. A discipline pertains that requires careful consideration of the process of abduction and the frame of reference that guides the inference. As such, abduction deserves a wider usage within sociology and offers exciting possibilities for research that is theory-driven.

The specific case for abduction's use in research on alienation was also made in this paper.. One problem in the history of alienation studies in the 1960s and 1970s was the lack of interplay between theoretical development and empirical investigation. It was the mainly deductive quantitative approach adopted by empirical sociologists that was a major reason for this impasse. Abduction provides an analytical tool that can navigate between the demands of credible empirical investigation and theoretical innovation. The use of abduction in future alienation research could therefore result in solid data informative of an empirical example and further theoretical development.

As Anon has observed the majority of alienation research that occurred in the 1960s and 1970s was quantitative. Likert scales or mass questionnaires were the favoured tools of time.

Timmermans and Tavory (2012) note that Charmaz (2000, 2006, 2009) in her constructivist grounded theory does advocate the inclusion of abduction. However, it plays a secondary role to that of induction and in a much reduced and restricted form than what they and I promote.

[iii] Indeed in the wider literature that claims to use abduction it is hard to find any one piece where abduction is laid out. Often a claim of abduction is made but the process of abduction was unclear.

[iv] For greater detail on this period see Anon ( ).

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