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Car use: intentional, habitual or both? Insights from Anscombe and the mobility biography literature.

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Abstract

Policy-makers have recognised that changing travel behaviour is important. People however do not change their behaviour so readily, particularly the use of the car. A central concept that has been invoked to account for this has been the concept of habit, however, various studies also present people as having concrete reasons for driving: their choices are intentional. This interdisciplinary study attempts to reconcile these two understandings of travel behaviour by drawing on insights from the philosopher Anscombe and a growing body of travel research termed the mobility biography literature. It applies some of Anscombe's insights from Intention to the act of driving. With regard to the mobility biography literature, it draws out conceptual implications both from theoretical and empirical aspects: in particular, the characterisation of travel decisions as nested in a hierarchy of life decisions and the association of life events with changes in travel decisions. It concludes that a broader conceptualisation of human behaviour leads to a broader view as to what policy-makers can do. It reminds us that transport is 'special', that transport and policy are inextricable, and the importance of infrastructure provision should not be ignored.

1. Introduction

Transportation makes up a significant share of total energy consumption and greenhouse-gas emissions and is dominated by the use of the private motor car (Anable et al., 2012). Significant attempts have been made to reduce private car use, but usage remains significant, though in some parts of the world it is becoming less so. In other words, it has been acknowledged that it is apparently very difficult to change people's travel behaviour or choices. Various concepts have been deployed to account for this perceived difficulty. One is that of 'lock-in', with a related notion of 'path-dependence'. The idea is that transport is indeed 'special', uniquely involving as it does the investment of costly, systematic and, crucially, sunk infrastructure. Once installed, this transport (and also land use) cannot be easily reversed, if it can be reversed at all (Whittle et al., 2019). Related to this is the notion of 'car-dependence': once a society has been configured for the convenience of private motorists, conducting one's life without using a car becomes more or less impracticable; one then comes to 'depend' on a car (Whittle et al., 2019).

What these concepts have in common is that they explain resistance to change (or inertia) by primary reference to the external environment a person might find themselves situated in: that within which they might try to meet their needs. Another perspective, however, focusses on the mental, cognitive or psychological phenomena that occur; these being *internal* to a person rather than *external* to them, as with the built environment and infrastructure. Scholars adopting such a perspective, recognising that travel behaviour could be properly described as a form of repetitive, routinized activity, have invoked the concept of habit to explain why people resist changing their behaviour. Roughly, as people repeat a particular type of behaviour or action over time, it becomes 'script-based' (Verplanken et al., 1994) and automatised – an unthinking response to a certain cue. Behaviour is seen as undeliberative, unconscious and akin to an impulse, though scholars are careful not to identify habitual responses as exactly identical to impulses.

Such a perspective seems to be in accord with our lived experiences: not only with regard to driving, but other, routinised behaviours such as cleaning, exercise, and eating. However, it would seem to be at odds with a body of scholarly literature which makes clear that people have reasons for driving or using a car. Choice theory, for example, posits the individual as a utility-maximising agent (Lucas et al., 2011); qualitative approaches make clear that drivers not only have reasons for driving, but are clearly aware of their reasons for choosing the car (Gardner and Abraham, 2007).

A tension between these psychological perspectives is clearly evident. This research will aim to address it by using an interdisciplinary approach, discussing insights from the monograph *Intention* of the philosopher Elizabeth Anscombe as well as a body of research which has come to be termed as the mobility biography literature.

This article will be structured as follows: In Section 2, it will review the literature and elucidate counter-perspectives. Section 3 will present the philosophy of Anscombe in *Intention* with a prelude on the philosopher Wittgenstein, who greatly influenced her approach to philosophy. Section 4 will draw out relevant insights from the mobility biography literature. Section 5 will reflect on aspects of the interdisciplinary approach. Section 6 discusses and concludes.

2. Literature Review: Intentional and habitual decision-making.

2.1 Intentional Decision Making

The question about the positions that the concepts of intention and habit occupy in the domain of human behaviour – and, indeed, of what they even mean – has occupied scholars and researchers from a huge range of disciplines, including philosophy, psychology and neuroscience (Pollard, 2003, Gardner, 2015, Schwanen et al., 2012, Barandiaran and Di Paolo, 2014). In the field of transportation research, two perspectives have tended to predominate, informed by two tremendously influential theoretical frameworks: the Theory of Planned Behaviour (TPB) and the Theory of Interpersonal Behaviour (TIB).

The Theory of Planned Behaviour (TPB; Ajzen (1991) was originally developed as the Theory of Reasoned Action (Fishbein and Ajzen, 1975, Ajzen and Fishbein, 1980) and has a

strongly rationalist, deliberative conception of human behaviour. It coheres with theoretical frameworks both from economics and (neuro)psychology. It does so with regard to economics – and particularly expected utility models – in taking it as axiomatic that people, when faced with a range of alternatives, select one with the best behavioural consequences. People choose the best available option; they maximise (expected) utility (Lucas et al., 2011). Such as exposition does not as such provide a psychological description of how people make decisions; one of the TPB's key principles, however, does: which is that the immediately prior and determinative antecedent of any action is an intention, as is also argued to be the case in psychology and neuroscience (Mele, 2009). An intention is influenced by three factors: beliefs about the consequences of their actions, normative beliefs – normative expectations of important reference groups or people, and beliefs about how much control they have over their the action – the efficacy with which they can translate action into results. In the specific case of transport, it would be postulated that people deliberatively weigh up the advantages and disadvantages of each of their travel choices, and choose the one they decide to be the best.

The Theory of Interpersonal Behaviour (TIB) was introduced by Triandis (1977). It has a very similar conceptual structure to the TPB; but it has two significant augmentations. Firstly, it introduces the following constructs as additional determinants of behavioural intention: roles (hence, 'interpersonal'), self-concept, and emotions. Secondly, a dynamic or temporal dimension. It agrees with TIB that intention precedes action, but only in situations that are new or unfamiliar. It diverges in positing that, if the setting in which decisions are made remains stable over time, an association between goals and behaviours is reinforced so that, eventually, the behaviour becomes an automated response. On this understanding, habits can be defined as: "goal-directed behavioural patterns which have become sufficiently associated with specific cues as to be initiated automatically" (Verplanken and Aarts, 1999). This does not however mean that habitual action is reduced to the level of an impulsive reaction; it is distinguished by virtue of being undertaken to fulfil a goal (goal-directedness).

2.2 Alternative perspectives on habitual behaviour

The TPB and TIB have been widely used in transportation research; their parsimonious specifications lend them directly to quantitative modelling techniques with relatively large sample sizes, in particular the structural equation modelling (SEM) technique, and as they have been specified with their specific constructs, have had success in accounting not only for behaviour in general but also transport behaviour (Bamberg and Schmidt, 2003, Forward, 2004). This is unsurprising because both perspectives appear to capture fundamental insights that seem unarguable and certainly strongly relevant to the case of transport choices. Transportation choices involve costs that are significant and would surely involve some sort of deliberation. Yet it would seem equally true that real-world choices do not involve deliberation at each and every turn.

The predominance of these theories has prompted critiques and counter-critiques, both from within the theoretical background and outside it (Sniehotta et al., 2014, Ajzen, 2015). Consequently, other scholars have sought to suggest alternative perspectives on travel behaviour. In particular, social practice theory has argued that excessively privileging cognitive phenomena misses things out: rather than having the deliberating, rational individual as the focus for any inquiry into social phenomena, it would be better to use that of a 'practice' and its elements (Shove, 2010, Shove et al., 2012). Relevant to low-carbon mobility, Schwanen et al. (2012) also argue that existing conceptions of habit tend to neglect the role of active agency, and argue that to understand habit one must go beyond the simple 'Cartesian' conception of the contemplative individual.

This research article aims to contribute to this debate in aiming to shed light on conceptual issues surrounding the notions of intention and habit. It will next go on to discuss the work *Intention* of Anscombe, as well as a recent body of research in the transport literature, mobility biography.

3. Anscombe's *Intention*

Elizabeth Anscombe's monograph *Intention* is arguably one of the most significant philosophical works of the twentieth century, so much so that philosopher Donald Davidson termed it "the most influential account of action since Aristotle" Stoutland (2011). It effectively launched the field of philosophy of action. Since Anscombe's *Intention*, alternative accounts of the concept of intention have been proposed, not only including Davidson (1963) but also Bratman (1987). Nonetheless, interest has begun to return to Anscombe's work, with new scholarly attention and publications, perhaps reflecting the work's enduring insights.

Before examining Anscombe's arguments in *Intention*, it will be helpful to discuss another philosopher who had a profound influence on her: Wittgenstein. This is because Anscombe's book is perplexing and challenging, both in its style and organisation. Based on a series of lectures, *Intention* does not follow a clear, linear path: it begins with a short investigation of the concept of 'intention' as such, and then, finding that fruitless, focuses on the concept of 'intentional action', reaching its central and defining sentence, its definition of intentional actions: "the actions to which a certain sense of the question 'Why?' is given application; the sense is of course that in which the answer, if positive, gives a reason for acting." Teichman admits that this seems quite arbitrary: no justification is given for this definition, no background explanation is given as to how she has reached this formulation, and Anscombe says that her answer is merely suggested, rather than asserted.

Wittgenstein is fruitful here for two reasons. content and style. As regards the first, Wittgenstein's seminal *Philosophical Investigations* (PI) (1953) contain aphoristic comments relating to intention that despite their cursoriness, began a huge amount of research on intentionality, indeed inspiring such philosophers and scholars as Anscombe (Hacker, 2000). One of his points, relevant to the philosophy of psychology, was that when we speak of someone intending or meaning something, we do not so by reference to any thought-processes or 'ostensive' acts (mentally directing one's attention to a given thing). Intentional verbs thus "do not signify phenomena." (Glock, 1996). This is firstly because intentional verbs do not have 'genuine duration'; they:

- "Cannot take a course, unfolding in different ways
- Cannot be spot-checked or observed continuously
- Cannot be clocked by a spot-watch
- [Are] neither interrupted by a break of consciousness or a shift of attention, [nor] endure continuously." (Glock, 1996).

Secondly, and more fundamentally, because mental or physical processes or states "are neither necessary nor sufficient for believing, intending, or meaning something." (Glock, 1996) It may well be allowed that there be empirical correlations between such phenomena and intentional attitudes that might inform psychologists about 'subconscious' or 'unconscious' intentions, as far as the concept of intention is concerned, they do not "determine the content of intentional attitudes: what someone intends or means." As Hacker (2000) argues: "just as willing is not a mental act or event that precedes acting voluntarily, so too intending is not an antecedent mental act or experience (feeling, thought, or sensation) that precedes acting intentionally." Likewise, he argues that intention is not:

- A sensation or feeling,
- A mental act or activity engaged in,
- Thinking,
- An experience,
- An accompaniment of action.

It is simply that there is a category difference between mental phenomena and intentional attitudes as concepts. What this means is: if the essential feature of intention is no longer held to be an 'intentional thought', and that of habit its, absence, the putative dichotomy between intention and habit breaks down altogether. Stating that an action has been performed out of habit, or as a matter of habit, does not license one to rule out that it was performed intentionally.

The second point relates to style. As earlier noted, *Intention* has been acknowledged as a difficult read: it is hard to make sense of what Anscombe is trying to do and how she justifies herself. However, when one considers Wittgenstein's approach to philosophy, this is made easier. Ultimately, being a philosopher, Wittgenstein's concern – and, indeed, Anscombe's – is all about concepts. Rather than propounding a particular philosophical theory, however, Wittgenstein is distinguished by his particular methodological approach, the influence on Anscombe of which is clearly evident. Some elements of this style can be described as follows. Concepts are not prior to language; language is prior to concepts; a language is presupposed by the very existence of concepts; concepts are only possible within language. Concepts, moreover, are tools, linguistic tools: their meaning is in their use as tools within language. And the concepts that we use are concepts in our language, and our language so happens to be full of irregularities, quirks, and nuances. Any philosophical investigation into the meaning or sense of a particular concept must therefore describe how it is used in language. The following quote from PI (109) describes well Wittgenstein's approach to philosophy: "And we may not advance any kind of theory. There must not be anything hypothetical in our considerations. We must do away with all explanation, and description alone must take its place" Wittgenstein's approach in PI is therefore to gain a surview or overview (*Übersicht*) by looking at a concept from different perspectives (Hacker, 1996), travelling 'over a wide field of thought, criss-cross in every direction' (PI, preface). Anscombe in *Intention* also adopts this circumnavigatory aspect, but rather than taking snapshots of a landscape from various angles, her approach seems more akin to tracing – defining, even – the borders of a particular territory. Thus, in *Intention*, she could be said to be, painstakingly, navigating the scope or domain of the concept of intention, with all its irregularities, singular qualifications, awkward exceptions, and particular cases. She makes use of discrete examples case-by-case, and the appeal to 'wider circumstances' in clarifying the sense of an expression. She is also happy to make rough generalisations and to acknowledge grey areas of language, a language which, as Wittgenstein noted in his earlier *Tractatus Logico-Philosophicus*, has its 'enormously complicated tacit conventions'. However, while Wittgenstein's account is aphoristic and for the most part negative, saying what we can't say about intention, Anscombe's is positive, saying what we can. Anscombe also uses Aristotelian conceptual architecture to buttress the notion of intentionality she propounds – an highly un-Wittgensteinian move. Stoutland (2011) summarises it well in saying: "it is fair to say that Anscombe read Wittgenstein in the light of Aristotle, and Aristotle in the light of Wittgenstein – and then went her own way."

Returning to Anscombe's formulation of intentional actions as 'the actions to which a certain sense of the question 'Why?' is given application; the sense is of course that in which the answer, if positive, gives a reason for acting.' If this account of intentionality is accepted, then it becomes clear that any cognitive, mental, deliberative mental processes instantaneously prior to an act do not actually figure in intentional action. It cannot be ruled out that an action performed habitually without a rational deliberation preceding it can be called intentional. Even if someone is performing an action out of habit, not directly paying attention to what they are doing or even performing it on auto-pilot, as long as one can subsequently ask them 'Why?' and they then give their reason for having acted, their action would count as having been intentional. This would certainly seem to apply to the case of driving the car, as observed by Gardner and Abraham (2007). In fact, Anscombe later on points out that answers to 'Why?' need not be specific reasons for their corresponding actions to count as intentional: "I don't know" and "No particular reason" can, in some cases, be perfectly valid answers. Thus, intentionality and habituality (understood here in the sense of an unthinking, repetitive, triggered response in a stable decision setting) are not antitypical to each other; this is because they do not sit on the same conceptual plane. In fact, far from being antitypical to each other, they may, as far as the case of travelling by car is concerned, run in the same direction. That is, unreflective habituality may simply be the flip-side of settled intentionality.

In addition, Anscombe, like Wittgenstein, argues that the mere presence of an antecedent mental event, thought, or process is not a criterion for intention, although her argument is more general and applies to any criterion that only concerns itself with what happens at or before the intentional action takes place. Her arguments are different, however. One point is

that intentionality is not about a particular feature that accompanies an action which thereby distinguishes intentional actions from non-intentional actions by their absence, in the way that two mechanically identical cars would be distinguished by the stamp of their marques, or two switches distinguished by being on or off (i.e. the quality of 'intentionalness'). Her critical point is that intentionality is a form of description, and that actions can be intentional under some descriptions and not intentional under others. For example, John might board a train (intentional action); this might also be describable as an unintentional action (John boarded the wrong train), an involuntary action (John's left leg twitched while he boarded the train) and a non-intentional action (John's leg muscles moved in accordance with certain electrical impulses). The point with this is that intentionality is not an 'objective' or 'discoverable' feature of an action as such: it is rather how we characterise a situation depending on what our point of interest is of it. If we accept that this, then her argument is that it could not be some feature is as follows: if it were some feature, nothing about that feature could determine the content of the particular description of the intentional action. It would just be by happy accident, which would be unsatisfactory: surely we would not only want there to be a relationship, but an *effect*. If we commit ourselves to saying that what 'stamps' the action with the mark of intention is something that can *only* be found by reference to the present, then it would be impossible for anyone who was clearly seen to say that they did not know what they were doing, without lying. If it were not a 'stamp' or a 'style', but still was some feature of the action done at the time it was done, and therefore without any relevance to anything taking place to the future, then we end up with a very thin concept of intentionality: it means that, for example, the whole point of criticising someone for their motives is gone.

Anscombe's insight that an action can come under various descriptions has further relevance. She gives the famous example of someone pumping poison in a well in order to kill some people. This action can come under four descriptions: pumping one's arm up and down (A), operating the pump (B), replenishing the water supply (C) and poisoning the people (D). All of these actions could be said to be intentional: yet the question arises as to which is the intention *with which* all these actions are performed? Anscombe's answer would be that it is D: the intention to poison the people; this, she says, "swallows up" all the other intentions. The relevance of this to the case of driving would seem to be as follows. When someone drives – say – drives to work, what they are doing can also be said to come under various descriptions. They are physically operating the car (manipulating all of its physical functions), they are actually driving the car, or they are, more broadly speaking, going to work. So-called 'activity models' do in fact simulate and predict people's travel patterns by making the work or activity the basic function that people try to meet, and they schedule their trips and vehicles etc. based on this (Timmermans and Zhang, 2009, Zhang et al., 2005, Kang and Recker, 2009). Such a view of car use and travel in general as purely being a 'derived demand' undoubtedly would fail to do justice to the complexity of real-life, because people do have strong attachments to cars in their own right and may enjoy travelling in its own right (Mokhtarian and Salomon, 2001). Nonetheless, if the 'derived demand' case is considered, we might think that not all 'intermediate' descriptions of the action involve some process of deliberation. Consider the use of tools (toothbrushes) or obviously utilitarian vehicles like tractors and forklifts, which are no more than an intermediate means to the broader goal. Thus, it might be perfectly reasonable not to expect the actor to have a particular 'intentional thought' for, at the very least, intermediate descriptions of the action (i.e. "I intend to change gear", "I intend to use my car today", etc).

What sense, then, can be made of the notion of actions that are both intentional yet performed out of habit? Anscombe's response would be that 'the question does not normally arise whether a man's proceedings are intentional' – which is why it is frequently 'odd' to call them that. For example, we would not usually say of someone that they crossed the road intentionally; yet this doesn't mean that this would not be an acceptable example of intentional action. Indeed, when we ask someone whether they did something intentionally, it is usually because, for example, there is some doubt as to whether they knew what they were doing. The default is that people act intentionally, or, as Anscombe says: "Roughly speaking, a man intends to do what he does. But of course that is *very* roughly speaking." (Section 25)

4. The mobility biography literature

The second disciplinary approach through which the concepts of intentional and habitual travel behaviour will be considered is the mobility biography literature (Chatterjee and Scheiner, 2015, Lanzendorf, 2003). More properly considered a methodological perspective than a theoretical framework, it is related to the broader 'life course perspective: "any point in the life span must be viewed dynamically as the consequence of past experience and future expectation as well as the integration of individual motive with external constraint." (Giele and Elder, 1998). Central to any study of travel behaviour with such an approach is the consideration of peoples' life courses in their entirety.

The earliest contribution particular to transport was by Salomon and Ben-Akiva (1983), who developed much of the conceptual elements and applied them to quantitative data. They deployed the concept of a 'life-style', defined as "a pattern of behaviour under constrained resources which conforms to the orientations." According to their conceptual framework, the decisions households made in their lives were structured hierarchically, coming into the following three categories: life-style choices, mobility choices, and activity and travel choices. Life-style choices were in the supreme category at the top of the hierarchy, and related to such questions as to family formation, participation in the labour force, and orientations towards leisure. Below this, mobility choices were concerned with the choice of where to work and live and whether or not to own a car. At the bottom of the hierarchy were day-to-day activity and travel choices, such as the decision to walk or drive to work. Choices in each category are assumed to be made jointly, and are conditional or determined by those higher in the hierarchy, although Scheiner (2007) argues that lower-category decisions could in theory take priority over higher-category ones.

Without touching directly on intention and habit themselves, it becomes clearer that this framework implies a rather different and more complex picture of intention, deliberation and action than the linear models. Instead of the solitary, discrete, standalone and determinate travel choice made in isolation, people could in some sense be said to be making choices between configurations of life styles which might have some indeterminate outcomes. Thus it is not as such a question of mode choice on an individual basis; it could be, for example, between Job A, House X and a seasonal railway ticket, and between Job B, House Y and a car. Indeed, even travel decisions are not to be considered in isolation of each other: in particular, the adoption decision and the daily usage decision, which is reflected in travel forecasting studies which use simultaneous equation modelling techniques. People do not, as such, make travel choices standalone: these choices are conditional on actually having adopted a car (or having purchased a travel card) in the first place. Another point to make is that of a very different relation between intentional thought, and deliberation, and action. It is probably reasonable to surmise that people do not necessarily have clear intentions of what sort of life styles they want; indeed, of what jobs they want and how they will then make their travel choices. They may take much time deliberating over what they really want before taking action.

As regards its methodological rootedness in the person's entire life course, it implies that we should expect travel behaviour to be in some sense habitual anyway; some scholars in this field of research have explicitly agreed that travel behaviour best comes under that description (Lanzendorf, 2003). The nature of life and its rhythms: daily life, quotidian life – it should be expected to be routine. Insofar as transport decisions are considered to be a subset of life decisions and are to be made in conformity to its dictates, we should indeed expect them to exhibit the very regularity and routineness we would find in the rhythms of life (Axhausen et al., 2002). Psychological processes and deliberation are not actually that central, and should not be expected to be that central, to the question of day-to-day car usage as such.

Another implication which seems to emerge and which mirrors something previously discussed is that travel is for the most part a derived demand, being dependent on the higher-order life decisions. In short, the view that transport is a means to other ends. It then could be said to make it reasonable to call travel behaviour both intentional and habitual in a

similar way to Anscombe, just in a way that is explicitly applied to transport. In one sense, yes, they did drive to work, but the relevant choice might have been for the place of work. Taking the chain of 'Why?' questions even further, as with Anscombe, one might find answers such as: 'To support my family'/'It was just the job I needed' etc, with the car use being merely a resultant given.

Another insight that appears to emerge from this framework is that a household can be in a position where they appear constrained, 'locked-in', and do not have any reasonable transport alternatives to the car, but that this is because of rational choices and, indeed, voluntary commitments, not because of a constraining or coercive force of habit. Indeed, this recalls back the definition of "a pattern of behaviour under constrained resources". Some recent research has examined the phenomenon of 'transport poverty', wherein households do not have a ready or viable alternative to the car, even if it means using significant shares of their income on travel alone, to the detriment of their welfare (Lucas et al., 2016). Nonetheless, the nature of the household decision-structure, with the long-term life-style choices, and medium-term mobility choices, implies that households will indeed make substantial, costly, commitments which may be difficult if not impossible to reverse, but which are nonetheless rational, intentional and wanted. In other words, how people might perform travel behaviour routinely and unreflectively, 'resist' change away from this routine, and yet would agree that they do it intentionally.

Related to the previous point is the idea that intention, or, indeed, commitment, may long precede the action or series of actions that may take place. For example, someone may accept a job position which starts twelve months later and which also involves a significant relocation away from their existing home. They envisage a long commute and prepare to buy an economical diesel commuter. Thus, in the interim, they continue commuting with their existing petrol-powered car; as the job move approaches, they eventually sell their petrol and commute by electric bike as a stop-gap measure. Finally, they make the move and commute by car every day without really thinking of it. This repetitive, unconscious behaviour would probably be reasonably described as a travel 'habit', but it took place without any repetitive build-up and no particular deliberation or intentional thought need have preceded the act of driving. Thus, intentional thought is not necessarily to be expected. It must be pointed out that, as Schwanen et al. (2012) note, no single action need have been 'determinately' performed.

A final point is that having a view of habit which includes intentionality (or, at the very least, does not exclude it) means that we have a different understanding of what might be involved in behaviour change. The idea of habit being anti-intention, or an anti-correlate of intention, or beyond the field of intention, or of intention fading away as habituality secures its stronghold, has it implied that, essentially, one must fight impulse with impulse. It presents a rather passive picture of people, them effectively being these inertial automata who must be acted upon from outside, without consideration of their life plans and projects. The change of external circumstance, or an external 'shock' or 'nudge' is what is proposed to change people's behaviours. If however we accept the hierarchy of life choices as reasonable, then actually the truth is that intentionality and rationality never really leave: in that people might be expected to have some idea of what they want with their lives, however vague, even if they are not reflective of them at every instant. The mobility biography literature has found 'life events', such as changing a job or having a child, to be associated with the number of cars in a household (Clark et al., 2015, Clark et al., 2016). Life events are then proposed as causing behaviour change, or as windows of opportunity to encourage behaviour change. However, an alternative interpretation which bears intentionality in mind is rather that the people themselves 'originated' the life event, such as the child birth or change of house or job – and then changed their travel behaviour (although it need not always be the case – e.g. someone being forced to move house). That is, apparent changes in habits do not happen with intentionality absent from the picture, changes were not necessarily due to external actings upon people, but could have been because of the person's very own intentions (they originate from the people themselves). As another example, the London Olympics, an unplanned-for 'shock' which cannot be reasonably said to have figured in household's rational life plans, did result in changes in travel patterns, but most households reverted back to their usual travel patterns, reflecting perhaps their longer-term conceptions and intentions

about what sort of lifestyle they might have wanted (Transport for London, 2013) (this does not however mean they needed to have explicitly thought of this question, nor that they must have conceived of their 'lifestyle' as a single, unitary thing).

5. On interdisciplinarity: a reflection

This section reflectively discusses what is was like to perform interdisciplinary research, drawing two intellectual disciplines together.

One difficulty involved was getting to grips with *Intention* itself, which is acknowledged as obscure and challenging even by specialists. This was helped by the growing secondary literature, and also by simply taking the time to read (and re-read) it slowly and patiently. Defining the limits of what was to be discussed was also difficult, because diverse points of discussion seemed frequently to emerge. It is noted that methodologically, this paper did not go into great depth with the concept of habit – and did not attempt to define it as such. It is felt that this was justified, as it seemed the treatment of intention was also justified, and Wittgenstein's brief mentionings of 'habit' in PI seems simply to take for granted that the meaning of habit is to be understood depending on the circumstances. This is in fact the point that his notion of 'family resemblance' makes: a given concept or term can have various senses which, like members of a family, may have certain similarities and differences. Thus, a driving habit is to be contrasted with a smoking habit, an exercise habit, etc. At any rate, a full conceptual investigation is beyond the scope of this paper.

One surprise was how relatively smooth a transition was to be had from a discussion of Anscombe to the mobility biography literature, and how Anscombe's insights could be interspersed into arguments relevant to the mobility biography literature, supporting points made. Rather unexpectedly, it was felt that both disciplines had two common features. Firstly, they paid attention to people's lived lives as such (or, in Anscombe's case, their lived languages). Neither approaches were strictly theoretical, distinguishing themselves by their methodological features, with the mobility biography literature giving a concrete application to the transportation context. These may explain why it was felt that coherence was possible when these two perspectives were combined.

It should also be noted that the argument of this paper is not that deliberative behaviour is irrelevant: deliberative behaviour will probably become more important in the future, because of the advent of Mobility as a Service (MaaS), where it is conceived that people face a menu of travel mode choices. It is conceivable that people in the future would deliberate over their options. The point is that as far as the concept of intention goes, deliberation or thought prior to action is not a criterion for calling an action intentional.

6. Conclusion

This paper used an interdisciplinary approach to examine the concepts of intention and habit as have been deployed in transportation research, drawing on the philosophy of Anscombe in *Intention* and the mobility biography literature. It argued that it is reasonable to speak of behaviour in general and travel behaviour in particular as being intentional and also habitual, and gave illustrative examples of the senses in which this might be said to be the case.

Although this purely conceptual point might seem to be a distinction without a difference, its significance appears to be far from trivial. A minor point is that by eschewing a strict dichotomy between intention and habit, we have a logically consistent basis for keeping the doors open to policy interventions which presuppose that human behaviour is described by either one of those concepts. Thus, we prevent ourselves from ruling out certain policy interventions which would be irrelevant if we argued that the concepts were mutually exclusive. There is however a deeper point. To deny of an action that it is intentional has broader logical consequences than immediately apparent. Without intentions, there are no reasons. Without reasons, we cannot speak of persuading people, appealing to their interests, objectives, and goals. We are led to an image of passive inertiality, wherewith people can only be changed from the outside, be it by their being transplanted into a new setting or by a colliding impulse which jolts them off their preordained and predestining path. This leads to the collapse of agency that Schwanen et al. (2012) have critiqued.

An even broader point has been made here than merely to challenge the dichotomy: it is a challenge of what might be termed a Cartesian picture of total mental priority, which restricts one into such narrow conceptual categories. Its view, in sum, is that mental events, activities, and processes have total priority as far as explanation and conceptual clarification goes. Or, if you want to know what is going on, you have to, first of all, look inside people's heads. This leads to the narrowness of which Shove and Schwanen, amongst others, have raised issues with. In the transport context, an excessively cognitive focus (i.e. on mental phenomena and processes), and choosing a picture of a contemplative agent presented with a menu of options, would seem to mean focusing on 'instrumental-hedonic' attributes, such as cost, speed of travel, comfort (Batra and Ahtola, 1991). These are agential attributes, framed by reference to first-person psychology and motivation. And, crucially, because they are framed in terms of the first-person perception or evaluation of the travel choice, they do not directly relate to things in the broader picture which in particular the mobility biography framework brings out: jobs, housing, and, crucially, transport infrastructure, which might all be said to have their equivalents in the 'materials' of Shove's social practice theory. If one now considers that people make whole-life choices, that housing might supersede transport in importance, that these sort of choices might involve some sense of long-term, relatively irreversible commitment *and* that these choices are certainly intentional, though not in the same way as other choices, then the importance of infrastructure emerges clearly, in a way that it doesn't with more mentalist perspectives. One might even say that a lot of the instrumental-hedonic attributes are in fact derivative of the extent of the infrastructure, and certainly not the other way around: infrastructure (which actually need not be limited to transport infrastructure but could include the entire gamut of housing and land use) has explanatory priority. Due to the systematic, non-linear, and layered nature of infrastructure, however, it is difficult to focus the node of explanation of transport actions to a single point; and that is certainly not the aim of this paper.

Once infrastructure is allowed its due importance, the responsibility of policy becomes apparent. As transport economists recognise, transport is 'special': like energy, it exhibits peak and off-peak demand, network effects and constraints, and, crucially, it depends on infrastructure for its provision (Button, 2010). Insofar as the extent of infrastructure provision has remained mostly the prerogative of policy-makers – again, not only including roads and railways, but housing and other buildings – transport is utterly inextricable from policy. A mentalist conception of decisions, insofar as it obscures this importance of wider infrastructure via its focus on agential deliberation, therefore understates the importance of this issue, concentrating on relatively smaller-scale actions that centre on the agent's psychology. An historical assessment will reveal that the role of policy in infrastructure, and transport more widely, has been far from passive or inert: it has been contingent, deliberate, and, if this word be allowed, intentional (Gunn, 2018). It is not by any means suggested that there are easy answers to the problems in transport, but by casting a light on the importance of infrastructure in addition to individual motives as such, it is hoped that policy-makers will be encouraged to take a broader view of possible remedies.

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