

Judicial Reasoning and the Acquisition of Concepts

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Introduction: the problematic

Occasionally, in pursuing their adjudicative duties over the course of a legal hearing, judges are called upon to acquire new concepts, by which I mean concepts which they did not possess at the commencement of the hearing. In performing their judicial role they are required to learn new things and, as a result, conceptualise the world in a way which differs (admittedly, only slightly in most cases) from the way they conceived of things before the hearing commenced. For example, over the course of a medical malpractice hearing a judge may need to acquire for the first time a concept of the rare, newly discovered or otherwise unfamiliar illness or disability suffered by a plaintiff in order to determine whether or not its occurrence has, on the balance of probabilities, been caused by the actions of a defendant. Likewise, in a product liability case a judge may be required to gain a concept of a new or complex product alleged to have caused injury to a plaintiff – a new pharmaceutical, say - in order to ascertain whether it caused the injury in question or whether its manufacture involved an unreasonable risk of injury. In cross-cultural matters too, similar demands may arise. In an indigenous land rights or other minority rights claim, a judge may need to gain a concept of an unfamiliar cultural practice in order to determine whether or not it meets the legal criteria for formal recognition. In a native title hearing, for instance, a judge may need to determine whether an indigenous practice is the kind of thing properly comprehended by the concept of native title.

In fact, in every situation in which a judge is required to reason about some phenomenon – an illness, a pharmaceutical, a technological device, a cultural practice - say, to evaluate its comprehension by a legal definition or other standard or to infer from a phenomenon's nature or structure to its causes or effects, the judge must possess a concept of that phenomenon. This is a necessary condition of reasoning about things. We reason with concepts. Where the phenomenon in question has not previously been encountered by the judge (whether directly through sensory experience or indirectly through texts or the testimony of others) and where, as a result, the judge does not possess a concept of the phenomenon at the commencement of the hearing in which it becomes an issue, the judge must *acquire* such a concept over the course of the hearing, if she is to adequately perform her adjudicative role.

For this to happen over the course of a hearing, the hearing process – its norms, its participants, its physical architecture - must realise or enable conditions conducive to such acquisition. It must provide an environment which facilitates this mode of reasoning and learning. It is not clear, however, that the conditions under which judges think and act over the course of a hearing are as conducive to concept acquisition as they could or should be. By virtue of the kind of agent judges typically are and by virtue of the rules and other norms they are subject to, as well as the physical environment they practice within over the course of a hearing, judges may be constrained in effectively acquiring the concepts they need to acquire in adjudicating matters before them. As a result, the quality of the justice they purport to provide those who come before them may be compromised (where providing that justice hinges on them adequately acquiring some set of concepts).¹

Concept acquisition is not only more common within judicial practice but also more important to the effective and just operation of that practice than many might think. Yet, as an aspect of judicial practice - as a mode of judicial reasoning² - it has not been (to my knowledge, at least) explicitly and systematically theorised in any detail. The aim of my overall research into this phenomenon - which this paper today only provides a mere (though hopefully provocative) glimpse - is to attempt to rectify this gap in our understanding. My objective is to theorise the nature of the process of judicial concept acquisition, to identify those aspects of the legal system which bear on the success or failure of that process and to provide a theoretical framework for thinking about the reform of the legal system, so as to better facilitate this important mode of judicial reasoning. To the extent that the reasoning involved in judicial concept acquisition resembles other modes of judicial reasoning, some light might also be shed on the nature and reform of the conditions of judicial reasoning more generally.

Methodology: making room for judicial reasoning and concept acquisition in a physical world

Let me make here a brief comment about my methodology and metaphysical assumptions. The primary object of our discussion at this conference – the judicial mind, its processes and components (beliefs, propositions, concepts, etc) – have traditionally been conceived of as aspects of a fundamentally and radically distinctive mode of being – the mental – which find little place within accounts of the material world offered by the natural and associated sciences. A radical mind-body dualism has been an article of faith for many philosophers and others concerned with human reasoning for millennia and, historically, has informed much expert and ‘common sense’ discussion about judicial reasoning. Within a naturalistic and scientifically informed philosophical paradigm (such as the one I rely on here), however, the world

¹ Though my focus in this paper will be on judicial concept acquisition *over the course of a hearing*, I do not wish to imply from this that in practice the process of concept acquisition cannot or does not encompass a wider temporal and procedural context, including pre-trial proceedings and processes. Nothing of import hinges on my circumscribing things in this manner.

² As we shall see, the judicial acquisition of concepts occurs by way of a process of reasoning which is akin to but importantly different from the overarching and more commonly theorised process of judicial reasoning to a decision in a case. Judicial concept acquisition is a subsidiary form of judicial reasoning, which over the course of a hearing subsists within this other form of decision-oriented reasoning.

is conceived of as fundamentally monistic in its ontology. It is – at its base, at least - entirely physical in nature, constituted by the objects and properties and relations and laws governing those things that are identified and described by the physical and higher-order natural sciences (physics, chemistry, biology, physiology, neuroscience, and the like). If room is to be made in the world for judicial reasoning and concept acquisition, then these things need to be elaborated in a way which ultimately grounds them in those physical phenomena which comprise the world.

Fortunately, naturalistic philosophy of mind together with our best sciences of mind (neuroscience and psychology, mainly) have made significant progress over the past century or so in crafting together a credible and coherent approach to these things.³ They have managed to theorise a place within the physical, natural world for the human mind and its components and processes by means of an approach known as naturalistic functionalism. This is the approach – the metaphysics and methodology – which informs my research into judicial concept acquisition and which, I would argue, should (and largely does) inform all descriptive and empirical research about the nature of judicial reasoning at large. I will have more to say about functionalism below. Its primary theoretical value lies in rendering our understanding of the judicial mind susceptible to the theoretical rewards that relevant sciences have to offer. A dualist conception of mind has little to gain from the insights of a suite of sciences oriented towards the explication of the material world.

A crash course in the mechanics of concept acquisition

I don't intend to provide a complete theory of the process of judicial concept acquisition here – I haven't the space. Let me, though, offer enough of a sketch of that process as will enable you to get a working grasp of my overall analysis and the lines of institutional reform I will be raising, as well as to make sense of my later, more general comments about judicial reasoning.

To understand the acquisition of concepts we need to understand the nature of concepts. In doing so, I utilise two distinct though related philosophical-psychological models – functionalism and definitionalism - the nature of which will become clear, I hope, as the discussion proceeds.

³ See J. Kim, *Mind in a Physical World* (1998) for a relatively brief and accessible account of the mind from a philosophically naturalistic perspective.

*1. A functionalist theory of intentional states*⁴

On this approach, concepts are components of mental states – specifically, that category of mental states known as intentional states (beliefs, desires etc) which necessarily inform all human thought and action. To believe there is a glass of water on the table is to possess the concepts of glass, water, table, etc. How could one believe such a thing without possessing the concepts in question? Concepts serve as components of intentional states by virtue of the fact that intentional states are by their very nature *about* some state of affairs which in our description of the relevant intentional state are designated by an assertoric or indicative sentence representing a proposition. Intentional states have propositional content. One believes that “there is a glass of water on the table”, one desires that “the glass be removed from the table”, and so on. Propositions, in turn, may be analysed as comprising some set of concepts. Concepts are elements of the propositional content of intentional states (here, the concepts of glass, water, table, etc). With this basic psychological postulate in place, we can make sense of the acquisition of concepts in light of what we know about the acquisition of intentional states.

What our best naturalistic philosophy and science tell us is that intentional states are neuro-physiological states of an agent which perform a certain function (or which meet certain conditions) within the overall sensory, cognitive and behavioural (causal) interaction of that agent with their environment. They are neuro-physiological states which mediate between an agent’s environment, other neuro-physiological states, and bodily behaviour. They are, in a sense, folk and expert theoretical artefacts of our making sense of (explaining, predicting) human action in the world. By virtue of their role within an economy of human action in the world, intentional states have typical causes and effects. They are phenomena which typically cause behavioural events – that is, bodily events or bodily-caused environmental events (including non-observable ones). They are phenomena which - through the mediation of an agent’s sensory apparatus - are also typically caused by environmental phenomena. And finally, they are phenomena which typically cause and are caused by other intentional phenomena.

As such, intentional states may be conceived of as phenomena which inherently meet a certain set of conditions – in this case, occupying or filling a characteristic kind of causal-nomic or functional role within a broader system of environmental, intentional and behavioural phenomena. This meeting of such conditions or filling of such a role – this functionality, if you like - is definitive of intentional states. For example, a belief that there is a glass of water on the table is a neuro-physiological state which is typically caused (*inter alia*) by the environmental state of there being a glass of water on the table⁵ and typically causes (*inter alia*) the behavioural event of picking up the glass of water – *provided that* (and this is important) certain other background intentional states also are possessed (for example, a belief that one’s sensory apparatus is working properly, a desire that one have a drink of water, and so on).

⁴ Useful and accessible background readings on the nature of intentional states include G. Botterill and P. Carruthers, *The Philosophy of Psychology* (1999), J.R. Searle, *The Rediscovery of Mind* (1992), and D.Dennett, *The Intentional Stance* (1987).

⁵ Or by the environmental state of there being an utterance by someone that there is a glass of water on the table or by some other belief that is part of a set of inferences about the glass and the table.

An agent comes to possess – that is, acquires - an intentional state by being in appropriate causal contact with any one of the environmental inputs or intentional inputs which typically cause that intentional state – whilst at the same time holding the set of background intentional states that are required for that causal link to hold. Thus, the two necessary conditions for the acquisition of an intentional state are:

1. Appropriate causal relationship with at least one of the many environmental or intentional phenomena which typically cause that intentional state; and
2. Concurrent possession of relevant background intentional states associated with that causal relationship.

In the context of a judge acquiring intentional states over the course of a hearing, we can characterise the environmental phenomena mentioned in the first condition in terms of the evidence (as well as counsel submissions and arguments) a judge appropriately encounters over the course of the hearing. Likewise, we can characterise the intentional phenomena invoked in the first condition in terms of the judge’s own process of reasoning by means of the existing intentional states (beliefs and desires) maintained by her. So too, in the judicial context, the second condition points us to the content of the judge’s mind – her conceptual scheme and intentional profile (her beliefs and desires) at the commencement of the hearing. Even at this early stage, then, we may discern the outline of a general theory of concept acquisition here where the acquisition of an intentional state entails the acquisition of its component conceptual content.

2. A definitionalist theory of concepts⁶

We can refine this initial take on concept acquisition by adding to our functionalist account of intentionality, what is known as a definitionalist account of concepts. Within this framework we can characterise concepts not merely as components of intentional states but (like intentional states) as discursive tools we have developed in order to classify and otherwise make sense of ourselves and the world around us. On this approach concepts may be conceived of as descriptions or definitions specifying the necessary and sufficient conditions which a phenomenon must meet for membership of the class of things comprehended by or referred to by the concept in question.

Taking a concept actual judges once had to acquire in order to do their job⁷, the concept of the pharmaceutical Bendectin may be conceived of in terms of the definition “a mixture of pyridoxine and doxylamine⁸ manufactured by the pharmaceutical company Merrell Dow Pharmaceuticals and prescribed to treat the nausea and vomiting associated with morning sickness in pregnant women”. To the extent that we can properly characterise someone who possesses the concept of Bendectin as believing that “Bendectin is a mixture of...”, we can theorise the

⁶ Useful and accessible background readings on the nature of concepts include E. Margolis and S. Laurence, *Concepts: Core Readings* (1999), and J. Prinz, *Furnishing the Mind: Concepts and Their Perceptual Base* (2002).

⁷ *Daubert v Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

⁸ Pyridoxine is a water-soluble compound which plays a vital role as the co-factor of a large number of essential enzymes in the human body. Doxylamine is an anti-histamine.

possession of a concept in terms of the possession of a definitional belief (intentional state) of this kind. For anyone whose thought and behaviour overall justifies our ascription to them of a concept of Bendectin (they once took the drug when pregnant, they once prescribed it to pregnant women, they talk sensibly about Bendectin etc) we are justified in ascribing a definitional belief to them with the content “Bendectin is a mixture of...”.

Following up on my earlier point about the acquisition of a belief, we may think of the acquisition of any concept *x* in terms of the acquisition of a definitional belief about *x*. We can use this notion of the acquisition of a definitional belief as a model of concept acquisition in general. Like all beliefs, such a belief would be acquired by coming into appropriate causal contact with relevant environmental phenomena (here, viewing or chemically analysing a sample of Bendectin or being told about Bendectin by way of evidence, say) or other intentional states (inferring from other relevant beliefs to beliefs about Bendectin – which is to say, engaging in a process of reasoning), whilst at the same time maintaining certain other relevant background beliefs and desires.

What can we say about these other background beliefs? Again we can get some insight into these in this context by considering concepts as definitions. As definitions, concepts are decomposable into those other concepts which feature in the constitutive definition. We may term these other concepts sub-concepts. Concepts are, therefore, analysable in terms of their component sub-concepts, as well as the characteristic syntactic relationship which exists between those sub-concepts. These sub-concepts and the syntactic relationship between them constitute the *content* of the concept. The concept of Bendectin (I will term it a primary concept because it is our primary subject of concern at this point) is constituted by the sub-concepts (let me term them secondary concepts) of pyridoxine, doxylamine, manufactured, pharmaceutical, company, Merrell Dow Pharmaceuticals, nausea, vomiting, morning sickness, pregnant, and the like - all syntactically related to each other in a manner characteristic or constitutive of the concept of Bendectin. The content of the concept of Bendectin may be analysed as comprising these sub-concepts, as well as the characteristic syntactic relation between them. And, of course, each of these secondary concepts may themselves be analysed in terms of a further set of characteristically syntactically related sub-concepts (tertiary concepts relative to the primary concept of Bendectin) - pyridoxine, for example, as water-soluble compound which plays a vital role as the co-factor of a large number of essential enzymes in the human body, or some such.

3. The acquisition of concepts

It follows from the preceding account of things that a judge may possess the concept of Bendectin to a greater or lesser degree (above some possession-sufficient minimum) by virtue of possessing a greater or lesser number of its component sub-concepts- together, of course, with the requisite knowledge of their componency (that they are part of the concept) and syntactic relationship (within that concept). Such knowledge may be tacit. With this in mind, we can combine our two models and identify the background intentional states an agent must possess in order to acquire a concept of Bendectin with the sub-concepts of (and, perhaps, some part of the associated syntactic beliefs about) Bendectin .

Therefore, the two necessary conditions for the acquisition of a concept are:

1. Appropriate causal contact with at least one of the many environmental or intentional phenomena which typically cause (an intentional state containing) that concept; and
2. Concurrent possession of some possession-sufficient set of the sub-concepts of the concept in question (which we may conceive of in terms of a set of background definitional beliefs about those sub-concepts).

So, a judge acquires a concept over the course of a hearing by either appropriately engaging with relevant concept-causing evidence or by engaging in relevant concept-causing reasoning (or both) whilst at the same time possessing a sufficient set of the sub-conceptual content of the concept in question.

To illustrate, if we consider again the judicial acquisition of the concept of Bendectin – say, by way of a definitional belief that Bendectin is a mixture of pyridoxine and doxylamine, once manufactured by the pharmaceutical company Merrell Dow Pharmaceuticals and prescribed to treat the nausea and vomiting associated with morning sickness in pregnant women - it is clear that mere causal contact with an utterance to this effect will not bring about such a belief in a judge unless she already possesses a series of other beliefs, including beliefs about pyridoxine, doxylamine, pharmaceutical, company, nausea, vomiting, morning sickness, pregnant and so on (which is to say, the sub-concepts pyridoxine, doxylamine, manufactured, pharmaceutical, etc.). But these other beliefs will not be acquirable by a judge unless that judge has previously acquired *still other* beliefs about (sub-concepts of) the kinds of things holistically implicated in the beliefs about pyridoxine, doxylamine, manufactured, pharmaceutical, and so on – beliefs about (concepts of) chemical compounds, anti-histamines, women, babies, and the like.

We can translate this talk of belief acquisition into talk of concept acquisition by noting that the acquisition of the primary concept of Bendectin will not be caused by the utterance in question unless the judge already possesses some multiple set of the secondary sub-concepts of the concept of Bendectin. Further, she will not have acquired those secondary concepts unless, at the point of that prior acquisition, she possessed some multiple set of the (tertiary) sub-concepts of those secondary concepts. And if the judge does not at the commencement of the hearing possess sufficient background beliefs or sub-conceptual content, then she can acquire it by the same means she acquires any concept, by way of cognitively appropriating – which is to say, reasoning about - evidence and/or by a process of reasoning which builds on her existing beliefs or conceptual scheme.

Such evidence may take a variety of forms, including actual tokens of relevant phenomena (real evidence), audio, visual and other representations of such phenomena, and oral or written testimony about the concept, its sub-conceptual content and syntactic structure or about other evidence led in relation to those things.⁹ This building up may be achieved by any one of a range of combinations of real,

⁹ For our purposes, such testimony may be taken to encompass not merely the testimony of witnesses (testimonial evidence properly termed) but also explanatory submissions by counsel about the nature of relevant phenomena or the content of relevant concepts.

representational and testimonial evidence and streams of reasoning in any one of a range of temporal orders, reflecting the range of trajectories available for acquiring a concept over the course of a legal hearing. It is implicit in this line of thinking that by *acquiring* more sub-concepts of the concept of Bendectin, together with the requisite competency and syntactic knowledge, a judge might move from a sparser to a richer concept of Bendectin (or from something below the conventional possession minimum to something above it). This leads us to the question of how such acquisition might proceed.

Factors affecting judicial concept acquisition

It should be clear from the foregoing discussion that two factors fundamentally condition the capacity of a judge to acquire an alien concept over the course of a legal hearing.

1. Conceptual base

The first is the nature and extent of *the judge's existing conceptual scheme or base* at the commencement of the hearing. The more sub-conceptual content of (background beliefs relating to) the concept in question the judge already possesses at the commencement of the hearing – which is to say, the less alien the concept in question is to the judge at that point in time – the less concept-acquisitive work the judge will have to do over the course of the hearing. This is because she will have less sub-conceptual content to acquire over the course of the hearing.¹⁰ Likewise, the less sub-conceptual content the judge possesses at the hearing's commencement – which is to say, the more alien the concept in question is to the judge at that point – the more concept-acquisitive work the judge will have to do over the course of the hearing. By concept-acquisitive *work* here, I mean acting (including thinking) so as to come into cognitive engagement with relevant environmental inputs and intentional inputs; identifying, manipulating, and cognising evidence, as well as engaging in reasoning so as to build up her conceptual scheme to the point where it includes the concept under acquisition.

2. Epistemic conditions

Additionally, though, notwithstanding the extent of a judge's sub-conceptual base, her capacity to acquire an alien concept over the course of a hearing will be affected by what I will term the *epistemic conditions* which prevail over the course of the hearing. As we have seen, in order to acquire a concept, (or sub-concept) a judge:

- must come into causal contact with and cognitively appropriate some practically adequate set of such evidence (given her adjudicative ends); and, additionally or alternatively,

¹⁰ Indeed, where an appropriate sub-conceptual base (or set of background intentional states) is in place at a given point in time, all the judge may need for instant concept acquisition is a single environmental or intentional input from the list of inputs individuating an intentional state containing the concept under acquisition. Virtually no concept-acquisitive work will be required of her under such circumstances.

- must engage in some practically adequate set of relevant reasoning if she is to acquire a concept to a practically adequate degree.

With this in mind, we can categorise the epistemic conditions affecting the judicial acquisition of a concept in terms of either the internal capacities of the judge or the external circumstances surrounding the judge.

a. Internal capacities of judge

A judge must possess:

- sensory apparatus which will enable her to sense appropriate relevant evidence provided to her about the concept under acquisition;
- cognitive apparatus enabling her to effectively cognise what she senses by way of evidence;
- behavioural apparatus and a behavioural repertoire which will enable her to behave in a concept-acquisitive manner in relation to evidence of that concept – which will enable her to locate and manipulate conceptually relevant evidence in a manner conducive to her acquiring the concept; and
- a willingness and ability to reason effectively from premises to conclusions about concepts under acquisition.¹¹

This is all to say that the judge must possess a range of theoretical and practical capacities and skills in relation to the cognitive appropriation of evidence of and the carrying out of reasoning about those concepts she seeks to acquire. Concept acquisition is not a passive affair. It is a complex form of action oriented towards understanding which has both a theoretical and a practical dimension.

b. External Circumstances

In relation to both evidence and judicial reasoning, the external environmental conditions surrounding the judge over the course of the hearing must be such as to effectively enable the judge to cognitively appropriate relevant evidence and do the requisite reasoning. They must not be such as to prevent these things taking place. Relevant external circumstances have to do with:

- the amount and quality of evidence relevant to acquiring the concept in question which is available to and actually provided to the judge for her sensory and cognitive appropriation over the course of the hearing;

¹¹ Including the kind of reasoning involved in interpreting the testimonial evidence of witnesses about the concept in question. At a more basic level of analysis, some knowledge-sufficient set of her beliefs about the acquisition process and its subject matter must be true. She must also be in possession of appropriate and sufficient (and sufficiently strong) desires as would motivate her to locate, manipulate and cognise relevant evidence and to pursue the amount and kinds of reasoning required to acquire the concept in question. Further, she must possess the behavioural resources to transform those beliefs and desires into action.

- the external assistance, human and technological, available to and actually provided to the judge in locating, manipulating, and cognitively appropriating relevant evidence or engaging in relevant reasoning¹²;
 - the availability and provision of external technological phenomena such as amplification, computers, vehicles, binoculars, and so on, by which the judge's own sensory, behavioural and reasoning capacities may be supplemented or improved.
- the time available to the judge to appropriate evidence or engage in reasoning, including any externally imposed time limits;
- the ambient environmental conditions affecting the judge's sensation and cognition of evidence or the conduct of her reasoning;
 - These conditions include such things as available light, distance and line of sight in relation to the judge and the evidence, as well as background noise and other auditory conditions, and so on.

Thus, there are two individually necessary and jointly sufficient conditions for a judge acquiring a concept – the possession by her of an appropriate and adequate sub-conceptual base (an acquisition-enabling conceptual base), on the one hand, and an appropriate mode and degree of cognitive engagement by her with appropriate evidence and an appropriate exercise of reasoning by her in relation to her beliefs (acquisition-conducive set of epistemic conditions), on the other. If either or both of these conditions for the acquisition by a given judge of a given concept fail, then that concept cannot be acquired by that judge. The obtaining of merely one or the other of these does not enable the acquisition of an alien concept. If a judge is not properly engaged with appropriate evidence or in appropriate reasoning – that is, if conducive epistemic conditions do not obtain - then that judge will not be able to acquire an associated concept no matter how much of that concept's sub-conceptual content she possesses. Likewise, if a judge does not possess sufficient of a concept's sub-conceptual content, she will not (whilst that lack continues) be able to acquire that concept no matter what evidence or reasoning she engages with or in.

Concept acquisition, legal norms and law reform

By virtue of their contingency, both the content of a judge's conceptual scheme at the commencement of a hearing and the epistemic conditions which obtain for a judge over the course of a hearing may, to a significant extent, be subject to the actions of those agents who constitute and regulate the hearing process and the legal system more generally. This is to say that these things may be subject to some degree of *regulation* by legal norms. Legal norms themselves, of course, are theoretically contingent, socially constructed phenomena capable of being formulated, reformulated and eliminated so as to provide for the obtaining of a range of situations. Law reform – even radical law reform - in the service of an enhanced judicial concept-acquisitive capacity is a theoretically live option within the physicalist-functional scheme of things maintained here.

¹² This point implicates the important role which the actions of other agents (parties, counsel, witnesses, court officers, and the like) may play in the acquisition of concepts by judges

Pursuing this, I want to provide a brief critical overview of certain key norms presently regulating the judicial acquisition of concepts within a number of common law jurisdictions with the intention of clarifying some (at least) of the applied, legal reformist potential of the preceding, largely philosophical analysis. This discussion is meant to be no more than a preliminary and general survey of and reflection upon the issues with a view to providing a broad theoretical structure for thinking about law reform in this area. Of course, a number of the issues raised here have already been put into practice to some degree or other in various jurisdictions.

1. Legal norms and the judge's prior conceptual scheme

a. Judicial education

It follows from our discussion so far that the degree of conceptual difference which obtains between judges and alien concepts or bodies of thought and practice (discourses) might be 'lessened' – that is, judges might come to legal hearings in possession of a greater store of relevant sub-concepts and beliefs – were they to be subject over the course of their career to an ongoing process of familiarisation in relation to those concepts and discourses which they have some likelihood of coming into contact with over the course of their tenure – whether those concepts and associated discourses be scientific, medical or socio-cultural.

Rather than rely upon ad hoc judicial enculturation into alien conceptual schemes on a hearing by hearing basis, the process of enculturation might be pre-empted to some extent by a sustained and legally regulated process of what we might broadly conceive of as interdisciplinary or cross-cultural education. So, for example, a strategically targeted (and, of course, relatively limited) education in medical matters might be offered to those judges who presently or who intend to regularly practice in the area of medical negligence.

b. Judicial selection

Alternatively or additionally, the norms presently regulating the *selection* of persons for duty as judges likely to be involved in proceedings involving alien concepts might be reformed so as to ensure that such selection draws exclusively from a field of persons already enculturated to some degree into the discourses in question. For example, relevant medical experience might be made a *prerequisite* for adjudicating upon medically complex tort matters or relevant scientific or engineering experience for intellectual property matters. Likewise, anthropological or sociological expertise might be made a prerequisite for appointment to indigenous or minority rights cases. There is no denying, of course, the extent of the challenge involved here. The number of alien concepts and discourses judges might encounter over their careers might be quite substantial – particularly in light of a rapidly evolving scientific and technological terrain. It just may not be feasible to even attempt to cover all or even most fields or to keep up with all or even most changes in those fields. And, of course, other qualities required of judges need to be factored into the selection process and weighed up as well.

2. Legal norms and the judge's epistemic conditions

As far as the epistemic conditions which generally obtain over the course of legal hearings are concerned, all of which are regulated by some or other set of legal norms, a range of law reform opportunities present themselves by which the concept-acquisitive capacities of judges might be improved.

a. Internal capacities

The legal system might be rendered more concept-acquisitively effective if the norms regulating the selection, dismissal and ongoing functionality and motivation of judges were such as to ensure the employment of persons who possess and maintain a high standard in relation to these capacities. On this approach, only persons with suitable sensory and cognitive faculties, motivation and theoretical and practical skills would be appointed to and retained on the bench.

Most legal systems are, at present, already largely oriented towards the appointment of persons with suitable faculties and motivation. They may not, though, be sufficiently oriented towards the ongoing maintenance of those faculties or to the ready redeployment or dismissal of those whose faculties have fallen below an acceptable standard.¹³ So too, it might be argued, the present norms regulating many jurisdictions do not adequately ensure the appointment of persons adequately *skilled* in scientific or cross-cultural concept acquisition, or the ongoing education of existing judges in developing and perfecting such skills.

b. External circumstances

Availability and accessibility of evidence

Perhaps the most important of these concerns the availability and cognitive accessibility of evidence relevant to the alien concepts under acquisition. As a preliminary point, the capacity of a judge to acquire a concept depends crucially upon the very *existence* of evidence about that concept adequate to her acquisitive task. If there is no (or no practically adequate) real or documentary evidence in the world informative of the content of that concept or no (or no practically adequate set of) agents capable of testifying about the content of that concept, then the judge will not be able to acquire the concept by evidential means. This is an important issue in the area of indigenous land rights litigation where artefactual evidence relevant to the success of claims is often at risk of destruction and where elderly indigenous witnesses with unique knowledge of the claim and the culture are at risk of passing away or becoming otherwise incapacitated before they are able to give their testimony.

¹³ Judicial tenure norms, though justifiable with reference to political ends (independence from executive interference, for example), may not serve purely epistemic ends as effectively as they might. An important and difficult balancing act is at work here.

Legal resources of parties

Closer to home, the resources available to the parties involved in a legal matter in making relevant evidence available to the judge (including the knowledge and skills of their legal counsel in effectively identifying and tendering such evidence) are also germane external circumstances here. Laws ensuring that parties – for example, indigenous or other minority claimants in indigenous and minority rights cases - are adequately resourced so as to effectively make out the evidential elements of their cases might be enacted or improved. Existing legal aid provisions in many jurisdictions might be reformed to include mechanisms for the more regular engagement by disadvantaged groups of highly competent counsel, expert witnesses and other advisers. Alternatively, replacing the present adversarial mode of inquiry presently provided for in common law jurisdictions with a more inquisitorial mode might render the judicial interpretive and epistemic role more effective (judges would be less dependent on the parties and their resources) - provided, of course, the judiciary and its investigative staff were adequately resourced.

Quality of witnesses

An additional important factor here concerns the quality of witnesses in relation to their capacity and willingness to effectively impart information to a judge about alien concepts. The selection and preparation of those witnesses best able to convey pertinent information to a judge may be affected by legal norms regulating the quality of legal counsel and the soundness of their advice to clients and witnesses and their courtroom advocacy. The quality of witnesses here may also be affected by norms providing for the informing of parties and witnesses – including scientific witnesses but especially, perhaps, those from minority cultures - about the operative legal process, both as it pertains to their case and generally. Further, alerting relevant witnesses to the effects which their discourse-specific or culturally-specific mode of interaction might have on the judge may also be of use in improving the quality of information provided to the judge.

Interpreters

One factor which can assist in this regard and which is presently subject to legal regulation in many jurisdictions in relation to cultural minorities is the provision of interpreters at hearing. These agents are tasked with the job of assisting culturally different witnesses to effectively convey their evidence, as well as helping the judge, counsel and others to understand that evidence. Within the normative regime regulating their actions at hearing in a number of jurisdictions, such interpreters may serve not only as translators of alien languages (including minority dialects of the dominant tongue) into the standard form of the dominant tongue (or, indeed, into legal variants of that tongue) and vice versa, but also in a more general explanatory role as mediators and facilitators of communication between culturally different witnesses and the judge and other agents involved in the hearing.

For example, interpreters might advise culturally different witnesses on the cultural and specifically legal practices and interactional styles of those dominant societal agents involved in the hearing, as well as advise those agents about the cultural practices and interactional styles of culturally different witnesses. So too, in the scientific sphere, we might imagine the use of scientifically literate ‘interpreters’ who

perform a similar task, mediating the communication of scientific witnesses to the court.

To the extent that the present set of legal norms in a given jurisdiction inhibits the capacity of interpreters to facilitate cross-discursive or cross-cultural understanding between the agents in question (and a number of commentators have argued that it does), those norms might be reformed. This might occur by making interpreters more available to parties and judges, by loosening up the conditions under which they may be relied upon, and by improving the quality of their cross-discursive understanding – including their understanding of legal process. Again, considerations in this regard need to be tempered by other, often non-epistemic, values and ends held by our legal process, such as fairness to the parties and the need to maintain the integrity of the independent fact-finder’s role, and so on.

Hearing environment

An aspect of the legal regime in a number of jurisdictions which has facilitated conducive epistemic conditions for the acquisition of alien concepts through improving the quality of the hearing environment - and one linked to the preceding discussion – are those legal rules which authorise the holding of all or part of the hearing at some relevant geographic location. A range of concept-acquisitive issues are addressed by the provision of this option to a judge.

First, being physically in an evidentially relevant environment rather than merely hearing about it via testimony or viewing it by photographic or other means will generally improve a judge’s sensory and cognitive access to any relevant real evidence of alien concepts which might subsist on site there. Such an alternative to the courtroom may also provide an environment in which witnesses to concept-relevant facts may more comfortably - and, hence, more effectively - present their testimony. A number of commentators have noted the obstructive effect which the standard court environment in most modern jurisdictions has on the effective provision of evidence by witnesses unfamiliar with such environment.¹⁴ Again, in indigenous land title matters, indigenous witnesses have been found to be more relaxed and informative when giving their evidence ‘on country’ than they are in a courtroom dealing merely with photos and maps of the land under claim.

Adversarial mode of fact finding

Empirical research has noted the detrimental effect that various aspects of the adversarial process can have on the capacity of witnesses – particularly, members of cultural different minorities - to effectively testify about relevant matters.¹⁵ The most notable of these is that set of norms which permit the occasional oppressive and manipulative cross-examination of witnesses by counsel for other parties. Evidence also points to the fact that members of certain culturally different groups are insufficiently skilled in the question-answer mode of interaction as a communicative strategy - even when that mode is engaged in in examination-in-chief, let alone under

¹⁴ See D.Eades ed., *Language in Evidence: Issues Confronting Aboriginal and Multicultural Australia* (2002) and G. Neate, *Land, Law and Language: Some Issues in the Resolution of Indigenous Land Claims in Australia* (2003).

¹⁵ See the papers by M. Walsh and D. Eades in J. Gibbons ed., *Language and the Law* (1994).

the emotional and cognitive pressure of cross-examination. Many such people maintain alternative modes of communication – less linear or more narrative in style - which are often interfered with by the strict question and answer demands of the adversarial mode. As a result, the capacity of culturally different and other witnesses to provide information about alien concepts within the adversarial mode may be compromised.

It must be noted, though, that fairness concerns vis a vis other parties to the proceedings (who may be concerned about the reliability of the testimony in question and who may want the reliability of that evidence tested in the crucible of strong cross-examination) currently serve as a significant constraint on reformist tendencies in this regard. These concerns are legitimate ones, not unproblematically ignored or otherwise marginalised in pursuit of concept-acquisitive reform. How they are to be weighed against the epistemic demands of the legal process is an issue I don't choose to address here - my aims here being predominantly descriptive rather than normative – though I have something briefly to say about it in my concluding remarks.

Judicial concept acquisition as a mode of reasoning: some concluding comments on the conference theme

The primary purpose of the preceding analysis has been to cast some light on an important but theoretically neglected aspect of “how judges judge”, the key topic of this conference. Sometimes judges judge by means of learning new things. The role of the judge as ‘learner’ is a role which academic inquirers might spend more time exploring. Pursuing the topic of the conference further, I have also attempted to show that the process by which judges acquire concepts and learn new things over the course of a hearing is importantly a process of reasoning in response to evidence and argument on the basis of their existing conceptual and belief base. The reasoning involved in judicial concept acquisition is a specific instance of the many kinds of reasoning judges engage in over the course of a hearing – reasoning about law and its interpretation, reasoning about the nature of facts in issue and conclusions which might be safely drawn from them, reasoning about the application of law to facts, reasoning about the reliability of evidence, and so on. Though each of these modes of reasoning proceeds with its own distinctive discursive content (subject matter) and dynamic, sufficient similarity appears to obtain for us to use our insights into the one in making sense of the others. I admit that I have yet to pursue any such synergies in depth.

In the preceding analysis I also hope to have identified some of the ways in which the particular mode of judicial reasoning involved in concept acquisition – and in judicial learning more generally - may be influenced factors internal and external to the judicial individuals involved, together with how we might reform the role those factors play in order to facilitate more effective reasoning in this regard. One point I hope has been made clear is that, contrary to traditional views of it as a phenomenon which takes place in the privileged privacy of the judicial mind, judicial reasoning is an entirely natural phenomenon that occurs within and as part of the natural world – a world which includes the judge's body and actions and physical environment. As such it is affected by the state of that world and is amenable to deliberate and strategic changes to the state of that world made by judges and others. There is both theoretical

and practical value in thinking about judicial reasoning in this manner as an entirely natural and fully embodied phenomenon.

Finally, on the question of whether judicial reasoning of the kind discussed here is more akin to an art or a science, much, of course, depends on what we mean by these two terms. To the extent that the acquisition of concepts by judges proceeds by the same process as the acquisition of concepts by scientists (and I would argue that it largely does), then the judicial reasoning at work here is like that of scientific reasoning. It is not an art if by art we mean some process of thinking and acting which is fundamentally different from that of scientists – that is to say, is fundamentally immune from empirical reality or is illogical or irrational in its course or is mystical in its nature. Nor is it an art if by that we mean something immune from scientific methods of understanding and explanation. Quite plainly, it isn't so immune. However, on a naturalistic account of things, all human thought and action subscribes to the same overall structure, whether it take place in contexts we might categorise as scientific or in ones we might categorise as artistic. This is to say that concept acquisition within an artistic sphere occurs by means of the processes described above and is - at base, at least - not that much different from concept acquisition within a scientific or legal sphere. This is not to deny that there are interesting differences in thought and action within the different spheres but rather to postulate that, at base, judicial concept acquisition as a mode of judicial reasoning is not like one or the other of the contrasting pair but, rather, like both.

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