2 Perspectives from Legal Theorists

2.1 Transdisciplinarity and Trust

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PART ONE: IMAGINING TRANSDISCIPLINARITY

Most of us are familiar with the story of the tower of Babel. On its traditional reading it teaches that the multiplicity of human languages is a sign of our fall from grace. If we had not been punished by God, scattered across the face of the earth, and confounded by a multiplicity of languages, we could have built to the Heavens. Nothing would have been impossible for us.

Numerous lessons may be derived from Babel, and not all of them are lessons of language. But if we turn first to language, the more general lessons are more easily learned. To begin, the story challenges us as to its message. Does it teach that multiple languages are a barrier to understanding and shared knowledge, or does it simply show us the limits of language as a symbolism for sharing knowledge? Is the story about the difficulties of human communication resulting from our multiple languages, or is it about how having to negotiate multiple languages has a liberating effect on our intellect?

More than this, Babel puts into question what it is we must know even to speak at all. While it seems that we can converse more readily with those who speak our language, we can never really know whether the ideas we are expressing in language are in fact being received as intended by our inter-locutors. Perhaps an apparently shared language just hides the ineffable character of all intersubjective communication. Conversely, the fact we can communicate with someone who does not speak our language suggests the

possibility of shared human knowledge beyond language – or at least some shared communicative symbolism other than language.

Third, Babel confronts us with the fundamental individuating impulse of language: every writer or speaker has a distinctive style. Grammar, vocabulary, and syntax permit all of us to fashion our own private languages, which we reveal to others only at the perils of revealing ourselves to them. Indeed, all communication is translation. All speech requires us to order (and re-order) our world so as to express it discursively. Language has the peculiar property of being inherently discursive. When speaking, the discursivity is temporal – words follow each other; in written form, conventions for apprehending a text (start at the upper left and proceed horizontally, for example) permit an author to control the manner of apprehension.

Again, this discursive feature of language might seem to suggest a peculiar property of language among our several human symbolisms. But we have many techniques and literary devices for reducing discursivity, as poets, playwrights, and others constantly suggest. And many symbolisms, such as music and painting, have their own discursive conventions. All human communicative symbolisms may be analyzed both discursively and non-discursively. The rigor apparently imposed by our grammar and syntax is only a small part of the communicative properties of our language.

Finally, we can see in Babel that language is not just a means to facilitate communication. It is also an end in itself. It reflects the endeavor of symbolizing. Human beings communicate with each other to convey information, warnings, and emotions, to be sure. But communication is not merely instrumental to some other purpose. Communication is a way for human beings to be alive.

SOME CONSIDERATIONS ABOUT KNOWLEDGE

Knowledge is like language. Knowledge has its vocabulary, its grammar, and its syntax. Most often, the vocabulary, grammar, and syntax of knowledge are confounded in the vocabulary, grammar, and syntax of the language (usually natural, but sometimes hieroglyphic as in music notation, economic utile plotting, architectural design, and mathematical formulae) in which the knowledge is conventionally transmitted.

Mythologically, according to Babel, in the beginning, all human beings had one language. In a similar way, according to the parable of Eden, in the beginning, all human beings had a primal, though limited, shared knowledge. All that could be known was known; and all that was known could be known by all people. Just as we need the parable of Babel to reconcile ourselves to linguistic diversity, to explain away the possibility that the human species may not have had a single origin, or to explain away how it is that language, culture, and knowledge are revealed in geographic diversity, or to explain why humans can never be divine – we need a parallel myth to explain

the diversity of human knowledge. The story of Eden and of the Fall is that epistemological myth.

In Genesis 1, we have a myth about creation and scientific knowledge. But this knowledge was in the hands of the Gods (*elohim* – clearly a plural). In Genesis 2, God is made singular (*Jaweh*) and Adam (who, in Genesis 1, is also a plurality – male and female) is re-created as a singular. The Garden of Eden is cast as the story of culture; Adam could freely partake of everything in it except the fruit of the Tree of Knowledge. Having succumbed to the temptation to know, Adam was expelled from Eden. As in Babel, expulsion fractured the unitary.

What hubris accounts for the fact that we are cursed with competing professional knowledge systems? What divine intervention explains our insistent urge to confound communication with partial perspectives? It is in answer to these questions that Babel is most revealing of how intellectual disciplines are like human languages. What linguists call natural languages are highly complex cultural phenomena. We know that human beings have something like a language instinct – a symbolic capacity, that is, apparently a relatively late arrival in the evolutionary descent of the species. But we also know that natural selection does not and cannot explain the capacities of the human mind. More precisely, the capacity to acquire and deploy any given human language is learned, and learned at a relatively young age. Most people speak and write without actually bringing to consciousness the rules of grammar and syntax they are deploying. But others come later to learn what these rules are, and still others are grammarians, comparative linguists, poets, and playwrights.

The differences between learning a language as a "native speaker" and apprehending a language as an intellectual exercise are patent. Mastering Latin and Esperanto most obviously, but studying any foreign language in a high school introductory course is an instrumental endeavor. It commences, in the manner of an adult being taught for the first time the game of contract bridge, with a defined purpose (in bridge, the winning of tricks, games, rubbers, and the accumulation of penalty and bonus points), a structure of rules and procedures (procedures for dealing cards, bidding, and playing a hand), and a rudimentary syntax (the principles of good bidding and good play). More difficult to fathom, of course, are the underpinnings of how we come to acquire a language neither as a native speaker nor as a student of language. Preschool and elementary school immersion programs sit uneasily on the cusp of the learned (or internalized) and the taught (or transmitted). An immersion program seeks to replicate the comprehensive culture that sustains the discovery of a "native" tongue but can only do so in the limited epistemic space that a curriculum affords.

These examples reveal exactly how structures of knowledge are similar to languages. They also reveal some of the distinctive properties of structures of knowledge. At one level, we have an inborn capacity to learn, to know, to recall. This human capability is nurtured by our parents, by schools, and by

peers. The basic cultural foundations of shared knowledge are like the basic cultural foundations of shared language. Much of what we initially learn is both unself-conscious and undifferentiated. Concepts like time, space, causation, computation, and so on have a bearing on our lives that is apprehended before they are either identified or understood. Prior to understanding, these concepts are not disaggregated; they are part of the "big, blooming, buzzing confusion" of everyday experience, although their counsel is no less real for being tacit.

Later in life, learning becomes more self-conscious and differentiated – more disciplined. Our learning arithmetic and learning to read, learning about history and learning about basic science, are typically structured in a tuition that is disconnected from other tuition we receive. They are islands of specialized knowledge forming in an ocean of general experience and cultural indoctrination. Our general knowledge is culturally grounded, but unconsciously; these more specialized bits of learning, whose assumptions are not part of our consciousness until a later stage in our lives, are also culturally grounded. Even as we acquire this specialized knowledge, we continue to learn unconsciously. The paradox of life-long unself-conscious learning is that what is learned cannot speak its name (its content). The expression "common sense" captures the two elements of the paradox. Our sense is common in that it pretends to be shared with others; it is also common in the sense that it is undifferentiated.

What is most revealing is how we develop instincts of unity and diversity, of connectedness and distinctiveness, in our knowledge fields. When we come to inquire about the *why* of the knowledge we have acquired we begin to apprehend this knowledge more in the manner that we apprehend the different forms of literary expression: novels, newspaper articles, learned monographs, poetry. Rarely is our first instinct, for example, to seek commonalities between American, German, and French novels. We apprehend the knowledge of others without really inquiring how that knowledge comes to be or how it is deployed by the person who apparently knows it.

Let me offer the case of simple arithmetic as an example. In North America, we are expressly taught how to count in a base-ten system; human numerical notation derives from the great Indian and Arab discoveries some 1,500 years ago. But almost all non-human calculation today is done differently. Of course, early calculating machines attempted mechanically to reproduce a base-ten mathematics; the computer has changed all that. Computer calculations all proceed on a base-two system, which is then translated into a visual presentation for us in a base-ten logic. We do not ask our computer how it computes. Indeed, we do not care what the knowledge base and calculation protocols of the computer are. As long as the product is recognizable to us in our base-ten language and as long as the computer spews out results that we could replicate using our own base-ten system, we are satisfied.

I turn now to another example, which permits more elaborate extrapolation: measurement. The fact of humans measuring (distances, weights, volumes, even numbers and time) is hardly of recent vintage. Sizing up the world around us is a central survival skill, and developing the means to make comparative evaluations is a helpful mode of communication. One can hypothesize that early measurements were essentially pragmatic: days, moons, years; and one, two, the many, for example. Just as it took a long time (and much theological bludgeoning) for the non-empirical seven-day week to emerge, so, too, it took a long time for a truly base-ten system of computation (complete with zeros) to overtake more empirical systems. Recall that we have inherited Roman calculation based on fingers (I), hands (V, L, D), and pairs of hands (X, C, M), which was typical even in cultures that depended on rapid computation. The capacity to abstract from experience and systematize experience is an amazing human achievement.

And yet, rationality has its experiential limitations. Certainly, a system for counting days and years does not need seven-day weeks or twenty-eight day lunar cycles around which months are more-or-less organized. Given the way we count, it would be more rational if ten-day weeks (as proposed by French revolutionaries after 1789) or ten-month years were adopted as a complement to our base-ten system of decades and centuries. Again, it is certain that a base-twelve system is rationally preferable to a base-ten system (as mariners quickly discovered and as children perplexed by why ten does not divide by three soon realize). But God gave us only ten fingers and thumbs.

Neither a ten-day week, nor a ten-month year (notwithstanding how we now name the last four months septem-ber, octo-ber, novem-ber, and decem-ber), nor a base-twelve counting system became generally normative. Of course, thanks to the self-love of Julius and Augustus Caesar we did adopt twelve to organize our months, not thirteen (which more accurately reflects the twenty-eight day lunar cycle divided into the 365-day solar year). And with the development of the clock we recurred to a modified base-twelve system: 12×5 seconds to the minute; 12×5 minutes to the hour; and 12×2 hours to the day.

The experiential constraints on measuring were not just physiological, theological, and political. Often they were given by the particular needs of groups of persons (dare we conflate professional need and disciplinary rigor?). It took a long time before people began to think of measuring as an "integrated" activity. In early mediterranean life and as late as medieval England, it really did not matter that short and long linear distances were calculated on a different logic: a thumb, a hand, a foot, or a cubit had no ready conversion to a league; nor was such a ready conversion needed. Similarly, the transposition of distance to volume to weight was hardly a preoccupation; that paces did not neatly translate into stones or pitchers caused no particular inconvenience.

Today, the English system (ironically defended primarily by people in the US) survives as one of the most developed systems of measurement that are pragmatically based. While units of measurement have been calculated to a common scale – we do know (or can compute) how many inches are in a mile

(63,360); and we do know (or can compute) how much a gallon of water weighs (ten pounds) – most people do not care. To measure a table-top, we know how to use a ruler; to measure distance to be traveled in a car, we know how to read a map or an odometer; to measure how much oil to put in the fuel of an outboard motor, we can convert quarts to gallons. For the purposes of daily life, measurement is an instrumental activity, not an intellectual concept. Indeed, until quite recently, the English money system was based on pence, shillings (twelve pence), pounds (twenty shillings), and guineas (twenty-one shillings).

What, then, drove the quest to integrate measurement systems? It appears that the commercial and manufacturing requirements of the Industrial Revolution played a major role; it became necessary to find out how much a cubic foot of water weighs; it became necessary to find out, in cubic inches, how big a gallon is; it became necessary to correlate acres to miles. Of course, in the integrative endeavor, many units of measurement began to disappear. Who remembers today learning complex conversions of pecks to gills? of gallons to barrels? of fathoms to leagues? of rods to chains to furlongs? of pounds to stones? even of pence to shillings to pounds to guineas?

One can hypothesize two reasons for the loss of many intermediate measures. On the one hand, with the emergence of absolute rather than comparative measuring instruments, the scale of measurement had to be telescoped. A butcher's balance scale permits odd-sized weights to be added to the balance; a spring-loaded scale requires an easily readable face with integrated units of differentiation. A carpenter's yard-stick can (and usually does) visually represent inches, palms (four inches), feet (twelve inches), and cubits (sixteen inches), as well as sixteenths, eighths, quarters, and half-inches on one side, and tenths of inches on the other. An electronic measuring gun registers only tenths of inches and inches, or tenths of feet and feet.

On the other hand, when measuring becomes a generalized activity, the particularities of activity-based measurement lose their purchase. All of us have a limited number of units of measurement that we can manipulate effectively. A tavern keeper's primary tasks relate to pints and extend downwards to glasses and upwards to quarts; smaller or larger measurements did not matter. Artisans use multiple units to measure what they need to know, and other units are of little interest. When their own tasks are subsumed in larger commercial structures, the particularities of their measurement systems disappear, because they are obliged to absorb the larger system, and they do not want to have to enlarge the number of discrete units over which they can claim a mastery.

Today, the world trading system is pushing for a universal conversion to the metric system (SI) – an essentially analytic a priori base-ten scale that integrates distance, volume, and weight. A centimeter is 1/100th of the standard unit of distance – the meter; a liter is 1,000 cubic centimeters; and a kilogram is the weight of a liter of water. Here, the rational "theory" of scientific measurement has apparently trumped the lay "need" for pragmatic measurement. But even the metric system (strange as it now seems) had an

empirical root: the meter was initially calculated as 1/10,000th the distance between equator and pole.

However strong the move to the metric and base-ten systems, numerous continuing "anomalies" reveal the complexity of our practices of measurement and calculation. Some countries still use the essentially pragmatic a posteriori English measurement scales developed in pluralistic disciplinary contexts. In England itself, some measurement systems, such as currency, have retained their traditional names but have been transformed into a base-ten system (ten pence to a shilling, ten shillings to a pound). In metric systems, notwithstanding their theoretical equality, some units of measurement (decimeters, decameters, hectometers, deciliters, decaliters, kiloliters, centigrams, decigrams, decagrams, and hectograms) are rarely encountered while others are used even in their multiples of ten (one hundred meter race, ten milliliters of blood, one hundred grams of cheese). Indeed, in some recently converted metric countries, practice has retained traditional units expressed in metric terms (454 grams is one pound; 341 milliliters is twelve ounces; a 21.5 × 28 centimeter page is an 8.5 × 11 inch page). Furthermore, in all metric systems certain non-standard measures hold sway over other official units. Why is wine typically sold in seventy-five cl bottles and not in one l bottles? Why hold Olympic events such as the 1,500 metre race rather than the 1,000 meter race?.

I would argue that all these measurement systems are historically contingent; physiology, theology, economics, and politics have each had their word to say. It is easy to see even today that the idea of seven-day weeks derived from religion; less easy, of course, to see how acres were tied to feudal landholding; and not immediately apparent that the metric system is less about measurement that it is about the rationalistic politics of revolutionary France. Yet the strength of this latter linkage (and its relative weight as against other cultural reference points) emerges when it is remembered which other revolutionary innovations – the ten-day week, the renumbering of calendar years in Roman numerals commencing in 1789 as Year 1 – did not enjoy the same success.

It is not only religion, culture, and tradition that ground our choices of rationalities. Sometimes technical capacity (or its lack) is the driving logic. Where imagination and invention outstrip measurement technology, our response is to seek relational simplicity. Where we can imagine processes, ideas, and things that require the integration of several logical frames or measurement systems (in the present context, several disciplinary perspectives), but where the integration of these frames and systems is beyond our existing computational ability, we react by reordering these logics under a metalogic, translating measurement systems into an explicitly correlated metasystem (for example, the metric system), or seeking a metadiscipline (in the present context, transdisciplinarity).

Suppose that we had developed the computer in 1700. What impact would our capacity to convert instantaneously all measurements have had on the

way we measure? Imagine a software program that immediately renders cubic inches into gallons into cubic feet, square feet into acres into square miles, liquid ounces into avoirdupois ounces into English pints into American dry pints into American liquid pints, and that can easily express ounces as gills, cups, pints, board feet, flagons, quarts, gallons, pecks, bushels, quarters, barrels, short cords, and cords; or grains as drams, ounces, pounds, stones, quarters, hundredweights, short tons, and long tons; or inches as links, feet, yards, fathoms, rods, chains, furlongs, miles, nautical miles, and leagues. At this point, measurement systems anchored in our base-ten system of arithmetic are not really necessary in order to achieve the required integration.

From the perspective of the innumerate, or non-calculating, or non-professional public, pragmatic measurement systems will always be preferred as a way of understanding the world. From the perspective of the professional actuary or the engineer deploying the slide rule (and logarithms upon which the slide rule is based), a metric measurement system is to be preferred because it ties units of measurement and their interconnections to a base-ten scale. From the perspective of the infinite calculation capacities of the computer, it is unclear whether the empirical a posteriori or the rational a priori should prevail. The computer means that there is no need either to seek relational simplicity in order to assist the expert or to impose this expert rationality on a lay audience. More than this, the actual binary calculation protocols of the computer are completely distinct from the base-ten systems that initially drove the integrating endeavor.

Today, however, the international symbolism of metric measurement is set. Most people have come to accept metric measurement because of various other factors that have little to do with measurement per se. In my view, the creation and imposition of metric measurement is an example of the triumph of disciplinarity over culture. The discipline of scientific measurement overrules the pragmatic measurement of action.

Of course, I am not so naive as to believe that what we have cast as the pragmatic measurement of action – the concepts of inches, gallons, acres, and stones – did not itself have its origins in expert need. Whether it was the needs of carpenters and masons, of the brewers of beer, of the desire of the English nobility to tax and control landholding by tenants, or the needs of bakers and shipowners, the rationale for each of these systems was located in professional or artisanal activity – in local knowledge serving local needs. By contrast with the metarationality and discipline of the metric system, this specialized knowledge was discrete and pragmatically connected to the central measurement needs of its deployers. The invention of measurement as an endeavor of its own and its dissociation from the contexts where it was needed and used, were accompanied by the loss of the richness of the language of measurement. This loss of this language, which reflected in its particularity the culture of the measurer, has also led to the loss of the culture that was carried by this language.

SOME CONSIDERATIONS ABOUT TRANSDISCIPLINARITY

What does any of this have to do with transdisciplinarity? Let me explain. The conception that, outside Eden, there could be a unified knowledge and that, in consequence, there could be a unified structure of knowledge for apprehending and transmitting this knowledge is a product of the eighteenth century. The Enlightenment encyclopedists invented the idea of external knowledge – of a knowledge not dependent on status, gender, or locality. It was the encyclopedists who laid the groundwork for metric measurement, for an analytic knowledge of measurement not dependent on culture or context.

I contest sharply the view that Aristotle "knew it all" or that the Renaissance person "knew it all." In neither case was the knowledge comprehensive or empirically integrated. What did Aristotle know of Africa or China? What did he know of plant species? Greek philosophy was a worldview that led to certain topics of investigation, but the knowledge base was far from comprehensive. Aristotle may have "understood" it all; he certainly did not "know it all." The point can be illustrated with an old joke about the differences between British and US spy agencies: the British MI6 (Espionage Department) is a culture where little is "known" and everything is "understood" – all analysis and no information; the US CIA (Central Intelligence Agency) is a culture where everything is "known" and little is "understood" – all information and no analysis. The MI6 is the descendant of Aristotle; the CIA is the descendant of the French encyclopedists.

Before there can be transdisciplinarity, there must be disciplinarity. What is disciplinarity if not the deployment of knowledge systems grounded in a relatively limited number of concepts which are held to have general explanatory power when applied to the world of experience? That is, the disciplinary claim is that partial knowledge can fully explain. To capture the thrust of the point, one might consider why "inter-disciplinarity" correlates (in religious circles) with "inter-faith," but "transdisciplinarity" correlates with "ecumenicalism."

The distinctive character of transdisciplinarity is that, unlike inter-disciplinarity, it involves a different epistemology. Interdisciplinarity exists between and among disciplines. Transdisciplinarity imposes a new discipline upon our thinking. Let there be no mistake or misapprehension of my claim here: transdisciplinarity is not the bridging of existing disciplines; it is their transcendence by a new epistemology. And what is a new epistemology if not a new understanding of what a discipline really is? The antidote to misconceiving transdisciplinarity as simply the recombination of existing disciplines is to see these disciplines as parasitic upon the new discipline that is transdisciplinarity. Far from knowledge being the sum of disciplinary expertise, disciplines will always be seen as promoting partial explanations of a knowledge that is ineffable.

All theoretic disciplines assert their comprehensiveness either explicitly or implicitly. An economist would claim, for example, that the tools of economic

analysis can be applied to any social setting – from the family to the international trading system. A sociologist would claim that the tools of sociological analysis can be deployed in any human setting – from the neighborhood to the corporation. That most economists and sociologists tend to focus on one or another of these settings and tend to develop sub-specialities identified by these foci does not mean that the disciplines have renounced the ambition to being able to explain any human phenomenon through their disciplinary lenses.

But note that these disciplines do not require disciples to make a commitment to a comprehensive worldview. We have been taught (wrongly, of course) to believe that it is possible to engage in disciplinary analysis without ultimately having to commit ourselves to contemplating our place in the universe. Unfortunately, the lesson has been so well learned in existing disciplines that it is unlikely to be transcended from within them. Transdisciplinarity, by contrast, is a discipline that demands its disciples to exact this commitment of contemplating their place in the universe as a precondition to discipleship.

In brief, transdisciplinarity is a label for an epistemology that renounces existing intellectual disciplines. It necessarily claims for itself transcendent explanatory power. In this, transdisciplinarity is like any other form of intellection. But it differs from traditional disciplines such as economics and sociology in the materials of its analysis. By definition, transdisciplinarity is primarily about epistemic constructs. In this, at least, it is a more honest undertaking than disciplinary studies – which pretend that they are about primary data in the world rather than about the invention and control of knowledge systems. Transdisciplinarity is incorrigibly plural in its practices and its prospects. These reflections lead to a statement of the first law of transdisciplinarity: when any particular transdisciplinarity endeavor ceases being about epistemic constructs, and when it gives up on its renunciation of the self-imposed limits of disciplinary knowledge, it becomes simply one more ordinary discipline. The definition of transdisciplinarity will always be under construction. Whenever it ceases to be emergent, when it ceases to be metaphor and becomes reified as simile, it can no longer claim disciples.

CONCLUSION

I should now like to turn explicitly to the title of this little essay: "Transdisciplinarity and Trust." In any complex society there are multiple levels of interdependence between people both as individuals and with respect to the social or professional roles they may occupy. Normally, we assume that others are both competent and well-motivated. We are prepared to assume that the building we are in was well-designed, well-built, and well-maintained; that the food we eat has been properly grown, properly prepared, and properly presented. None of us is able to do everything or to know everything such

that interdependence is unnecessary. But this interdependence is almost always just below the surface of our perceptions. Because buildings do not collapse, and because we do not routinely suffer from ptomaine poisoning, we are not aware of how much we trust others all the time. Scholarly disciplines serve, more than anything else, to discipline our trust; this occurs in the vocabulary we deploy, the ideas we advance, and the standards of proof we accept.

When someone who is a law professor, for example, speaks to other law professors in the language of sociology, the conditions for trust are usually absent and the discussion is greeted sceptically. Note the point: the lack of trust is not in a sociologist, nor is it really in sociology; it is in the capacity we have to evaluate the degree of trust that our erstwhile law-professor colleague should be afforded extra muros. In a parallel fashion, when the sociologist speaks to the law professor, assuming the credentializing of the speaker has been assured, the reaction is rarely one of mistrust. Rather it is one of irrelevance. The mistrust is not personal but epistemic. We are prepared to accept the messenger, and listen to the message, but not to afford it the commitment of our own lives.

There is, of course, the well-known phenomenon of failing to respect the role-morality which is adopted by those who must perform a role; a dean of a faculty has a role to play that will sometimes lead to conflict with professor-colleagues who were previously good friends. Recognizing the inevitable and unavoidable differences of perspectives flowing from roles is central to modern social living. In the disciplinary perspectives, recognizing the similar role-moralities that attend to disciplines is a necessary step to genuine transdisciplinarity. The greatest obstacle to transdisciplinarity is a failure to trust those with whom we work; and the single most important determinant of this failure is our failure to trust ourselves. A failure to make ourselves vulnerable in the presence of the disciplinary other induces us to distrust the sincerity even of the disciplinary other who renders herself or himself vulnerable to us.

To come full circle, I will conclude by claiming that the lessons of transdisciplinarity are no different than the lessons of Babel. There can never be a workable Esperanto: the new discipline of transdisciplinarity cannot be a priori; the more it has a priori contours, the more it resembles traditional disciplines. Even a lingua franca can never be a closed normative system; Latin soon developed its nativist variants and its foreign dialects. Today, we are reliably informed that there are thirty-seven distinct forms of English, not counting innumerable "pidgin" versions. Where the new discipline of transdisciplinarity is dominated by a lingua franca, it risks becoming a theology; disciplinary pidgins cluster on the margins of the "true." Transdisciplinarity is neither adherence to the ex ante, nor subservience to a predominant ex post. Transdisciplinarity is how we symbolize the human desire to communicate across the vast intellectual spaces over which we have been scattered by our disciplinary hubris. And a first step in symbolizing that desire to communicate, is

to recognize the cultural groundedness of all that one does – including the writing of papers about transdisciplinarity.

PART TWO: EXPERIENCES WITH TRANSDISCIPLINARITY

Let me continue in this vein by questioning the manner in which this section of our short papers is to be structured. How does one measure the success or failure of transdisciplinarity? What is success? What is failure? I do not believe that there can be instrumental answers to these two questions. Any measures of success or failure will all be arbitrary. They will be above all measures of our own perceptions of what success or failure is; I may believe a transdisciplinary endeavor to have been a failure while my co-researcher may have considered it a success. And paradoxically, notwithstanding that the effort itself was one of transdisciplinarity, the measures of success of failure will typically be those drawn from the existing disciplines of the participants. That is, without a separate set of "transdisciplinary" measures of transdisciplinary success or failure we risk judging the effort by our inherited structures of knowledge and value.

From this last observation, one can derive a significant corollary. Transdisciplinarity is in the eye of the beholder. If one has a measure of any given transdisciplinary endeavor, necessarily one has succeeded. If one has no measure, necessarily one has failed. In economics and sociology, success or failure is procedural; transdisciplinary success or failure is also procedural. With this caveat, let me briefly report on a few of my own experiences in the domain. Over the past twenty years, I have had several experiences with transdisciplinarity in a variety of institutional settings: in the classroom; in classical research; in other scholarly activities; in the administration of the university; in non-university, governmental work; and finally in community work.

SUCCESSES

In the inventory that follows I will be pigeon-holing experiences into several different categories recognizable by every university professor. Of course, in doing so I am revealing a reluctance to embark fully on transdisciplinarity; my categories are those of an existing discipline. Be that as it may, these categories are at least familiar to those who partake of the disciplinary communities that comprise a university: teaching; research; contributions to the university community; contributions to the scholarly community; and contributions to the broader community outside the university or the discipline.

TEACHING
My only sustained experience with transdisciplinary teaching was in 1982–1983, when I taught a seminar entitled "Law, Language, and Ethics"

with an intellectual historian/philosopher to a group comprising predominantly, but not exclusively, law students. The experience was enriching for me, because the two seminar leaders brought disparate backgrounds to bear on the issue but shared one commonality. Both of us had studied classical philosophy – particularly epistemology – and were thus equipped to excavate the knowledge structures of the other. The shared metadiscourse, plus the fact that neither of us was reticent about asserting our framework made for a challenging seminar committed to a critique of traditional legal epistemology.

RESEARCH
Since 1991, I have been a member of a four person inter-university, bilingual, and multi-disciplinary research team comprising a sociologist, two law professors, and a political scientist. The title of the group, which also annually comprises about twelve graduate students from both universities is *Théories et émergence du droit*. Surprisingly, the success of this group as an interdisciplinary endeavor comes more from the clash between the two lawyers than anything else; the one is primarily a civil-law-trained state positivist; the other is primarily a common-law-trained legal pluralist. The sociologist and anthropologist, in effect, conduct field studies on our contrasting reactions to the artifacts we discuss as well as locate our own understandings within their disciplinary location. Here, the success, I believe, derives from the relatively deep knowledge that all members have of the disciplines of the others, and the fact that while the law professors may diverge from each other, and the sociologist and anthropologist may attend to a conception of law distinct from each other and from the two law professors, each perspective enriches the other.

CONTRIBUTIONS TO THE UNIVERSITY
From 1976 to 1979, I was the director of the Community Law Programme at the University of Windsor. The Community Law Programme was a public legal education initiative that required support from faculties of law, arts, and social work. Whatever transdisciplinarity was manifest in this endeavor succeeded because of abnegation; we simply shared the same offices (and for three summers) the same travelling Winnebago bus throughout northern Ontario. Rather than true transdisciplinarity by direct collaboration, it was transdisciplinarity by osmosis. The experience was the opposite of my experience in teaching; rather than assertion around a common knowledge pool, it rested on quiet acceptance of alternative knowledge bases.

CONTRIBUTIONS TO THE SCHOLARLY COMMUNITY
From 1995 to 1998, I was editor-in-chief of the *Canadian Journal of Law and Society*, a multi-disciplinary journal whose editorial-board members were political scientists, geographers, historians, criminologists, sociologists, anthropologists, law professors, and economists. The success of the enterprise was, I think, due to the fact that none of the board members was actually required to

adjust his or her own intellectual premises in order for the endeavor to work. Like the Community Law Programme, it was transdisciplinarity by osmosis.

FUNDING ADJUDICATION

In 1996 and 1997, I sat on Adjudication Committee 11 of the Social Sciences and Humanities Research Council of Canada. This committee assessed research funding applications in law, political science, and public administration. It comprised two law professors, two public administration professors, four political scientists, and one person designated as "non-disciplinary." By the end of the week, and after having reviewed in detail some 150 research applications, a sense of transdisciplinarity – and especially a sense of the criteria for measuring success – began to emerge. The committee had developed its own disciplinarity, which was not that of law, nor public administration, nor political science. Indeed, having served for two years, I would be inclined to say that each year, Adjudication Committee 11 re-invents its new transcendent discipline. In both years, I would judge the endeavor to have been a success; by Friday, we had a framework for assessment, a methodology for its deployment, and, most importantly, a sense of how to talk about our divergent evaluations in a reasonably shared language.

CONTRIBUTIONS TO THE COMMUNITY

Between 1989 and 1991, I was the president of the Groupe d'étude sur l'accessibilité à la justice of the Quebec Ministry of Justice. While not as multi-disciplinary as some other such commissions of inquiry, our research staff brought diverse disciplinary experiences to the table, and our consultations were organized along diverse disciplinary criteria. Again, this seems to me to have been a reasonably successful endeavor. Why? Two reasons. First, the commission had a specific object, which was external to the direct intellectual interests of any of its members: how to improve access to justice in Quebec. Second, the audience of the commission was non-disciplinary; the minister of justice did not care to learn the analytical frame that each of the commission members brought to the inquiry. Because no one was interested in promoting a dominant disciplinary perspective, no one else was interested is asserting a competing disciplinary frame.

FAILURES

It would be nice if I could say that all my experiences with transdisciplinarity were unreservedly successful. This is, however, simply not the case. In fact, my single most intensive and longstanding transdisciplinary experience was largely a failure. This was my ten-year connection with the Law and the Determinants of Social Order Programme of the Canadian Institute for Advanced Research, between 1987 and 1996. For five of those years – 1989–1994 – I was director of the programme.

The ambition of this research think tank was noble: to understand how law functions in complex, heterogeneous societies; to uncover the contribution that law and "thinking like a lawyer" makes to establishing the conditions under which peaceful and productive social life is possible; to understand the relationship between the unequal distribution of social power and institutional injustices reinforced by State action; to consider the internormative trajectories of rules and roles from State to non-State and from non-State to State institutions; and finally, to understand how a legal pluralist perspective can elucidate the central problems of normativity – legitimacy, procedural due process, substantive justice.

The members of the programme were economists, statisticians, sociologists, social theorists, criminologists, anthropologists, and law professors. Unfortunately, the research team was not entirely constructed from within, but was generated by the institute's research council. I soon discovered that forced polygamy does not make for productive domestic life. Not once in ten years were we ever able to agree on what the central objectives of the programme were or on the methodologies by which they would be attacked. The language of developing an "intellectual framework" for inquiry was everywhere; the evidence of a real attempt to do so was nowhere.

The causes of the failure were several. Three now strike me as key. First, coerced transdisciplinarity cannot work. It is typically met by a refusal of collaborators to budge off their own projects and their own perspectives; each wants to colonize the other. Second, where transdisciplinarity is the object of the endeavor, it will fail. Persons from diverse disciplines attacking complex problems without disciplinary arrogance will develop a dialogue over time that constitutes a new "trans-discipline"; when they retreat after sporadic endeavors back into their own disciplinary rabbit-holes, the fragile new discipline withers. Third, transdisciplinarity is not just a theoretical exercise. People who "talk-the-talk" often cannot "walk-the-walk," even in their own disciplines; critical legal theorists who trash law but are themselves incapable of transcending law by first mastering law appear to be those most attracted to advertisements of transdisciplinarity, but they are, I believe, its worst enemies.

TRANSDISCIPLINARITY IN THE SERVICE OF PRESSING SOCIAL ISSUES

I imagine that every contributor will present his or her pet project here. I am no different. But let us bear in mind that the whole concept of "pressing social issues" is a disciplinary construct. To signal a pressing social issue presumes a criterion of discovery and identification, a lens of analysis to differentiate that issue from the rest of the "buzzing, blooming confusion" that is the world, and a methodology for organizing the rest of the world around that issue.

Having said this, I believe that the commodification of humanity is the dominant late-twentieth-century challenge for capitalist (and post-capitalist)

societies. I certainly do not want to presume to speak for the billions of the world's population about whose socio–moral–economic conditions I am only dimly aware. But as a Canadian, I am distressed by the transformation of "methodological individualism" into a policy prescription across many domains, which presumes human beings to reflect the very character, aspirations, and motivations presumed by this analytical heuristic. The ramifications for families, communities, workplaces, ethnicities, religions, the environment, bio-technology, and political states are enormous. But they are not even being discussed.

If, as I have argued, transdisciplinarity is really a new discipline, my hope is that it can be nurtured so as to offer up a new vocabulary and a new conceptualization of what it means to be a human being. If this proves possible, we will have the intellectual and moral resources to resist utilitarian instrumentalism played out in market transactions as our sole measure of human value.

ACKNOWLEDGEMENTS

2.2 Transdisciplinarity and Transformative Praxis

Upendra Baxi

Reworking modes of knowing is a constant human endeavor. But the last half of the second Christian millennium has witnessed inversions in ways that even the three great masters of suspicion in Western thought (Marx, Freud, Nietzsche) could have scarcely anticipated. These transformations have occurred through three salient modes: visions of the "end" of everything we thought was enduring; the collapse of disciplinary boundaries; and a renaissance of transformative practices of politics. That something we choose to name "transdisciplinarity" is, I think, a confluence of all these processes in interplay.

ENDOLOGIES: FORMAL, MATERIAL, AND ECLECTIC

The notion that things, states of affairs, bodies of knowledges, modes of thinking, and the dominant constructions they entail are all at their end or have ended is a prominent discursive theme in contemporary reflection. Ever since Michel Foucault declared the End of Man in 1967, the "end" of almost everything that matters has been ceaselessly proclaimed. Thus, we hear of the end (or death) of God or the sacred; history (Fukuyama 1992); ideology (Gibson-Graham 1996); science (Horgan 1996); politics (Ohmae 1996); the author (and, therefore, of authority), law and constitutionalism (Fitzpatrick 1999); the family, farm, and generally of "work." The discourse on endings is itself endless. Everything is at an end excepting that genre of work that I name as endology (Baxi 1996), often marked both by endomania (febrile dedication to proclaiming the end of this or that) and endolatry (worshipping the icon of the end as a celebration of a new beginning of the end).

The practitioners of endology vary in creative range and depth and their political unconscious. And the bodies of reflexive discourse they produce are susceptible to many forms of political appropriation. This essay, obviously, cannot perform the analytic and narrative tasks that belong to a treatise. But