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## Surfing the waves of learning: enacting a Semantics analysis of teaching in a first-year Law course

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### ABSTRACT

Students' ability to build knowledge, and transfer it within and between contexts is crucial to cumulative learning and to academic success. This has long been a concern of higher education research and practice. A central part of this concern for educators is creating the conditions that enable their students' deep learning, as this is an area of significant struggle for many students. Legitimation Code Theory, in particular the dimension of Semantics, is proving useful in examining the kinds of conditions that may be necessary for students to build disciplinary knowledge cumulatively over time. Using illustrative data from one case study, this paper suggests that the conceptual tools offered by Semantics can provide academic lecturers and academic development staff with a set of conceptual and analytical tools which can enable them to 'see' and understand the ways in which knowledge can be cumulatively acquired and used, as well as the possible gaps between what they are teaching and what their students may be learning. The hope is that these new insights will provide new directions for change in teaching and learning where these may be needed.

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## Introduction

If you asked a broad cross-section of lecturers teaching undergraduate students today what their goals for teaching and learning are, they would probably mention students' need to learn holistically and deeply (Biggs, 1999), to connect learning between courses and years of study, and to build knowledge over time, rather than simply seeing each assignment or course as a discrete learning event that has little bearing on other learning events. In higher education research and practice terms, deep learning would be made more possible through students successfully transferring (Burke, Jones, & Doherty, 2005; Salomon & Perkins, 1989) their learning (skills, knowledge, understandings and so on) from one context to others and using it in relevant ways. In addition to shifting towards a mode of engagement that goes beyond learning only what is required to pass assignments or tests, deep learning requires that students become more intrinsically motivated by learning for personal and intellectual growth, rather than externally motivated by grades and passing assignments and tests (Biggs, 1999).

Students' (in)ability to learn deeply through transferring learning successfully is a significant subject of debate in education (Christie & Macken-Horarik, 2007; Maton, 2009, 2014). There are two issues at stake here. The first is the term 'transfer' itself, which tends to be connected to much-criticised 'skills' discourses in higher education research; the term is also used differently depending on the context, and the kinds of learning students are engaged in. A generic notion of transfer tends to assume an autonomous student learner who is open and ready to receive and learn a range of knowledge and generic skills (Boughey, 2002; Lea & Street, 1998), packing a metaphorical suitcase as they move through their degree courses, and unpacking knowledge, skills and so on selectively in different locations according to their ability to understand what is required. This packing and unpacking is further complicated when literacy 'skills' students are expected to use to make connections are construed as generic, and outsourced to literacy development modules outside of the disciplinary curriculum (Jacobs, 2013). The second issue stems from this; the bulk of the responsibility for becoming a deep learner, making connections and packing and unpacking the suitcase of knowledge, skills and dispositions effectively is placed onto students themselves, with lecturers cast as facilitators of a learning journey students should be able to navigate with minimal coaching and guidance (O'Neill & McMahon, 2005). In contexts where students are entering higher education from a range of home, school and literacy backgrounds (Kapp & Bangeni, 2009; Lillis, 2001), entering disciplines that are entirely new to them, and needing to adopt a mode of learning different from that which helped them through secondary school (Boughey, 2013; Kapp & Bangeni, 2009), this is indeed problematic.

Research in the academic literacies field since the early 1990s has shown that the notion of the autonomous student learner is a problematic one (Boughey, 2002; Jacobs, 2007; Lillis, 2001). Undergraduate students do not necessarily always see and understand the tacit 'rules' that govern which skills, knowledges and practices apply in different contexts and disciplines, nor do they necessarily know how to navigate those rules and apply a nuanced understanding of them in their own learning (Lea & Street, 1998; Lillis, 2001). One of the reasons could be that the purpose of applying knowledge in simulated contexts in higher education is different to that in the workplace (Steyn, 2014). Another could be that, in teaching, students are not always clearly shown how to connect more abstract concepts with their more contextualised applications, even though this is argued to be essential to enable the conditions for transfer to occur (Billing, 2007). Rather than seeing what they are learning as connected parts of a system of meaning, or as related to eventual professional worlds of practice, students may rather segment the curriculum into sets of knowledges or skills needed to pass tests and exams, especially in early undergraduate years where they may retain school-based approaches to learning that are focused narrowly on assessments (Kapp & Bangeni, 2009). What is needed for deep learning to occur is for students to move from being users of knowledge to being creators of new knowledge, integrating and building on prior knowledge, skills and dispositions as they do so, yet these shifts take time and are often not made as overt or explicit to students as they could be (Christie & Macken-Horarik, 2007; Jacobs, 2007, 2013).

A more useful term to capture the notion of transfer and deep approaches to learning is Maton's term 'cumulative knowledge-building' (2009, 2014). Cumulative knowledge-building or learning is understood as building knowledge both within and across contexts such as a course or disciplinary field, and can also be extended to cover the transitions

from higher and further education into the workplace. The kind of learning denoted by the term ‘cumulative’ could be described as relational, connected learning in the sense that students should be able to seek and find links between concepts and their application, and between different concepts and different types of application where relevant, as well as between concepts used across disciplinary contexts (Clarence, 2014). This paper postulates thus that deep learning is cumulative, connected learning where students are shown how to draw on prior learning while engaging with new learning to connect up knowledge, skills, practices and dispositions to build larger ‘constellations’ of meaning (Maton, 2014, p. 130, also see Chapter 8) – epistemic, dispositional and practical – that they can enact and continue to develop in professional practice and future learning.

How to enable and enact cumulative learning is not just a question for student motivation, or approaches to learning; it is a question for teaching. Curricula, pedagogic practices and assessment tasks that enable and encourage cumulative, rather than ‘segmented learning’ (Maton, 2009, p. 43), can better clarify for students what needs to be transferred or connected, how, when, and for what purposes. However, while cumulative learning is indeed one of the most important goals of higher education, many students struggle to achieve this successfully over the course of an average undergraduate degree, leading researchers to argue that segmented learning is a ‘spectre’ that haunts higher education (Maton, 2009, p. 106). How do we lay this ghost to rest? How do we move more students from superficial and segmented engagement in their learning to an increasing ability to connect, relate and cumulatively build knowledge and learning in the desired ways?

A useful starting point is an analysis of teaching in the classroom that offers us a new way of looking at what lecturers are doing when they introduce, unpack, demonstrate and discuss new knowledge. This analysis can offer insights into whether and how teaching practice itself may be inadvertently segmenting learning, or encouraging a less ‘deep’ or cumulative approach to learning. It can also offer us a way of seeing what lecturers are doing when teaching is connecting with and cumulatively building on prior learning more effectively, so that these moves can be made more consciously, and more often.

This paper illustrates the enactment of one set of conceptual tools drawn from Legitimation Code Theory (LCT), to enable an analysis of curriculum and pedagogy that can shine a light onto different kinds of knowledge-building practices, and how teaching can either enable or constrain cumulative student learning. Using one academic discipline as an example, the paper will show how harnessing the analytical tools offered by the LCT dimension of Semantics, both lecturers and students alike can learn to ‘surf’ the waves of learning and create more enabling educational environments for cumulative knowledge-building and meaning-making.

The paper begins with a brief discussion of relevant research in higher education studies, before moving on outlining the conceptual framework for this research. The penultimate section enacts a Semantics analysis of selected classroom teaching data, before the paper concludes by offering initial thoughts on how this kind of analysis could be enacted in other disciplinary contexts.

## Thinking in binaries in higher education

One of the most influential ‘binaries’ in higher education studies, in addition to the well-known ‘high-road’ and ‘low-road’ transfer (Salomon & Perkins, 1989), is ‘deep and surface

learning' (Biggs, 1999). Although these kinds of binaries are not necessarily set up as two opposite states of being, studies do tend to position them as 'versus' the other, with one often valourised over the other (see Biggs, 1999; Smyth, 2003). Biggs (1999), for example, argues that surface learning is largely a result of passive students and teacher-centred teaching, and that deep learning should be valued and encouraged by focusing on students' needs in learning and students' active engagement with knowledge. Salomon and Perkins (1989) argue that students should be encouraged away from what they term 'low-road' transfer where students are unable to move beyond local or limited contextual connections in learning, towards 'high-road' transfer of knowledge where they are more likely to be abstracting, generalising and making connections.

These binaries are powerful organising mechanisms in much thinking and research in teaching and learning. They can be a useful starting point, but one problem with binaries is that they enable a view of only two states or positions, and not all teaching, learning, knowledge and knowing can be so narrowly compartmentalised (Maton, 2014). If I focus on only one side of the binary, for instance, I may fail to see things that fall outside of it, and my curricula, teaching or assessment approaches constructed and enacted on the basis of a one-sided view of learning will be partially sighted. For example, a student-centred approach to teaching that valourises students as active constructors of their own knowledge and lecturers as facilitators may view a teacher-centred approach with lecturers as experts there to provide access to disciplinary knowledge and skills as problematic, and devalue related aspects of teaching or learning that may be associated with it (see Maton, 2014, Chapter 8). However, this move may obscure aspects of the student-centred approach that need careful critique, such as its potential inability to see knowledge as a differentiated object of study (McKenna, 2013). Likewise it may obscure valuable aspects of a teacher-centred approach, for example a view of lecturers as having expert and powerful knowledge that can help facilitate greater epistemic access for students within their disciplines (Jacobs, 2007). Binaries, in other words, limit choices and can obscure important aspects of either side that may well be in need of critique and development.

Binary thinking further separates actions or positions we take into seemingly static states of being – usually 'charged' either positively or negatively according to our beliefs and values, or what is valued within our working contexts (Maton, 2014). It is difficult, within a binary approach, to imagine ways of moving from the negative to the positive state, for instance, from surface to deep learning (Biggs, 1999). Further, it is difficult to imagine being in more than one state at one time, for example, approaching learning in a way that exhibits both surface and deep approaches or characteristics. Biggs' formulation of deep and surface learning, and accounts of research into teaching that draw on this (Hay, 2000; Smyth, 2003), tend to promote more of an either/or than both/and kind of approach (Maton & Moore, 2010). It could, for instance, be argued that surface learning, or low-road transfer can be part of learning how to learn more effectively, and that, to borrow Biggs' personifications of deep and surface learning – Susans and Roberts respectively<sup>1</sup> – all of us exhibit characteristics of both kinds of learning, depending on the context we are in and the kind of learning we are engaged in.

Rather than thinking in terms of binaries, and reinforcing notions of students and lecturers needing to valourise one state and reject the other, a relational (both/and) approach offers us more scope for avoiding positive/negative dichotomies or binaries, and for reflecting on teaching as helping students to decide when to employ which strategy, to

what end, and also to move between these binary ‘states’ as students move through their learning, within university and after graduation. To find out what counts as the ‘right’ kinds of learning, and therefore what kinds of teaching approaches may be needed, lecturers and academic developers have to be able to look not just at the students and their learning activities and needs, but also at the knowledge and the disciplinary environment that they are learning within. To see disciplinary environments in terms of their underlying organising principles or goals, and how these work to shape what counts as ‘theory’, ‘concepts’ and ‘context’ or ‘application’, we need conceptual and analytical tools that can go beneath what we see on the surface. For these tools, the paper now turns to LCT.

## LCT and knowledge

To become part of a disciplinary community, and learn to think and know and act as a practitioner or knower in that field or community, students need more than just knowledge and related skills and relevant dispositions. Becoming part of a disciplinary community, such as law, and learning to think, speak, act and write in ways that are recognised and valued by other members of the community (Gee, 1989), such as lawyers and other legal professionals for example, requires an ability to interrogate the way that knowledge is cumulatively acquired, used and eventually produced within the discipline (Maton & Moore, 2010). In other words, students need to know what they are learning about as well as why the knowledge is important, how the different pieces fit together to make a coherent whole, and where the smaller knowledge, skills and dispositions they are acquiring fit within the bigger intellectual field or discipline, inside and beyond the university. Thus, questions about knowledge as an object of study are important, and need to be asked and answered in higher education research about pedagogy and curriculum. Notably, questions about how students are learning cannot be asked separately from what they are learning, and the roles and purposes that the knowledge within the curriculum is playing within the academy, and within the wider intellectual fields of knowledge outside of it.

LCT is a realist sociological ‘toolkit’ (Maton, 2014, p. 15) that has, at its heart, an understanding of knowledge as being emergent from but not reducible to the contexts in which it is generated (Maton & Moore, 2010). Drawing on critical realism (Bhaskar, 1998), LCT’s position on knowledge holds that while human beings create knowledge about the world from within particular social and historical contexts, and therefore that this knowledge is always partial and fallible, the knowledge is constructed about an ontologically real world and therefore we can judge certain claims about that world to be more relevant, true or valid than others. A realist theory of knowledge makes clearer the bases on which knowledge claims in disciplines can be judged and weighed by students as they navigate disciplinary discourses (Kotzee, 2010). This judgement is important for students to develop over time as they build knowledge within their disciplines, and work out how different parts of knowledge relate to one another to build meaning.

LCT’s principal goal is the analysis of the organising principles or underpinning ‘rules of the game’ that shape and change intellectual and educational fields of production and reproduction of knowledge (cf. Bernstein, 2000). In other words, the conceptual tools LCT offers can enable an analysis of both knowledge and knowers within social fields of

practice by enabling the analysis of the ways in which these fields are organised and how knowledge and knowing are understood in educational practice. This paper will use the dimension of Semantics to reveal one set of organising principles, or logics, underpinning the field of legal education.

### *Semantics*

Semantics is a dimension of LCT that enables research to explore the kinds of pedagogic practices that enable and constrain cumulative learning (see Maton, 2013, 2014). Briefly, Semantics has semantic gravity and semantic density as conceptual tools for exploring the kinds of teaching and assessment that are enacted, their aims, and the kinds of learning that could or should be happening (Maton, 2013, 2014).

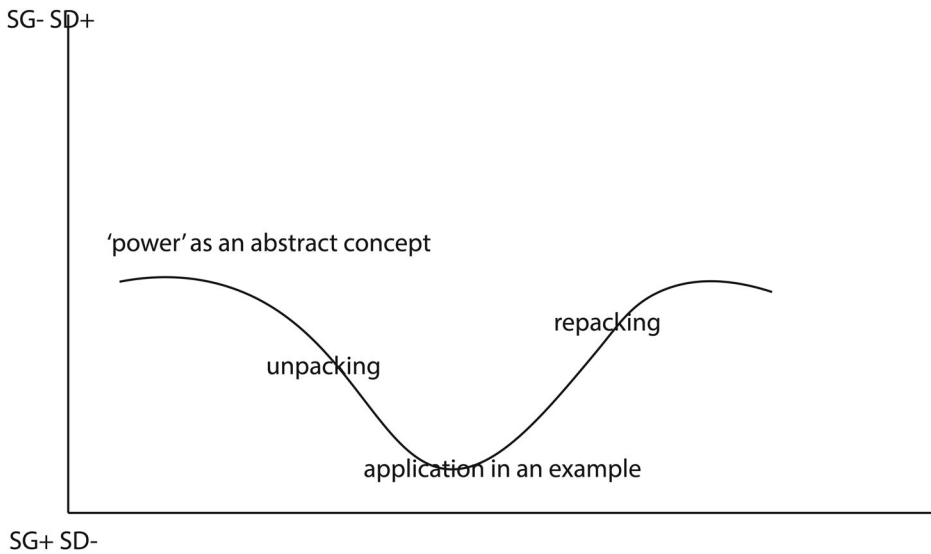
Semantic gravity (SG) describes the degree to which meanings are tied to their contexts (Maton, 2014). Weaker semantic gravity describes a situation where meaning is less dependent on context, for example where one is working with abstract, conceptual or theoretical knowledge. Stronger semantic gravity describes a situation where meaning is more dependent on its context, for example when theory is being applied to a problem or task (Maton, 2014). The ability to accumulate knowledge and transfer it between and across contexts and tasks is compromised when teaching and learning leans too far towards weaker or stronger semantic gravity to the exclusion of the other; in other words it can increase the likelihood of segmented, or surface, rather than cumulative, deeper learning (Maton, 2009).

Semantic density (SD) refers to the concentration of meanings within socio-cultural practices, whether these are comprised of terms, concepts, gestures, symbols or phrases (Maton, 2014). Stronger semantic density denotes a symbol or term that has a greater concentration of meanings condensed into it, whereas a symbol or term that has weaker semantic density has fewer meanings concentrated within it. These meanings can relate to emotions, feelings and sentiments as well as to empirical facts and features of the concept or term (Maton, 2014).

Semantic gravity and semantic density are realised in terms of their relative strength or weakness, and brought together these two organising principles create semantic codes that reveal combinations of stronger and weaker semantic gravity and semantic density together. These codes shift and move over time as semantic gravity and semantic density strengthen and weaken in relation to one another. These movements form what LCT terms a 'semantic wave', which can be used to map a teaching and learning event, such as a lecture, part of a lecture or a whole series of lectures (see Figure 1). Inverse movements of semantic gravity and semantic density – where SG is stronger at the same time as SD is weaker for example – are potentially important for cumulative knowledge-building, as we shall see in the following section. It should be noted, here, though, that semantic gravity and semantic density do not necessarily strengthen and weaken inversely (Maton, 2013), although it is these kinds of waves, for the purpose of illustration and brevity, that will be focused on in this paper.

Relative strengths and weaknesses in semantic gravity and semantic density need to be mapped within particular teaching and learning contexts; what counts as 'contextual' and 'conceptual' in academic disciplines is not uniform (Clarence, 2016). Also, depending on the level at which students are working, and the topic, module or subject they are studying, semantic waves may need to begin and end in different places. For example, with more





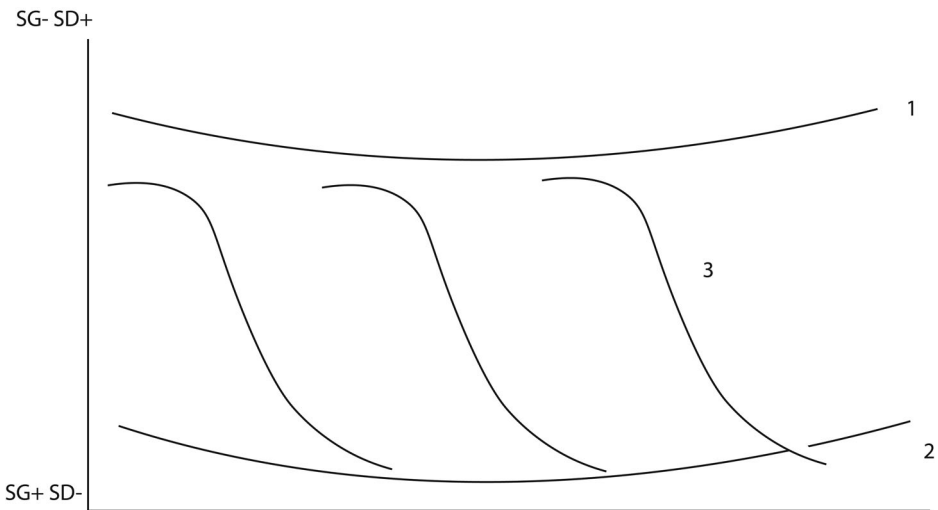
**Figure 1.** A generic semantic wave (Clarence, 2016, p. 127).

loosely defined problems, the wave may begin lower, with stronger semantic gravity and weaker semantic density as the context of the problem is discussed in detail, before shifting up towards weaker semantic gravity and stronger semantic density as students are encouraged to find more principled ways of understanding the problem, and search for a solution. Thus, there is no ideal wave to strive for. What is important is a notion of lecturers modelling for students how to *surf* waves as learning moves between what is contextual and conceptual within the discipline, weaving and meshing prior and new knowledge together. Through surfing up and down waves of varying complexity and steepness over time, lecturers can deepen and consolidate students' understanding of how knowledge in the discipline is created, debated, critiqued, updated and used in relevant ways.

When teaching demonstrates a broken wave, where the first part of the wave referred to above (the unpacking) breaks off without the repacking to create one 'cycle' of the wave it can result in what could be called 'down escalators' (Figures 2 and 3) (Maton, 2013). Conversely, one could also conceive of 'up' escalators where one starts with a context-dependent example and moves towards the principle or concept, before breaking the potential wave and moving to the next example/concept combination. Further, where meanings are either too generalised and context-independent or too locked into particular contexts, the result can be high or low flatlines (Figure 2, 1 and 2 respectively), where students may be able to account for either the theoretical (high flatline) or applied understanding (low flatline) of a concept or idea, but may struggle to connect the two together either coming down into a contextualised application, or lifting out of the context to see the concept more abstractly and connect it to other contexts and problems, respectively, thus creating a waving motion (Maton, 2013).

Central to the argument made in the following section is the notion of *movement* – up and down in waves of varying steepness is significant for cumulative learning. However, the steepness or complexity of semantic waves is less of a concern in this paper than is the attempt to use the concept of a dynamic wave metaphor to advance an argument for what this kind of analysis can illustrate about teaching in relation to its ability to enable





**Figure 2.** Heuristic example of generic down escalators, and high and low flatlines.

or constrain cumulative knowledge-building over time. The ultimate aim of this analysis is to speak back to the notion of binary thinking and the teaching that evolves from that, to show that deeper and more surface modes of learning are actually on a continuum, and both have their place in a relational understanding of learning as both/and, rather than either/or. Teaching enabled by a relational, rather than binary, understanding of learning can better create the conditions that are necessary for cumulative learning over time.

### Semantics in action in a first-year Law course

The case study is a first-year law course called the Law of Persons taught by two lecturers in the Private Law department in a historically disadvantaged South African university. This course is a foundational course for further study in the LLB degree, and introduces students to core concepts they will return to and build on, such as legal subjectivity and legal personality.

### Methodology

Data reflected on in this section come from teaching observations, including detailed fieldnotes and video data, over the course of the first semester in 2013. The course is relatively similar each year in structure and content, although content is updated as the law changes. The researcher attended all lectures, writing detailed fieldnotes at each lecture, which were later formally transcribed and coded using an analytical framework developed from the conceptual framework provided by LCT, detailed above. Discrete units or topics of study were video-recorded, and this data were also transcribed and coded alongside the fieldnotes. The videos captured verbatim classroom discourse, but it was unfeasible to transcribe three lectures per week for 14 weeks, hence the balance between notes and recordings.

## Analysis and discussion

As space is limited here, only examples from one set of lectures on a tricky concept, the *nasciturus fiction* (which accords rights to an unborn foetus in specific legal situations), will be analysed.

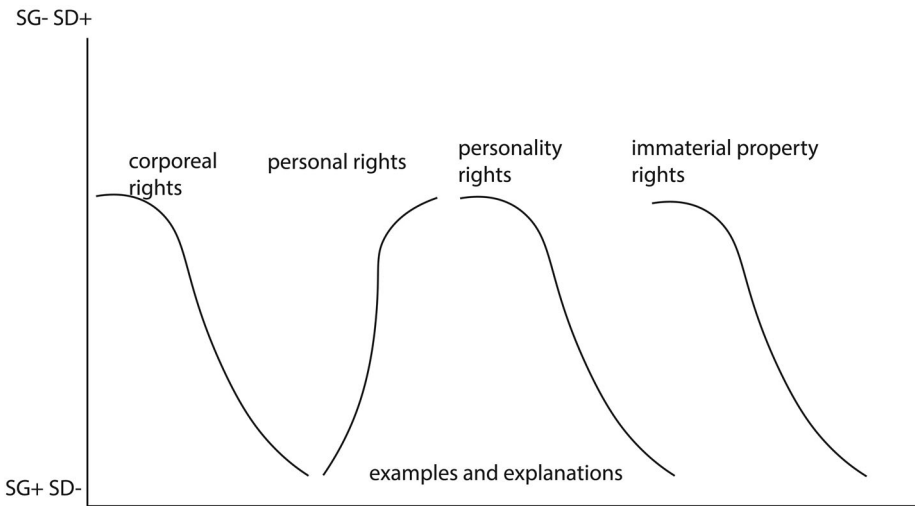
Prior to the classes on the theory and application of the *nasciturus fiction* the students were taught about legal subjectivity. A central concept drawn into the application of the *fiction* in case law involves deciding whether the unborn foetus, or *nasciturus*, can be regarded as a legal subject in order to claim certain rights, for example inheriting from an estate. The four basic rights that a legal subject has conferred on them when they acquire legal personality at birth were taught thus:

[Lecturer A presents] 4 categories of rights that legal subjects can have. Starts with corporeal rights. ‘When a subject has ownership over a corporeal object he has a real right’. ‘Who is that right enforceable against?’ She uses as an example her bottle of water. Tells students ‘you have to get your own, this is mine, you have to respect my real right to own my water bottle’. Moves on to 2nd category of personal rights. She starts with a common example, hiring a babysitter to look after her kids – if the babysitter performs her duties well, she can expect to be paid – this is a personal right. Moves on to the next category, personality property – ‘an aspect, for example, your dignity or honour ... that attaches to who you are’. She gives an example of being spied on by a peeping Tom – this may infringe on her dignity more than it might for her neighbour, thus this is a personality right. She then introduces the 4th category, immaterial or intellectual property – ‘an intangible product of the human mind’. For example, ideas. The idea a person has is a legal object, rather than what the idea becomes, and these rights are enforceable against everyone. She then puts up a table listing all four categories of rights, and their definitions along with examples [on a slide]. (Field notes, 2013)

If we represent this part of the lecture as a semantic wave, looking at movements in the extract between stronger and weaker SG and SD, we can see that Lecturer A is presenting these rights as a series of escalators, or as a list. Each right, apart from personality rights, is introduced in more abstract terms (weaker SG and stronger SD, as it is packed with many potential meanings that need to be explained), and then it is simplified and unpacked, strengthening the SG and weakening the potential SD each time (see [Figure 3](#)). Personality rights, where the lecturer starts with a context-dependent example, before moving to the principle or concept, represent an up rather than down escalator, moving from stronger SG and weaker SD towards weaker SG and stronger SD. Even though these rights can be drawn into a larger or longer wave in which they are applied, the message students may receive is that these rights can be studied or memorised as a list, rather than incorporated into a larger conception of legal subjectivity. Therefore, even if they are connected to later discussions students may still segment these four categories of rights as a list, and may not see how to weave them into an abstract and semantically dense conception of rights as both theoretical and applied parts of a person’s legal subjectivity.

A week after legal subjectivity and the rights of legal subjects is introduced, both lecturers teach the concept and application of the *nasciturus fiction*, which students struggle with each year according to the lecturers. They thus spend at least three lectures and one tutorial teaching this concept.

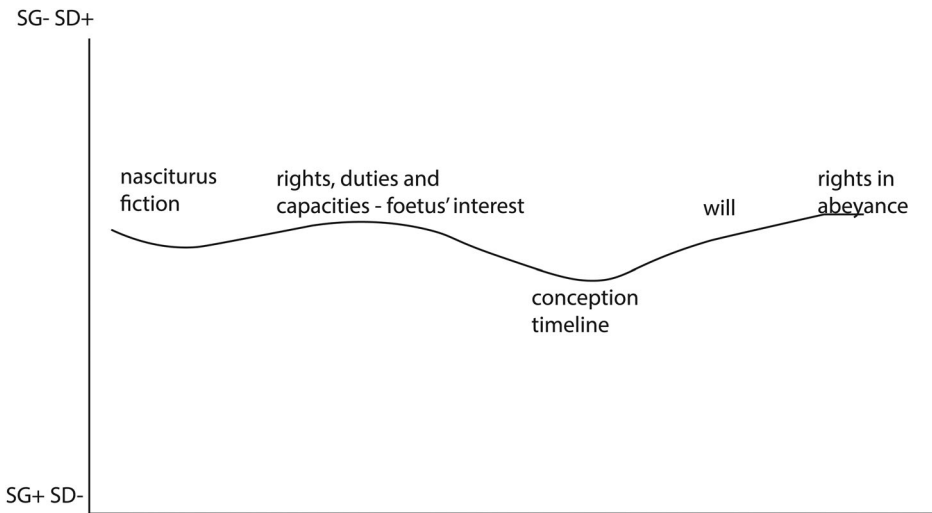
Lecturer B: So let’s proceed with the protection of the unborn foetus by means of the *nasciturus fiction*. As you know [referring to slide up] legal personality begins at birth. So prior to



**Figure 3.** Heuristic escalators on legal rights.

birth that foetus is not regarded as a legal subject, and therefore, because that foetus is not regarded as a legal subject such foetus cannot have rights, duties and capacities ... However, in terms of Roman law it was recognised that there might be situations where the unborn foetus might have an interest ... So what they would do is they would employ this fiction and by employing this fiction they would say that at the date of conception we will treat that child as having been born. Coz remember this is the scenario now (writing on board): the child has been conceived ... This is the birth (drawing a timeline); this is where the child is going to be born, but during this period between conception and birth the law recognises that situations may arise where the child might have an interest. So what will we do? They will employ this fiction and they will say that if the child was conceived by the time this interest began or came into effect or was available, then we will treat that child as if he was already born ... for example if that child could be a beneficiary under a will, ok? So if such a situation arises, the law protects the potential interest of the nasciturus ... it will only become definite at ... birth ... So what do we do with that interest? ... It's kept in abeyance. In other words it's suspended until ... the child is born in the legal technical sense. In other words those common law requirements are met. (Lecturer B, video, February 2013)

If we follow this presentation of the broad concept, bearing in mind that students have been introduced to legal subjectivity and rights quite broadly before this, possibly in a segmented way, and that this is the first time they are encountering this new concept, we can see that there is very little weakening of the SG, and that the SD around terms like *nasciturus fiction*, 'rights, duties and capacities', 'Roman law' and 'interest', is not weakened much through unpacking, explanation or application. The explanation is likely to be experienced by students as relatively abstract (see [Figure 4](#)). Again, there is a potential message to students that this concept can be memorised as theory, even if it is later drawn into examples or problem-scenarios. If concepts are introduced abstractly thus, this has implications for how lecturers think about what their students have already learned, and what prior knowledge they can attach new, abstract knowledge to so as to make sense of it. It has further implications for how lecturers then draw abstract theoretical knowledge into possible applications, how many problems or scenarios the concept is



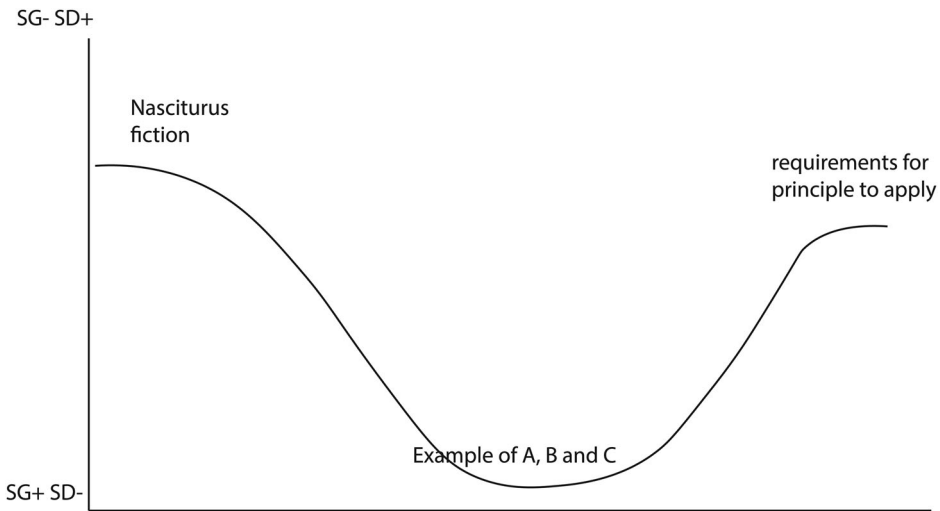
**Figure 4.** Heuristic representation of high semantic flatline (Clarence, 2014, p. 117).

applied in, and how and how frequently students are then enabled to practice the application themselves in tests or assignments.

Finally, an example of a semantic wave, on the same topic, from later in the same lecture.

Lecturer B: So if it is clear that the unborn child would have an advantage then our law employs this fiction and then we will ... deem the child to have been born alive at the time of conception. Does everyone understand? ... So what is the legal position over here of the *nasciturus fiction*? Let's use an example. [Goes to the board, starts writing] This is the testator. The testator will draft the will, and in terms of the testator's will he says 'I will leave my estate to my daughter and her children who are alive at my death'. Ok, so she has a child A and B and she's also pregnant with C, so I'll do C with a little circle there. In terms of the testator's will he says I leave my estate to my daughter and her children who are alive at the time of my death. The testator then dies and at the moment that he dies that is when the estate is divided, usually, ok. At the time of his death the daughter already has a child A and B and she was also pregnant with child C. Everyone understand that example? [pause] If we look at when legal subjectivity begins, would C be able to inherit? No. ... Because? ... Not regarded as a legal subject. But now we have the *nasciturus fiction* and in terms of this fiction what is the position of C? We will deem that C was born at the date of conception, is it not? We will then keep his interest or this advantage in abeyance until birth, ok? Now if we did not employ this *nasciturus fiction* would C have been able to inherit? No. So do you see our law then protects the unborn foetus? If C dies or is stillborn, can C then claim in terms of that will? No. The legal position is kept in abeyance until he or she is born and acquires legal personality or until it is certain that the *nasciturus* will not become a legal subject. If the *nasciturus* becomes a legal subject he or she receives rights, the rights that were kept in abeyance for him or her. (Lecturer B, video, February 2013)

Looking at this example, we can see the lecturer applying the concept in a problem-scenario, drawn from case law, that makes the initial, abstract account of the concept (Figure 4) less abstract. She begins with a brief recap of the basic account of the *nasciturus fiction*, which is still relatively abstract (weaker SG and stronger SD), but then she brings the wave down into an example, strengthening the SG and weakening the SD as she clarifies



**Figure 5.** Heuristic wave of application of *nasciturus fiction* (Clarence, 2014, p. 118).

how students might employ the fiction in a problem-scenario, here the apportioning of an estate. She closes the example by repacking the concept of the *nasciturus fiction*, recapping in more conceptual or technical terms what the requirements are for the fiction to apply (see Figure 5).

Over the course of the larger study, both of these lecturers spoke to their students about seeing a gap between what they expected from students and what they saw in formal assessments. After the first test, Lecturer A talked to her students about not knowing how to answer questions – ‘lots of useless repetition; lack of clarity; poor grasp of key concepts; not seeing the overall picture – the connections between questions as part of a whole paper’ (Field notes, 2013). Looking at the classroom data, and enacting a Semantics analysis as this section has done, we can see possible reasons in the teaching itself for this lack of connection in many students’ thinking, and draw implications for reconsidering the notions of deep and surface learning, and how to be more conscious of creating waves and movement through teaching and assessment, with the aim of enabling cumulative knowledge-building over time more overtly.

## Conclusion

This paper has engaged with the issue of how teaching and learning in higher education enables students to achieve deeper, more holistic learning through successfully transferring skills, knowledge and dispositions towards learning across different courses and learning contexts, over time becoming different kinds of knowers or future professionals. Recasting deep learning as cumulative learning, and contrasting this with segmented learning (Maton, 2009), and arguing that cumulative learning is necessary for successful ‘transfer’, this paper argues that rather than making cumulative learning primarily students’ responsibility, the question of enabling this needs to be one for teaching as well. The case study demonstrates how responsibility for cumulative learning cannot be students’ alone. Lecturers and tutors have a valuable role to play as those with the kinds of

dispositional, skills-based and disciplinary content knowledge that students come to university to acquire. Students and their lecturers and tutors thus need to work together in more coordinated ways to make the tacit organising principles and values of the disciplines more visible and explicit, so that what counts as valued knowledge, what needs to be transferred when, how and why, and how the different parts of the curriculum build on and connect into one another can be explored, unpacked and learned cumulatively over time.

LCT, specifically the dimension of Semantics explored here, offers a novel and potentially powerful way of analysing pedagogy to see more clearly where lecturers may be inadvertently segmenting knowledge, as well as connecting it up in both visible and invisible ways. This analysis goes further than simply raising this awareness; the analytical tools used here can be enacted in academic staff development work (Clarence, 2016), in peer tutor development (Clarence, *in press*) and in action in classrooms (Kirk, *in press*) as they give lecturers a means with which to rethink the ways in which their curricula need to be written, organised, taught and assessed to create the conditions necessary for students to achieve deeper, more cumulative and more transformative learning over time.

## Note

1. Robert personifies a surface learning approach – he learns only what he needs to, when he needs to, and usually just to pass a test or assignment. Susan personifies a deeper learning approach – she is intrinsically motivated, and interested in knowledge for its own sake, and for her own personal and intellectual development. See Biggs (1999).

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