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Julienne Hanson's short article 'Time and space in two nineteenth century novels' was originally published in 1976 and is amongst her earliest publications. Perhaps for obvious reasons, Hanson's study of nineteenth-century literature remains something of an outlier in the body of her work. Nevertheless, it marks the first in a small but notable tradition of literary subjects informed by space syntax theory that has helped to establish the dialogue between architecture and literature as a mutually productive one. Hanson's contribution in 'Time and space' could be regarded as both innovative and provocative in this respect. Innovative because it makes an interdisciplinary connection at a time when such initiatives in space syntax research were comparatively unusual, and provocative because it offers a distinctively architectural voice on two canonical novels of English literature that literary critics might have regarded (and, indeed, might still regard) as their exclusive domain of expertise. It is therefore interesting to revisit 'Time and Space' at some thirty-five years distance and reflect on Hanson's meditation on time-space representation in Austen's *Pride and Prejudice* and Hardy's *Jude the Obscure*, not least in the hope that it will help introduce this intellectually stimulating article to a new audience. This paper offers an appreciation of Hanson's arguments and also offers a critique. It finds that the openness to interdisciplinary experimentation in 'Time and Space' is able to successfully distinguish between different modes of time-space representation in *Pride and Prejudice* and *Jude the Obscure* in a manner that it perhaps takes an architect with a feel for both the formal structure of social space and literary constructions to identify. At the same time it is proposed that by approaching these novels as social rather than literary artefacts, Hanson underplays the extent to which the texts themselves subvert generic structural descriptions with the effect that apparent ambiguities in time-space representation are presented as secondary to the coherence of the social-theoretical model.

An act of translation: Hanson's achievement in 'Time and Space'

Despite being written over thirty-five years ago, Julienne Hanson's short article 'Time and space in two nineteenth century novels' still reads as a bold experiment in interdisciplinary thinking (Hanson 1976). For those with an interest in the intellectual genealogy of space syntax theory, the article has additional interest. It shows Hanson taking some of the ideas that were to be so influential in the formation of Hillier and Hanson's *The Social Logic of Space* (1984), most notably Durkheim's concepts of mechanical and organic solidarity, and exploring their explanatory value in a different disciplinary context: the structural analysis of two canonical works of English literature.

In 'Time and space' Hanson argues that the literary representation of time and space in *Pride and Prejudice* and *Jude the Obscure* means that they are fundamentally different kinds of 'social artefacts' [Austen, 1985 (original 1813), Hardy, 1985 (original 1896)]. Initially putting her argument in Durkheimian terms, the world depicted by Austen in *Pride and Prejudice* is said to be 'mechanically solid, aspatial, atemporal…a normative prescription for action' (Hanson, 1976, p.34). Austen's England is said to be a place in which historical time and geographical space have been 'suppressed' and

Notes:

[1]Unpublished working paper, University of Copenhagen – my thanks to the author.

'externalised' in order to create the illusion of an unchanging bourgeois society presented uncritically as being consistent with the 'natural order of things'. The lives of the characters in the novel are governed by the seasonal rhythms of well-established social ritual in a foregrounded social space that serves to reproduce the values of the bourgeois by valuing conformity over individualism. By contrast, time and space in Hardy's *Jude the Obscure* is said to be 'organically solid' and historically 'substantive' (*ibid.*, p.36). Hardy's Wessex possesses an historical and geographical specificity that enables the historical socio-economic transformation of England in the nineteenth century, conventionally referred to as the 'industrial' and 'agricultural revolutions', to intrude upon the narrative at every turn. Such an intensively historical space is subversive of 'mechanical' social rituals, enabling the characters in the novel to be realised as individuals and be critical of the emerging social order. Hanson extends this contrast in the second half of her article, drawing this time on Lévi-Strauss, to suggest that Austen's England resembles a 'closed' mythical construct, in the sense that it proceeds from an archetypal structure to the construction of its narrative. To this she opposes Hardy's Wessex as a world which is 'open' to history, and therefore full of paradoxical situations that must go unresolved. The unfolding of the narrative to disclose rather than conceal structure, Hanson argues, means that Hardy has created 'art' whereas Austen has perpetuated 'myth' (*ibid.*, p.36-37).

Hanson's elucidation of the environmental *milieu* as a literary device with relevance for architectural thinking marks a significant stage in the development of space syntax theory. It is necessary to briefly review the development of the core discipline to understand why this is so. The contribution of much space syntax analysis to built environment research, not least in Hanson's own work on English housing estates, rests on Hillier's powerful theoretical critique of modernist architectural and planning theory that, he argues, developed (naively) under the intellectual shadow of nineteenth-century social Darwinism and social psychology (Hanson and Hillier, 1987; Hanson 2000; Hanson and Zako, 2007; Hillier, 1973, 1988; Hillier and Leaman 1973; Hillier et al., 1987). By assigning agency to particular environmental or design 'factors', this paradigm of thought made it possible to claim that architectural and urban design could directly engineer social outcomes. Architectural morphology itself was conceived in abstract rather than social terms, justifying neat mappings of function onto form conceived in the seclusion of the architectural studio rather than through any informed understanding of how cities or buildings actually work. Hillier reclaimed agency for space-in-society by recognising how the perceptual intelligibility of the lived-environment for humans arises from its *non-discursive* structure, therefore suggesting why designs conceived in terms of conventional (i.e. *discursive*) environmental representations might not, in reality, create the social outcomes they intended. Hillier's ontology is probabilistic rather than deterministic with respect to the relationship of social space to social action; it is intended to reveal the shape of inhabitable space as an expression of the fundamentally spatial nature of society rather than as a derivative of external social factors projected onto a background space or disembodied 'environment'. It follows therefore that space syntax theory is less concerned with individual behaviours *per se* than with establishing the possibilities of space in social organisation (a concern recognisable in Durkheim's notion of 'social morphology' – see Liebst, 2011[1]).

In this intellectual context, Hanson's analysis of how time-space representations might be constituted in literary fiction implicitly invites architects to reflect critically and creatively on how their own work might be informed – intentionally or otherwise – by representational systems with origins beyond the discipline of architecture. Since 'Time and space'

was written, the complex relationship between the configurational, semiotic and experiential aspects of architectural morphology has been explored in relation to literary texts by a range of scholars associated with the space syntax field (for example, Peponis, 1997; Kanecar, 2001, 2005; Psarra 2009a, 2009b, 2009c; Lykourioti, 2012). A common theme in this work is the role of non-discursive spatial descriptions in mediating between modes of architectural and literary representation, and the diverse possibilities for narrative expression that this (diachronic-experiential) process elicits in both domains.

In 1976, of course, Hanson did not articulate her argument in these terms; her concern was less with narrative, as such, than with what might be regarded as the possibility for formal *translation* between time-space representations in works of literature, and sociological-anthropological models of time-space structure as pertaining to society in general. This question of translation remains a substantial and important one, but it also raises the concern that an emphasis on formal translatability should not be at the expense of those particular qualities that define the literary works. An act of translation is not normally intended to produce equivalence of meaning across different disciplinary contexts but rather to broaden the range of interpretations that are available to the objects of enquiry (in this case literary texts) (Whyte, 2006). In responding to Hanson's argument in 'Time and space' therefore, my intention is to continue the act of translation that she began. However, whereas Hanson drew on social theory to definitively 'translate' the time-space representations in Austen's *Pride and Prejudice* and Hardy's *Jude the Obscure* into distinct binary categories, my emphasis here is on the novels themselves, the style of writing and the narrative techniques deployed by the novelists. I argue that these serve to highlight sufficient ambiguities in modes of time-space representation to suggest other translations are possible than those offered by Hanson, and which raise important questions for her account in 'Time and space'.

Reflecting on Hanson's arguments 'Time and space'

Hanson's discussion of *Pride and Prejudice* and *Jude the Obscure* is forensic and richly informative. There is certainly a strong *prima facie* case for her theoretical arguments when one considers the universality of the plot 'girl overcomes social barriers to marry the man of her dreams' that can be traced from *Cinderella* through *Pride and Prejudice* to *Bridgette Jones* (Fielding, 1998). In this respect, Austen's apparently uncritical endorsement of the marriage sacrament that can be inferred from the famous opening line in her novel: 'It is a truth universally acknowledged… ' stands in stark opposition to the powerful critique of marriage that is one of Hardy's core themes in *Jude the Obscure.* Similarly, Hanson is right to state that the historically specific time-space *milieu* that is recognisable as a distinctive agency at work in Hardy's novel creates different opportunities for narrative development than in Austen where there is no *explicit* attempt to draw the reader's attention to its time-space representation or assign it agency.

Yet, while agreeing with Hanson that Austen and Hardy provide starkly contrasting representations of time and space in these novels, the argument here is that this does not necessarily reveal an absence of history and geography in Austen and a superfluity of these qualities in Hardy. Certainly, one could argue that the historically specific time-space situation that is explicit in *Jude the Obscure* is not evident in *Pride and Prejudice* (there is no reference to enclosure or copyholds for example) and that this lends it certain archetypal qualities. Yet one could equally argue that such historical specificity is *implicit* in the characterisation and narrative of the novel, rather than 'externalised' as Hanson

argues. Is there not also something archetypal in the relentlessly wandering character of Jude Fawley that belies the apparent specificity of nineteenth-century Wessex? One could be forgiven for thinking the binary oppositions of mechanical versus organic, and myth versus art have been mapped a little too neatly onto the two novels that were written almost a century apart, and belong to quite different historical phases of English literature.[2] To eschew overt environmental symbolism as Austen does is not necessarily the same thing as suppressing time and space; a landscape that is as richly symbolic as Hardy's may well be seeking to universalise aspects of time and place and take them out of history. It is one thing to approach *Pride and Prejudice* and *Jude the Obscure* as 'social artefacts', but if one is dealing with questions of literary representation then the identity of these novels as literary texts cannot be entirely subordinated to *a priori* sociological categories without calling into question the value of the undertaking. In 'Time and space' Hanson successfully translated from the theoretical model to the texts – the reverse translation from the texts to the theoretical models was not her concern. Yet to create a genuine interdisciplinary dialogue, it is argued, the translation between social theory and literary text must work in both directions.

Three related arguments are advanced here to support this critique. Firstly, the theoretical framing of Hanson's discussion of *Pride and Prejudice* does not allow her to do justice to Austen's achievement in the character of Elizabeth Bennet, who is surely misunderstood as being anything other than a unique and historically-situated individual. It seems highly questionable whether this character can be fairly regarded as a cipher for the reproduction of bourgeois society as Hanson implies. Certainly, if all were like Elizabeth such a society would be as much about change as continuity. Secondly, a closer consideration of the symbolic significance of character movement through the varied landscapes of the two novels could add another dimension to Hanson's discussion. This matters because character movement is an important technique deployed by both Austen and Hardy. It serves not simply the instrumental purpose of helping to develop the narrative, but also the symbolic purpose of introducing ambiguity into the dominant impression of *Pride and Prejudice* as a static world, and of *Jude the Obscure* as a world at a particular historical moment of change. Thirdly, without further consideration of the nature of character movement through the contrasting *milieux* of the novels it is possible for confusion to arise between the different symbolic registers of historical and existential time and space deployed by both authors. It is argued that this confusion leads Hanson to underplay the historicity of localised and domestic space in *Pride and Prejudice* and to overplay the historicity of landscape in *Jude the Obscure.* By way of a concluding discussion, the paper argues that the analysis of plots as social networks currently being pioneered by the Stanford Literary Lab[3] would have offered Hanson additional scope to approach Austen and Hardy's novels as works of literature, without sacrificing the structural analytic she sought to bring to models of time space representation.

The character of Elizabeth Bennet

In *Pride and Prejudice*, Elizabeth Bennet is the central character of a small world in which almost everybody knows everybody else – and *everybody* knows Elizabeth. As Hanson describes, this world is highly circumscribed spatially – the narrative unfolds mainly in the confines of the Bennet family home in the village of Longbourn, and the homes of other respectable members of bourgeois society of greater or (occasionally) lesser status, particularly Bingley's seat at Netherfield and Darcy's seat at Pemberley. In the theoretical terminology of *The Social Logic of Space,* this society is essentially transpatial (i.e. it is defined conceptually by rules

Notes:

[2] *Pride and Prejudice was conceived in the late eighteenth century, but not published until 1813.*

[3] *The Stanford Literary Lab Available at: < litlab.stanford.edu > [Accessed 5 June 2012].*

and conventions rather than by a spatial boundary). However, this society must be spatialised periodically, mainly through the prescribed social rituals of visits, dances and dinners that enable it to be sustained and transcend the confines of life in and around Longbourn (and the dangerously informal encounters this affords). The satisfactory performance of the ritual is of more importance than the location in which it takes place – and in this sense historical time and space is 'suppressed', as Hanson argues. It is also true that the story of Elizabeth Bennet and Darcy unfolds and reaches its climax almost entirely within this bourgeois social space. Yet to leave it there would not give a true account of Elizabeth Bennet's development as a character in the novel, or the way in which she embodies the historical particularities of her situation.

Elizabeth Bennet's initial dislike of the wealthy and physically attractive Darcy has to be understood in the context of an intelligent and observant young woman who is acutely aware of her family's (historical) predicament in having five daughters, meaning that the family home is destined to be entailed to a distant relative, Mr Collins, on her father's death. Elizabeth refuses Mr Collins' offer of marriage in the full knowledge of this. She will later refuse Darcy himself when his declarations of affection are couched in terms of social condescension (not to mention the wrong opinion she holds of him at the time). These assertions of her right to personal happiness do not in themselves cast her views as 'revolutionary' in terms of social convention – her fears for Lydia's unruly behaviour as threatening the 'respectability' of her family make this quite clear (Austen, 1985, p.258). Yet, her gradual recognition of the virtue of Darcy's character (as indeed she brings him to greater self-knowledge) and their eventual union on terms acceptable to both represent a triumph of her will to self-realisation in a manner that is incompatible with a world represented solely in terms of 'mechanical' rituals. Elizabeth's personal transformation is credible because her agency is historical not archetypal; her ability to go against the grain of social convention does not require a fairy godmother, it requires her to possess an appropriate conversational language able to transcend its immediate situation – in Bernstein's terms an 'elaborated code' (Tanner, 1985, p.31). A telling example of this is when Elizabeth uses the opportunity of the formal dance with Darcy at Netherfield to gently parody the expected conversation of such dances:

> 'I talked about the dance, and *you* ought to make some kind of remark on the size of the room or the number of couples' (Austen, 1985, p.133-134).

She uses this to launch a more psychologically probing dialogue into Darcy's character, but it is equally telling about hers. In other words, Austen allows that the limited social space of the novel nevertheless affords sufficient room for her characters and narrative to develop as individuals; that if *Pride and Prejudice* does not constitute a critique of social order as such, neither does it endorse the rigid, unchanging 'mechanically solid' society in the normative terms that Durkheim's scheme insists upon. It is interesting in this respect how Hanson's own discussion of the texts acknowledges the exceptions to this binary division at a number of points (for example, she notes the complex spatiality of Pemberley and Jude's mechanically solid outlook (Hanson, 1976, p.33 and p.35), but the logic of her theoretical argument ultimately prevents her from exploring the interpenetration of mechanical and organic conceptions of society much further.

Movement as a narrative and symbolic device

The physical movements of Elizabeth Bennet and Jude Fawley through the urban and rural landscapes depicted by Austen and Hardy are key to the development of the plot in both novels. Hanson's view of *Pride and Prejudice* as an essentially static novel does not really allow for such

an interpretation in this context. There is certainly less movement in Austen's novel than in Hardy's but this does not make it any less significant. Two examples will suffice: firstly, when Elizabeth sets off for a cross-country walk on foot in order to see her unwell sister Jane at Netherfield rather than wait for horses to take her, she is taking a double risk with her own health (in the early nineteenth century colds could literally 'be the death of you') and with her social respectability as judged by the company at Netherfield. She walks out nonetheless declaring: 'distance is nothing, when one has a motive' (Austen, 1985, p.78). The avowed motive was to see Jane; but it clearly showed Elizabeth's willingness, even her desire, to flout social convention given an *appropriate* opportunity to do so – and recognising such an opportunity is Elizabeth's particular talent. The second example is Elizabeth's long, solipsistic walk in the lanes near Hunsford Parsonage, where she reflects on the contents of Darcy's letter and realises with intensive self-reproach how much she has misunderstood him. While the first walk leaves her feeling energised, the second walk leaves her feeling tired (through mental rather than physical exertion) (Tanner, 1985, p.17). In *Pride and Prejudice* the movements of Elizabeth Bennet, though relatively infrequent and limited in geographical terms, are essentially *transgressive* of social norms, they anticipate key stages in the development of a narrative that is realised through the character's own growing self-awareness and agency.

It is perhaps more surprising that in 'Time and space' Hanson also says relatively little about the role of movement in *Jude the Obscure*. The narrative itself comprises a relentless journey on road and rail *between* rather than towards a succession of locations: Marygreen-Christminster-Melchester-Shaston-Albrickham and eventually back to Christminster, where the novel's tragic dénouement takes place. Within this macro-structure, Jude Fawley's movement is continuous, to and from work, lodgings, train stations and meeting places. However, in stark contrast to *Pride and Prejudice,* these ceaseless movements increasingly come to embody Jude's lack of control over his life at the particular historical juncture he occupies; cruelly and ironically it strips everything from him that initially it appeared to offer - his aspirations as a scholar, the woman he loved, his children, and eventually his life.

In *Jude the Obscure* therefore, the historically specific portrayal of geographical mobility through the person of Jude Fawley is not transgressive but *contingent* on factors beyond his control (a point Hanson makes), and in that respect his movement is transient - which is no movement at all in the Durkheimian sense of history, because it changes nothing. As Hanson argues in 'Time and space…' Jude comes to the realisation that being (spatially) in Christminster does not bestow the belonging (the existential 'being-there') that he craves (Hanson, 1976, p.35). Unlike Elizabeth Bennet, Jude Fawley's movements do not serve to create or extend the (transpatial-organic) relationships that he needs to overcome his social situation. In continually moving from one place to the other Jude is also systematically deprived of participation in those spatially centred (mechanical) rituals of locality that could support him; as Hanson states, Jude's existence is 'rootless' (*ibid.*). Hardy describes Jude and Sue as living a 'shifting, almost nomadic, life' (Hardy, 1985, p.379). The contrast to Elizabeth Bennet's 'movement with a motive' could not be stronger.

When Elizabeth Bennet moves to Pemberley, she is not required to sacrifice anything she does not wish to – her society is enlarged. When Jude Fawley moves to Christminster, he is taking a chance on a world that will reject him. In this context the occasional, often coincidental, meetings with Arabella and Phillotson in various circumstances serve to emphasise how all the major characters in the novel exercise very little control over their fates. In *Pride and Prejudice* therefore, the protagonist's

movement is subversive of 'mechanically-solid' social ritual, whereas in *Jude the Obscure* the protagonist's movements reveal the erosion of his 'mechanically-solid' identity but offer nothing with which to replace it. Hanson notes this ambiguity in Jude's situation but she chooses not to use it to question her theoretical model, nor does she acknowledge the ways in which movement is deployed symbolically to advance the narratives of both novels. In *Pride and Prejudice*, Elizabeth Bennet's movement literally embodies the realisation of her agency and historicity as a character. In *Jude the Obscure* by contrast, it embodies Jude's diminished agency, and in this sense releases him from historical time as such into the existential time of the Wessex landscape. This is not to turn Hanson's argument on its head so much as to propose a reading of the texts that permits a more nuanced interplay of the spatial and mechanical, with the transpatial and organic as motifs productive of the symbolic tension through which the narrative develops.

Time-space representation as embodied and disembodied movement

Hanson's theoretical scheme leads her to distinguish absolutely between the apparent suppression of time-space representation in *Pride and Prejudice,* and its agency as a historically determining *milieu* in *Jude the Obscure*. Taking issue with this position, it is argued that the physical movement of the characters in both these novels is essential in mediating between the time-space of quotidian movements (that is also integral to the instrumental development of the narrative), and the way in which time-space symbolism of an historical and existential nature is represented in these texts. It is one thing to say that Austen and Hardy's representational modes are different, but another to say that history is simply suppressed in one, while it is determining in the other.

Certainly, Austin does not spell out (as Hardy would have) debates about entails or inform us of whether or not Elizabeth Bennet was a keen reader of Mary Wollstonecraft, but she does not need to do this because her characters themselves 'embody' the history of their society through their words and deeds. This is highlighted, for example, in Mrs Bennet's pathetic desperation to see her daughters married, and in Elizabeth's surprising self-realisation as an independently-minded woman. Austen does not approach history through investing heavily in environmental description, but rather through characterisation and plot. Particularly interesting is how Austen's narrative unfolds through the performance and subtle manipulation of everyday time-space routines. While it may be true that the different loci of *Pride and Prejudice* are historically and geographically non-specific in comparison to Hardy's Wessex, it is also the case that in terms of enabling 'purposeful' bodily movement they are remarkable expressive in symbolic terms. This is particularly true of the localised domestic spaces in and around the Bennet home and Pemberley (clearly a specifically eighteenth-century manor, as Hanson acknowledges).

The Bennet home in Longbourn is clearly valued (at least in economic terms) since it is an asset the family do not wish to concede. It is also a feminine space in which the contrasting characters of the Bennet sisters and their mother can be displayed. Whether Mr Bennet values his household himself is a slightly different question. His preference for his library seems to extend beyond a pragmatic father's retreat from a house full of females to a deliberate withdrawal from responsibility for his family's future. In fact, this is an essential premise for much of the novel – it is clearly a great frustration to Elizabeth who berates her father for abdicating his paternal duties towards Lydia and Kitty (Austen, 1985, p.258). The 'truest' portrait of Darcy is discovered by Elizabeth in one of the less public (i.e. segregated) rooms of his house at Pemberley (Tanner, 1985, p.23-24). In other words, Austen acknowledges the

complexity of domestic space as a source of symbolic meaning arising from the quotidian. It is her talent as a novelist that this transition from the routine to the historically symbolic seems so effortless.

Hanson emphasises the realistic nature of the time-space representation in *Jude the Obscure*, for example, in the naming of the book divisions after real towns 'in a part of England with which Hardy was intimate' (Hanson, 1976, p.34). This sets up something of a tension between Hardy's historical-geographical realism and his symbolic intention which Hanson does not directly address. In fact, as the earlier discussion of Jude's movement implies, this symbolism has as much to do with the eternal existential qualities of Wessex as an 'historical continuum' as with any specific historical reality. This is implied by the way in which roads are always suggestive to Jude: of ancient drovers, a Roman goddess, his estranged wife and of his defeated expectations – to name just a few. The richness of Hardy's environmental description in the layers of communal and personal history he articulates, suggests that while the landscape of the past is constantly being eroded by historical change, in another sense it is also continually absorbing these changes. One of the most suggestive passages in Hanson's article is her description of Hardy's novels as 'infinite structures' (*ibid.*, p.36). It indicates how eventually Jude too will be absorbed into the continuum she describes – the symbolic effect being more existential than 'historical'.

It is possible to read history in both *Pride and Prejudice* and *Jude the Obscure* in terms of the different symbolic investments in character movement. If Elizabeth Bennet embodies her historical moment and, in that sense, transcends her immediate *milieu*, Jude Fawley is *disembodied* by it – in the sense that the historical *milieu* ultimately bears down the body that resists it. One of the biggest contrasts between the two novels in this respect is that in *Pride and Prejudice* everyday movements are closely related to the language used by the characters. *Pride and Prejudice* is a world of intensive conversation. Elizabeth Bennet's movements cause her to think, articulate, reflect and reason in the light of her experience. In *Jude the Obscure* by contrast, words - especially those gleaned from books - become increasingly futile to articulate the existential experience of the protagonists. Such a condition of alienation is anticipated by Jude's rendition of the Latin creed for the amusement of uncomprehending undergraduates in an inn, shortly after learning of his rejection of his application to Oxford. 'You pack of fools!' he cries – but it does not matter, they are at Oxford, he is not (Hardy, 1985, p.173). Unlike Elizabeth Bennet, Jude's movement and all of his learning ('reason') get him nowhere, except to a painful realisation of the historical reality of *his* situation as one without agency.

From structure to language: plots as social networks

In 'Time and space' Hanson's concern with the structural qualities of *Pride and Prejudice* and *Jude the Obscure* led her to approach them through the theoretical models of Durkheim and Lévi-Strauss. Arguably, this emphasis on the novels as social 'artefacts' caused her to underplay their qualities as literary creations. However, Hanson succeeds in demonstrating why there is value in approaching time-space representation from these theoretical perspectives, not least because she clears the ground for a productive interdisciplinary dialogue – or exercise in translation – to emerge. The emergence of network science and social network analysis as distinctive academic disciplines since Hanson's article was published raises the interesting question of how she might have employed these knowledge domains were she to write a similar article today.

The analysis of literary plots using theory and quantitative techniques borrowed from (social)

network theory has been pioneered by Franco Moretti and his colleagues at the Stanford Literary Lab (Moretti, 2011). The basic technique involves linking literary characters in a network where dialogue has involved both characters occupying the same physical space. In space syntax terms, Moretti's work suggests that where the social network is dense (i.e. regions defined by a high level of connectivity between characters), this tends to indicate that relations are *spatial,* whereas where the network is sparse this indicates relations that are only periodically spatialised – that is, relations which are typically *transpatial*. Intriguingly, Moretti shows how this analysis can also say something about the relationship of graph structure to modes of literary representation. Using the example of *Hamlet* he notes how those characters occupying the densest part of the network (for example, those clustered around Claudius) are associated with the life of the Danish court and also employ the most figurative language in the play. On the other hand, those characters occupying the sparsest areas of the network (for example, those connected to Horatio) tend to use a more functional language, essential to plot development but less expressive in figurative terms. Hamlet's pivotal importance to the play's narrative is indicated by his centrality in the social network, which would completely fragment without him. The network would also fragment significantly without Horatio since he acts as the 'gateway' to a number of relatively minor characters who maintain transpatial relations with the court from beyond the boundary of the Castle at Elsinore. Interestingly, however, the density of the social network of the court means that Claudius' removal would not, structurally speaking, undermine the fundamentals of the plot. The example of *Hamlet* suggests how the language employed by a literary character may have something to do with their position in a narrative structure conceived as a graph. In the light of Hanson's original article and the arguments advanced here, it is interesting to consider how the methodology being developed by the Stanford Literary Lab might have helped Hanson with the theoretical task she set herself in 'Time and space'.

In the absence of any formal quantitative analysis it is, of course, only possible to speculate what the social networks of these novels might look like. It is also important to acknowledge, as Moretti's research itself demonstrates, that conducting a network analysis of a play is significantly less challenging task than doing so for novel, in which inter-character dialogue has a much less clear relationship to narrative development (Moretti, 2011, p.94). Nonetheless, it is possible to surmise that the characters in *Pride and Prejudice* would be likely to constitute a social network that is uniformly dense, reflecting the fact that almost everyone speaks to everyone else in the small, intensively verbal world of the novel. Elizabeth Bennet would be at the centre of the network in quantitative terms (i.e. number of connections), but we might find that region of the graph representing Longbourn to be fairly resilient in structural terms even if she were removed. Such an analysis would broadly support Hanson's analysis of the novel in terms of its mechanical solidity, with the vast majority of the characters orientated around the insulated ritualised spaces of Longbourn, Netherfield and Pemberley. In this sense, we might say that the world of *Pride and Prejudice* is *centred* or *spatially correspondent* across a number of discrete spatial *locations* (there being no allowance for further contextual elaboration in this network analysis). Elizabeth's centrality in the network would be distinguished less by the density of connections within the Bennet family at Longbourn, but principally through her relationship with Darcy, whose network she shares at Netherfield, Pemberley and in the company of Lady Catherine de Bourgh. Darcy's network reaches into almost all regions of the novel's graph but the geographical dispersal of his connections and relative formality of

many of these relationships ['weak ties' in network analysis terms (Granovetter, 1973)] establishes him as a *transpatial* character, without whom the social network of the novel would fragment. On this basis, it becomes possible to conceive of the narrative structure of *Pride and Prejudice* in terms of Elizabeth transcending her local network and extending it to the larger one associated with Darcy, while Darcy is required to participate in the dense localised network of the Bennet family – at least until his marriage to Elizabeth is confirmed. This process might describe a courting ritual but not one that can be regarded as mechanistic, since through it both characters are able to discover a new conversational language (or perhaps 'mental space') with which they can transcend their original network positions (social space). One might think of Elizabeth's world being *de-centred* and then *re-centred* through her encounters with Darcy.

The social network of *Jude the Obscure* would be much harder to read in these terms since Jude's relationships with Sue, Arabella and Phillotson would not work to strongly define any particular spatial locations in the social network. All these characters recur in some or all of the successive places in which the narrative unfolds. It is possible that, were the wider cast of minor characters included, then, it would be clear how Jude's life is essentially *de-centred*. This indicates the tension highlighted by Hanson between Jude's own 'mechanically solid' identity as a rural stonemason and his inability to entirely transcend this identity (as with the other major characters) through movement to new locations. It is the effective transpatial network of the upper class that excludes Jude, and without this access the language of learning and social emancipation he becomes tragically divorced from his actual historical situation, a man without a home or a language of his own.

When a narrative is flattened into a structural representation as a social network it becomes spatialised. This might be expected to have the effect of making it more difficult to 'read' as a (diachronic) narrative. Yet it can be argued that the character network structures might be to an extent 'genotypical', in the sense of being recognisable by readers as a synchronic plot-structure indicating a range of narrative possibilities that become more intelligible (and finite) as the network positionality of individual characters is gradually established. It follows that network positionality also implies something about the movement that structures the characters' relationships; for example, by highlighting those high-centrality relationships that connect between different regions of the graph. Movement, of course, particularly the analysis of 'natural' pedestrian movement in relation to the configurational (network) properties of space, has long been a staple of space syntax research (Hillier et al., 1993; Hillier 1996). There is an obvious parallel here between 'reading' movement potentials into a space syntax representation of an urban street network (for example in terms of 'integrated' or 'segregated' spaces) and 'reading' narrative potentials in the clustering patterns of character relationships in a novel represented as a social network. Whether there is any substance to such an analogy must await further theoretical development and empirical research, but there is reason to believe the effort would be worthwhile. Space syntax research into movement has overwhelmingly regarded it as a quantitative rather than qualitative phenomenon – though one with profound implications for the spatial cultures of cities. The tantalising promise of the research undertaken by the Stanford Literary Lab is that it suggests how the synchronic properties of literary productions represented (quantitatively) as social networks might bear relation to the (qualitative) deployment of language through the relationships between the characters of the novel – a deployment that has much to do with the movement that brings characters into contact with one another.

Space syntax theory has not yet sought to examine systematically the relationship between human occupation and movement in space and the production of language – Psarra's (2009c) study of Borges' fictions provides a notable exception.[4] While such research is currently envisaged solely with regard to the analysis of literary texts from a network perspective, the broader implications of this approach to the relationship of space, movement and language are clear – the translation, in other words, cuts both ways.

Conclusion

In considering (albeit in a highly provisional manner) the time-space representations of *Pride and Prejudice* and *Jude the Obscure* from a social network perspective, the interpretative value of space syntax concepts, such as 'spatial' and 'transpatial' relationships, quickly become apparent, deriving as they do from Durkheim's theory of mechanical and organic social solidarities as set out by Hanson in 'Time and space'. The reflection on Hanson's arguments presented here has also highlighted the limitations of applying a structural analysis conceived in such rigidly binary terms to complex literary productions, not least because, if considered purely as 'social artefacts', the literary identities of the novels become so eroded that the point of studying them as *novels* at all must be called into question. It has been argued that this is essentially a problem of translation from the literary texts to the theory. In her article, Hanson successfully showed how formal models of structuralist social theory can be used to translate Austen and Hardy's novels in these terms, but here it has been argued how these literary works might resist such a dualist classification. This is not, of course, because these novels lack structure but because the unfolding of their plot-structures depends upon the ambiguous presence of both mechanically and organically solid elements, the tension between the synchronic and the diachronic, for narrative momentum.

Another reason for this problem of translation is that, considered as literary texts (i.e. as works of language), it becomes possible to acknowledge how historical and geographical specificity may be expressed implicitly through characterisation (as in Austen) as well as through explicit historical and environmental description (as in Hardy), without necessarily associating the former with the 'suppression' of time and space. This complicates the notion of the environmental *milieu* that Hanson develops and forces a closer consideration of the symbolic investment made by the authors in character movement, as embodying particular historical and geographical experiences, alongside the symbolic investment in the environmental *milieu* (which may also undermine notions of historical-geographical specificity). By translating back and forth between the theoretical model and the text, the explanatory power of the former is better able to elucidate the complexity of the latter, which is surely to do justice to such important works of literature such as *Pride and Prejudice* and *Jude the Obscure*.

The application of social network theory to literary texts could help with the task of interdisciplinary translation that Hanson first set out in 'Time and space', not least in proposing a relationship between the quantitative properties of graphs and the production of language – a relationship, it was argued, that is largely mediated by character movement between character regions. Such an approach to social network analysis certainly has the potential to engage productively with space syntax theory of natural movement. In general terms therefore, the arguments presented in this paper support Hanson's basic claim in 'Time and space' that the subjective language of fiction can legitimately constitute the object of analytical enquiry by social and architectural theory. However, while previously Hanson brought sociological categories to the interpretation of literary texts, this approach now needs

Notes:

[4] In Borges' short story 'The garden of forking paths', Psarra notes how the movement of the principal character, Yu Tsun, through an eighteenth-century English landscape 'improved' in the style of Capability Brown prompts memories of the Chinese landscape of his own childhood. Psarra argues that this movement enables Yu Tsun to reflect on his situation in relation to both the (diachronic) historical time of his ancestors and the (synchronic) contemplative time of the landscape that extends to encompass the whole universe (Psarra, 2009c, p.81-84).

to be balanced by turning to the texts themselves in order to help identify what is important sociologically – namely how organisation in time and space lends meaning to social networks. We certainly need the spirit of innovative interdisciplinary enquiry that Hanson brought to her study 'Time and space' in order to develop the theoretical and research capabilities to pursue such a question.

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