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Transitivity, agency, mind style: what's the lowest common denominator?

1. Introduction

The system of transitivity as described in Hallidayan systemic-functional grammar (SFG) has long been a key analytic model in stylistics and critical discourse analysis. Drawn from the work of M.A.K. Halliday (1985, 1994; Halliday and Matthiessen, 2004, 2014), this model describes the way in which the world of our experience is divided by grammar into a 'manageable set of process types' (Halliday and Matthiessen, 2014: 213), the most basic of which are: *material processes* – external actions or events in the world around us, *mental processes* – internal events such as thinking or feeling, and *relational processes* – abstract relations of being or having. Each characterised by specific participants (e.g. *actor* and *goal*, *sensor* and *phenomenon...*), the different process types offer a range of options for the construal of any given experience through language. In stylistics, this model has been used to identify the grammatical patterns through which texts present a particular ideology, or an individual's distinctive 'mind style' (Fowler, 1977, 1996).

One example of significance to the present study is Kennedy's (1991) analysis of Joseph Conrad's *The Secret Agent* (1907), and specifically the scene in which Mrs Verloc murders her husband:

Extract 1

She remained thus mysteriously still and suddenly collected till Mr. Verloc was heard with an accent of marital authority, and moving slightly to make room for her to sit on the edge of the sofa.

“Come here,” he said in a peculiar tone, which might have been the tone of brutality, but was intimately known to Mrs. Verloc as the note of wooing.

She started forward at once, as if she was still a loyal woman bound to that man by an unbroken contract. Her right hand skimmed slightly the end of the table, and when she had passed on towards the sofa the carving knife had vanished without the slightest sound from the side of the dish. Mr. Verloc heard the creaky plank in the floor, and was content. He waited. Mrs. Verloc was coming. As if the homeless soul of Stevie had flown for shelter straight to the breast of his sister, guardian and protector, the resemblance of her face with that of her brother grew at every step, even to the droop of the lower lip, even to the slight divergence of the eyes. But Mr. Verloc did not see that. He was lying on his back and staring upwards. He saw partly on the ceiling a clenched hand holding a carving knife. It flickered up and down. Its movements were leisurely. They were leisurely enough for Mr Verloc to recognize the limb and the weapon.

Kennedy’s analysis of this scene identifies a number of recurring patterns in the clauses used to represent it. Considering those clauses describing Mrs Verloc’s actions, Kennedy (1991: 86-91) observes a tendency for these material processes to be presented in intransitive clauses featuring an actor participant, but no goal (e.g. ‘She started forward’). In addition, ‘explicit reference to Mrs Verloc’s role as actor and causer is avoided’ (1991: 88) by instead making inanimate objects or body parts the actor in the process (e.g. ‘the carving knife had vanished’; ‘a clenched hand holding a carving knife’), or through use of the passive seen later in this scene: ‘The knife was already planted in his breast’. For Kennedy, these choices create the impression that Mrs Verloc is ‘not fully in control of the situation’, is ‘unaware of her actions’, or ‘detached’ from them (1991: 88-9). This interpretative effect and its ethical consequences in suggesting that Mrs Verloc is somehow ‘not responsible’ for the murder (1991: 89) exemplify a wider pattern across the text, in which several events – including the death of Mrs Verloc’s brother, the murder of Mr Verloc, and Mrs Verloc’s subsequent suicide – are construed as agentless happenings, as a reflection of the ‘moral anarchy’ which characterises the underlying ideology of Conrad’s novel (Kolani, 1999).

Significantly, a very similar stylistic profile has been identified by stylisticians across a range of very different texts. In Halliday’s (1971) analysis of William Golding’s *The*

Inheritors, a similar set of transitivity choices contribute to an impression of the mind style of its focaliser: a prehistoric Neanderthal man, while in Simpson (1993) and Nuttall (2018), this profile contributes, respectively, to an impression of the consciousness of a drowning man in *Pincher Martin*, and the limited mental capacity of the living dead in *I Am Legend*. Simpson's direct comparison of his analysis with that of Halliday emphasises the context-bound nature of stylistic interpretation, and the dangers of drawing direct connections between specific linguistic choices and effects, which he terms 'interpretative positivism' (see also Fish, 1980):

Where the problem of interpretative positivism arises is where a *direct* connection is made between the world-view expounded by a text and its linguistic structure. Amongst other things, this step will commit an analyst to the untenable hypothesis that a particular linguistic feature, irrespective of its context of use, will always generate a particular meaning. (Simpson, 1993: 105, original emphasis)

Alongside this argument, however, Simpson (1993: 105) goes on to suggest that there may be some connection between (groups of) linguistic choices and effects at a lower level of interpretation that *does* cross contexts. There is, he notes, an 'interpretative "lowest common denominator"' which unites both Halliday's response to the Neanderthal mind style in *The Inheritors* and his own impression of the drowning man's mind style in *Pincher Martin*, in that both can be characterised as expressing 'a combination of activity and helplessness' through transitivity (Halliday, 1971: 350). This leads us to a more tenable hypothesis: that there exist low-level impressions (e.g. of mind style) that are always invited by particular linguistic choices, which, like ingredients adapted and combined by speakers/writers, contribute to different overall results. The question asked by this paper, then, is: could this low-level effect be predictable based on these linguistic choices in any context of use?

An examination of transitivity analyses in stylistics offers support for the existence of this lowest common denominator. Across a range of narrative contexts, the representation of inanimate objects or body parts as actors, or 'metonymic' and 'meronymic' agency (Simpson,

2004: 76), together with features such as goal-less intransitive clauses, passives, nominalisations and perfective aspect, are identified as contributing to a reduced sense of the awareness, intentionality or control in the human agent responsible (e.g. Fowler, 1977: 111-3, 1996: 231-2; Leech and Short, 2007: 153; Simpson and Canning, 2014: 289). This individual is often said to appear ‘helpless’ and ‘detached’ (Burton, 1991: 202; cf. Halliday, 1971; Simpson, 1993) or ‘disembodied’ (Hoover, 2004: 115), ‘mak[ing] what they do, say or think appear involuntary, cut adrift from conscious intervention’ (Simpson, 2004: 77). Such choices are often found listed together in stylistic profiling exercises which set out to characterise the techniques contributing to ‘passivity’, or the suppression of agency and power in characterisation (Kies, 1992; Martinez, 2002). Meanwhile, parallel research in critical discourse analysis includes such transitivity choices among the ways in which our attention to the agency and moral responsibility of individuals in situations is manipulated or reduced (e.g. Jeffries, 2007; Simpson, 1993; Van Dijk, 2008; Trew, 1979; Wilson, 2001).

Adopting a cognitive stylistic perspective, this lowest level of interpretation reflects the fundamental cognitive mechanisms that underpin our processing of language. With regard to transitivity, the similar responses to these stylistic choices across different texts seem to be reducible to the mechanism referred to in a stylistic context as ‘mind-modelling’ (Stockwell, 2009; Stockwell and Mahlberg, 2015), or our broader psychological ability to attribute mental states such as awareness, intentions and goals to people/entities other than ourselves (see also Nuttall, 2015). In this paper, I propose that transitivity effects in stylistics and critical discourse analysis can be better understood, and to some extent predicted, in terms of the linguistic manipulation of mind-modelling as part of our conceptualisation of a situation. Support for this characterisation of the lowest common denominator is gathered from three sources. In section 2, I outline an explanation for the connections between these linguistic choices and cognitive effects, using the theoretical framework of Cognitive Grammar (Langacker, 2008). In section

3, I then describe an experimental study which tests this connection through controlled text alteration and analysis of reader responses. Drawing on the quantitative and qualitative findings of this study, I compare the consequences of transitivity for interpretation both within and between contexts.

2. Reconceptualising transitivity in cognitive grammar

According to Halliday, ‘[t]ransitivity is the set of options whereby the speaker encodes his experience of the processes of the external world, and of the internal world of his own consciousness’ (1971: 359). If we take the stylistic profile outlined in the previous section and exemplified by Mrs Verloc’s murder of her husband (Extract 1), we can begin to examine one set of choices which seem to co-occur in texts with respect to the coding of external processes – especially *material actions* or *material events*. These choices are listed in Table 1 in rough order of their prevalence in previous discussions (see section 1). What they seem to have in common, I am suggesting, is a contribution to a reduced sense of intentionality, awareness or control for the agentive individual represented.

Coding	Process/participants	Example
A: human actor but no goal in material action process	<i>Human actor + process</i>	<i>She started forward</i>
B: meronymic/metonymic actor in material action process	<i>Body part/object + process + goal</i>	<i>Her right hand skimmed slightly the edge of the table</i>
C: inanimate actor in material event process	<i>Inanimate entity + process</i>	<i>the carving knife had vanished</i>
D: passivisation of material action process and deletion of actor	<i>Goal + process</i>	<i>The knife was already planted</i>
E: nominalisation of material action process	<i>Process + goal</i>	<i>The slight divergence of the eyes</i>
F: perfective material action process	<i>Actor + process [+ goal]</i>	<i>she had passed [the table]</i>

Table 1: A stylistic profile for reduced intentionality and control

Viewed in terms of Halliday's model, the connection between this specific set of codings and the motivation for a shared low-level effect are not immediately apparent. These features relate to different aspects of grammatical/semantic structure and levels of analysis in SFG, with C to F relating to dimensions of clause structure beyond transitivity, such as ergativity, voice and aspect.

Viewed in terms of Langacker's Cognitive Grammar (CG), however, each of these linguistic choices are understood as contributing to a common effect. In CG, all six depart in one way or another from our prototypical construal of events in terms of a basic interaction between an *agent* and a *patient* along an *action chain* (Langacker, 2008: 356-7). These terms can be seen as parallel to Halliday's 'actor', 'goal' and 'process', with the main difference residing in Langacker's discussion of their embodied basis in an experiential prototype. Exemplifying a prototypical construal, or *canonical event model*, a sentence such as 'Mrs Verloc stabbed her husband' (see Figure 1) features both a prototypical agent (or 'energy-source') and prototypical patient (or 'energy-sink') as part of its *profiling* of this event in attention. By placing 'Mrs Verloc' in subject position, this prototypical construal also confers greater *prominence* on this agent relative to her patient, as indicated by the bold circle in Figure 1 (Langacker, 2008: 66-73).

[Insert Figure 1 here]

Relative to this invented sentence, the codings described in A to F of our stylistic profile reflect different ways in which texts depart from this prototype. Represented in Figure 2, these include: A – profiling a limited portion of this event (without a patient); B – casting an unprototypical entity as the agent (one not strictly capable of being an energy-source, i.e. inanimate); or C –

construing this event as a *thematic* process, in which an energy-source is absent altogether (compare the ‘ergative interpretation’ in SFG; Simpson, 1993: 87). Moving on to D – F, these codings arguably depart from this same prototype to lessening extents: in D – shifting focal prominence to the patient, and deleting the agent from the profile, through use of the passive voice; and, finally, in E and F – departing with respect to the *dynamicality* of the event construal through time (Langacker, 2008: 79). In CG, both nominalisation and use of the perfect (along with the progressive) are said to ‘atemporalise’ the process represented, inviting us to conceptualise it as a static state of affairs, or relationship, as opposed to a changing event through time (Langacker, 2008: 124-6). In the example given in Figure 2, we see that this nominalisation (E) also encodes a deletion of the agent from the profile, similar to D. More broadly, the different codings in A-F can be combined in various ways in clauses, the result being further distance from the canonical event model on a scale of unprototypicality.

[Insert Figure 2 here]

Significantly, this same prototype underpins all types of process, whether material, mental, verbal, behavioural, relational, or existential, as described in SFG (Halliday and Matthiessen, 2004: 170-7). In this simplified model, a mental process such as ‘Mrs Verloc heard her husband’ would invite the same underlying conceptualisation seen in Figure 1, but with participants that are less prototypically ‘agent-like’ and ‘patient-like’ respectively (Langacker, 2008: 369; Dowty, 1991). In CG, the different process types differ only in force-dynamic (energetic) quality and can again be understood as reflecting degrees of departure from the prototype of an energetic material action (see also Hopper and Thompson 1980; Martinez, 2002 for a compatible scalar model of ‘high’ and ‘low’ transitivity). At the far end of this cline, SFG’s ‘relational’ and ‘existential’ processes are not considered processes at all in CG, but

rather static, atemporal relationships between participants (cf. Gavins' [2007] distinction between 'function-advancing' and 'world-building' processes).

This CG reworking of the transitivity model has a number of benefits for stylistic analysis. Firstly, it means that the categorisation of lexical verbs into process types, together with its associated analytical issues (see Jeffries, 2009: 45) is neither necessary, nor particularly useful. One danger of labelling and counting mental vs material processes for individuals in a text, for example, is an over-simplified interpretation which equates the dominance of mental processes with passivity or inaction, and a dominance of material processes with activity. Analysis in unified CG terms highlights the fact that not only doing, but also thinking, speaking and behaving can be more or less prototypically coded in terms of an underlying action chain (as in A-F) and, as such, can be more or less active or passive, energetic or static. It is not the *type* of process that matters most, therefore, but the way in which its participants are attended to. As I argue here, all such processes can be made to appear more or less agentic, intentional, conscious and controlled.

Secondly, the examination of clauses in terms of a single underlying action chain model allows broader patterns to be noticed in terms of construal, or the conceptualisations invited in readers. Developing previous work in Nuttall (2015, 2018), I propose that the restricted, thematic or atemporalised construal of events represented by this stylistic profile work to reduce our attention as readers to the mental states of the individuals involved. Research into 'mind attribution' (also 'mind perception') in psychology has found that a range of perceptual cues influence the extent to which we attribute thoughts, feelings and intentions to perceived entities. These cues include: *anthropomorphic features*, or the extent to which the entity looks like a person; and specific kinds of *self-propelled, goal-directed motion* (Luo and Baillargeon, 2005; Morewedge et al., 2007; Premack and Premack, 1997; Waytz et al., 2010). Mapping this research onto the embodied account of construal set out in CG, we can suggest that a

prototypical event construal such as ‘Mrs Verloc stabbed her husband’ (Figure 1) presents the linguistic equivalent of these perceptual cues in the form of a clearly focused human agent and her self-propelled, goal-directed action. By systematically reducing attention to one or more of these perceptual cues for mind attribution (i.e. the agent, the patient, or their energetic interaction), clauses such as those seen in Figure 2 reduce the extent to which mental states such as awareness and intentions are recognised during conceptualisation.

The remainder of this article seeks to test this proposal empirically, by applying methods of informant testing drawn from social psychology. While the studies of mind attribution discussed above used mainly visual stimuli, my suggestion that these same effects are triggered using language requires careful stylistically informed manipulation of textual stimuli. In the following section, I describe a simple experiment that combines such methods in stylistics and psychology.

3. A transitivity experiment

According to Hoover (2004: 115), one way of investigating the ‘congruent’ effects of stylistic choices in ‘radically different circumstances’ is text alteration. Importing syntactic choices characteristic of Henry James’ style into a science fiction context, Hoover argues that this method ‘helps to reveal connections among text features that might otherwise go unnoticed’ (2004: 115).

Taking this method as a starting point, two different versions of an extract from *The Secret Agent* were created. The first, the original text (see Extract 1, section 1) was left unchanged. The second, the manipulated text, was systematically altered in terms of the six features discussed (Table 1). These changes are underlined in Extract 2 below, with the corresponding feature(s) in Table 1 indicated in square brackets.

Extract 2: manipulated text

She remained thus mysteriously still and suddenly collected till she heard Mr. Verloc [D] with an accent of marital authority, and moving slightly to make room for her to sit on the edge of the sofa.

“Come here,” he said in a peculiar tone, which might have been the tone of brutality, but Mrs. Verloc knew it [D] intimately as the note of wooing.

She headed toward him [A] at once, as if she was still a loyal woman bound to that man by an unbroken contract. She stroked the end of the table slightly with her hand [B], and as she passed the table [A, F] towards the sofa she took the carving knife [C, F] without the slightest sound from the side of the dish. Mr. Verloc heard the creaky plank in the floor, and was content. He waited for her [A]. Mrs. Verloc was coming to him [A]. As if she sheltered the homeless soul of Stevie [E], flown straight to the breast of his sister, guardian and protector, she grew to resemble her brother more [E] with every step she took toward him [E], even to the way she drooped her lip [E], even to the way she diverted her eyes slightly [E]. But Mr. Verloc did not see that. He was lying on his back and staring upwards at the ceiling [A]. He saw partly on the ceiling Mrs. Verloc clenching a carving knife [B]. She thrust the knife up and down into Mr. Verloc [C]. She stabbed her husband [E] leisurely. She stabbed him [E] leisurely enough for him to recognize the limb and the weapon.

In this version of the text, all unprototypical construals of processes in this scene (including material, mental, behavioural etc., in line with the unified CG model of process types set out in section 2) are altered to reflect a canonical event construal, as far as possible, while leaving the description of characters and circumstances intact, and maintaining the wider cohesion of the narrative. While these changes inevitably alter the meaning of the clause, the goal was simply to shift the overall construal of this scene towards the prototype in terms of our attention to participants in the underlying action chains.

In order to compare the effects of these choices within a markedly different context, a further extract was selected, this time from a text featuring the opposite profile: a highly canonical event construal. While such texts are less frequently discussed in stylistics, one example is the ‘actional’ description (Simpson, 1993: 91) of Ernest Hemingway’s writing. Extract 3, taken from Hemingway’s ‘Big Two-Hearted River: Part 1’ (*In Our Time*, 1925), is

analysed by Fowler (1996: 228) as emphasising the ‘deliberateness’ and ‘purposiveness’ of its main character’s actions, in direct contrast to the reduced intentionality and control which characterise the mind styles discussed so far.

Extract 3: original text

Nick dropped his pack and rod-case and looked for a level piece of ground. He was very hungry and he wanted to make his camp before he cooked. Between the two jack-pines, the ground was quite level. He took the axe out of the pack and chopped out two projecting roots. That levelled a piece of ground large enough to sleep on. He smoothed out the sandy soil with his hand and pulled all the sweet fern bushes by their roots. His hands smelled good from the sweet fern. He smoothed the uprooted earth. He did not want anything making lumps under the blankets. When he had the ground smooth, he spread his three blankets. One he folded double, next to the ground. The other two he spread on top.

With an axe he slit off a bright slab of pine from one of the stumps and split it into pegs for the tent. He wanted them long and solid to hold in the ground. With the tent unpacked and spread on the ground, the pack, leaning against a jack-pine, looked much smaller. Nick tied the rope that served the tent for a ridge-pole to the trunk of one of the pine-trees and pulled the tent up off the ground with the other end of the rope and tied it to the other pine. The tent hung on the rope like a canvas blanket on a clothes line.

This time, in the manipulated version (Extract 4), all clauses featuring a canonical agent-patient interaction were altered to depart from this prototype in terms of the six codings seen in Table 1. The decision of which noncanonical coding to impose (A-F) for each clause was judged with respect to their ability to best create a coherent and natural sounding narrative. The simple, precise description and the highly cohesive (even repetitive) quality of the original text was maintained as far as possible, the goal being to isolate these six features, while retaining other aspects of Hemingway’s style.

Extract 4: manipulated text

Nick’s pack and rod-case fell [C] and he looked around [A]. His stomach was very hungry [B] and camp was wanted [D] before food was cooked [D]. Between the two jack-pines, the ground was quite level. His hands had taken the axe [B, F] out of the

pack and chopped [A]. A level piece of ground large enough to sleep on had appeared [C, F]. His hand smoothed out [B] the sandy soil and pulled all the sweet fern bushes by their roots. His hands smelled good from the sweet fern. The uprooted earth smoothed [C]. Anything making lumps under the blankets wasn't wanted [D]. When the ground had become smooth [C, F], the three blankets spread out [C]. The double folding of one blanket [E], next to the ground. The spreading of the other two [E] on top.

A bright slab of pine came away [C] from one of the stumps and split [C] into pegs for the tent. They wanted to be [B] long and solid to hold in the ground. With the tent unpacked and spread on the ground, the pack, leaning against a jack-pine, looked much smaller. Nick's hands tied the rope [B] that served the tent for a ridge-pole to the trunk of one of the pine-trees and the other end of the rope raised the tent up [B] off the ground and went around [A] the other pine. The tent hung on the rope like a canvas blanket on a clothes line.

While the resulting pairs of extracts are by no means directly comparable stylistically, they are comparable in other respects, being of similar length (200-250 words), and having undergone a similar amount of alteration (18 and 21 processes respectively). At the same time, they differ strongly with respect to character and situation: they feature protagonists of different genders, carrying out very different activities, in contrasting settings. Two questions underpin this comparison: (1) does a similar stylistic profile result in a similar impression of the main character in terms of mind in these two different contexts? And (2) how does my alteration of these texts change these impressions?

3.1 Procedure

In order to answer these questions objectively, an online reader response survey was carried out using Amazon's Mechanical Turk platform (www.mturk.com). Mechanical Turk is a crowd-sourcing website that allows researchers, businesses and organisations to selectively recruit online participants for tasks of their design (Buhrmester et al., 2011; Crump et al., 2013). A total of 167 participants were recruited and paid via this website, with the instruction that participants be over 18 years of age and speakers of English as their first, or main, language. Participation was limited to 'Turkers' registered in the United Kingdom, Republic of Ireland,

Unites States and Canada and only those with a previous task (or ‘HIT’) approval rate of at least 98% were eligible to take partⁱ.

Participants were assigned to one of four groups (A-D; see Table 2), each of which was shown a different version of the online questionnaire seen in Appendix 1ⁱⁱ. Each participant read one of the extracts given here (Extracts 1-4) along with a short paragraph of contextual information about the text from which it was taken. This context was intended to replicate the understanding of basic plot that a reader might possess when encountering this extract in a naturalistic reading of *The Secret Agent*/‘Big Two-Hearted River’, however the name of the text and author was not given in order to limit the influence of prior knowledge regarding these authors and their styles.

Test condition	Text	Stylistic profile
Group A	Extract 1 (<i>The Secret Agent</i> ; original)	Noncanonical construal
Group B	Extract 2 (<i>The Secret Agent</i> ; manipulated)	Canonical construal
Group C	Extract 3 (‘Big Two-Hearted River’; original)	Canonical construal
Group D	Extract 4 (‘Big Two-Hearted River’; manipulated)	Noncanonical construal

Table 2: Test conditions and textual stimulus

Participants were instructed to read the context and extract in their own time, before moving on to a second page containing short questions about what they had read. These questions consisted of six Likert scale rating questions, each of which was answered by selecting one of four options: Not at all > A little > Quite a bit > Very much so, followed by a short answer question testing their recollection of the text.

- 1) To what extent was *Mrs Verloc/Nick* in control of *her/his* actions?
- 2) To what extent did *Mrs Verloc/Nick* feel emotions?
- 3) To what extent was *Mrs Verloc/Nick* acting intentionally?
- 4) To what extent was *Mrs Verloc/Nick* able to influence the outcome of *her/his* situation?

- 5) To what extent was *Mrs Verloc/Nick* aware of *her/his* surroundings?
- 6) How well do you feel you understood the extract?
- 7) Briefly (in one or two sentences) summarise what happened in the extract.

Questions 1-5 replicate the ‘Mental State Attribution Task’ used in psychology (e.g. Haslam et al., 2007; Loughnan et al., 2010)ⁱⁱⁱ, with the specific mental states chosen here motivated by previous discussions of these texts in stylistics: control, intention, awareness, and power to affect change. The final two questions allowed me to assess participants’ understanding of the character and situation, alongside their ratings. Finally, participants were asked to provide basic information about their age, gender, language, reading habits and whether they recognised the text/author of the extract they had read (see Appendix 1).

Applying the model of construal outlined previously, my hypotheses for this study are:

H₁: The manipulated version of *The Secret Agent* (Extract 2) will result in *higher* ratings of mental state attribution for Mrs Verloc compared to Extract 1.

H₂: The manipulated version of ‘Big Two-Hearted River’ (Extract 4) will result in *lower* ratings of mental state attribution for Nick compared to Extract 3.

3.2 Results

Of the 167 participants that took the survey, 9 were excluded from my data as their answer to question 7 was unrelated to the text and revealed that they had not engaged with the task. A further two participants who correctly identified the text or author (‘The Secret Agent?’/‘Hemingway’) were also excluded. The remaining 156 participants in my sample varied in age, gender and reading habits. The majority of participants were aged between 26-35 (51%), were male (58%), and reported reading fiction ‘Sometimes’ (39%) or ‘Often’ (32%). A breakdown of the characteristics of participants in my sample is seen in Appendix 2. It is

worth noting that the participants in my four test groups showed a similar distribution in terms of these variables.

Turning first to the quantitative data obtained by the mental state attribution task, participants' ratings in response to the different extracts from *The Secret Agent* and 'Big Two-Hearted River' are seen in Figures 3 and 4, respectively.

[Insert Figure 3 here]

[Insert Figure 4 here]

With regards to *The Secret Agent* (Figure 3), participant ratings tend towards the higher end of the scale for questions 1-5, attributing these mental states to Mrs Verloc 'Quite a bit' or 'Very much so' in the majority of cases. However, a recurring difference can be observed between Group A and Group B across the different questions. Those participants in Group A who read Conrad's original version of the murder (Extract 1) showed greater variation in their mental state attributions, including some ratings of 'Not at all'. Participants in Group B who read my manipulated version of this scene (Extract 2) tended to rate Mrs Verloc's mental states higher, with 'Very much so' consistently gaining the highest proportion of responses. Turning now to 'Big Two-Hearted River' (Figure 4), we see the inverse relation between the two groups. In direct contrast to responses to *The Secret Agent*, it is participants who read Hemingway's original version of the scene (Group C) that tend to rate Nick's mental states higher, with a greater proportion of participants opting for 'Very much so' compared to Group D.

Broadly then, the data appears to support hypotheses 1 and 2 (section 3.1), suggesting an opposite effect upon mind attribution for the characters in the manipulated versions of these texts. While the patterns observed in these distributions may appear indistinct, comparison of

the average ratings for each group shows these differences to be consistent. As shown in Table 3, this comparison clarifies the trend towards increased mental state attribution between Groups A and B, and decreased mental state attribution between Groups C and D, with a difference of mean in the same direction for all questions. Subjecting all data to the Mann-Whitney U test (see Appendix 3), a significant difference between median ratings for both pairs of groups is seen for questions 1, 3 and 4. The results of this test (also given in Table 3) indicate a p-value of <0.05, meaning that we can reject the null hypothesis (H_0 : there will be no difference between the two groups' scores) at a likelihood of less than 5% for these questions.

Test		Q1.	Q2.	Q3.	Q4.	Q5.
Mrs Verloc	Group A mean	3.1	3.03	3.4	3.25	3.15
	Group B mean	3.62	3.43	3.76	3.78	3.46
	Mann-Whitney U test for significance	p<0.01	ns	p<0.05	p<0.001	ns
Nick	Group C mean	3.75	2.5	3.88	3.45	3.68
	Group D mean	3.38	2.28	3.46	3.05	3.26
	Mann-Whitney U test for significance	p<0.01	ns	p<0.01	p<0.05	p<0.05

Table 3. Mean ratings and significance values (based on medians) for all participants on mental state attribution task

These findings lend support to the interpretations suggested by stylisticians such as Kennedy (1991) and Fowler (1996). As described in sections 1 and 2, analyses of texts featuring a noncanonical construal of events often refer to the degree of control and deliberateness of the character's actions, and their power to influence their situation. Responses to questions 1, 3 and 4 lend empirical support for these effects, since responses to both Extract 1 and Extract 4 revealed significantly lower impressions of the characters' minds in these terms. Notably, this same interpretative effect was seen for both characters, in their markedly different contexts.

At the same time, those questions for which no significant difference was found might tell us more about the nature (and limits) of this stylistic effect. No significant difference in ratings was found for question 2 ('feel emotions') for either *The Secret Agent* or 'Big Two-Hearted River', and a significant difference was found for question 5 ('aware of his/her surroundings') for 'Big Two-Hearted River', but not *The Secret Agent*. One possible explanation here is that the context of the situations portrayed, including the wider context provided in the questionnaire and that inferable from the extract itself, was able to override any effect of the stylistic alterations on readers' impressions of the characters' emotions and situational awareness.

This analysis gains further support from the qualitative data obtained in response to question 7. In summarising what happened in the extract, participants in all four groups frequently go beyond the extract, to mention contextual information concerning previous events in the narrative. Participants in Groups A and B often infer the death of Mrs Verloc's brother as the motivation and cause of her actions:

It seems like the wife is really upset about the death of her brother. She picks up a knife and stabs her husband. (Group A)

The wife was quietly incensed about the killing. I think it was her intent to kill her husband. (Group A)

She was angry about his part in the death of her brother and was getting violent. (Group A)

Mrs Verloc learned that her brother was killed in a bomb somehow related to Mr Verloc. Mrs Verloc, in her grief and anger, stabs Mr Verloc with a knife (Group B)

Her brother was killed by a bomb that her husband was linked to. She was devastated, hurt, angry, and murdered her husband quite a few times over with many stabbings. (Group B)

The woman found out her husband was connected in a bomb that killed her brother. She kept up stoic appearance in front of her husband but had motive to avenge her brother and killed him. (Group B)

Such responses in my data indicate the rich and varied emotions inferred in response to both versions of the text, with others describing Mrs Verloc as ‘incredibly upset’ (Group A), ‘apprehensive’ (A), and even enjoying the murder: ‘She planned the kill and took her time’ (B). Also notable is a tendency to describe the thoughts and feelings of Mr Verloc, who is said to be ‘unsuspecting’ and ‘unaware’ (Group A, B), ‘trust[ing]’ (B), hoping for a ‘romantic liaison’ (B), and in two of the responses in Group B, potentially ‘abusive’ as a husband. While the dataset here is too small to draw conclusions, it suggests an increased richness in the attribution of mental states to Mr Verloc – the goal, or patient, of Mrs Verloc’s actions – for the canonical construal read by Group B.

Turning to Nick, the responses to question 7 from Groups C and D again often mention the context of Nick’s return to the town of Seney and its destruction in a fire, provided by the questionnaire. Notably, while lacking the explicit inference of emotions and causality seen in the responses from Groups A and B, participants do again draw basic inferences as to this context’s emotional significance, describing Seney as his ‘hometown’ or ‘home village’:

He came home from a long trip to his hometown but when he got there it was all burned up. Knowing the area he followed the stream to find a place to camp for the night and fish for something to eat. (Group C)

Nick had just found out that his home village [sic.] and so went off into the wilderness to find out what to do next. After traveling for a time, he became hungry but had to build a camp first. He set up himself between two pines and went about making himself a place to lay down and set up his tent. (Group D)

Nick had set off to find his old town and when he got there he saw that it had burnt down. After witnessing this, he decides to set off into the woods by way of following the river. He is quite hungry so he decides to make camp. (Group D)

In contrast to the responses to *The Secret Agent*, responses to both versions of this text feature less reference to complex emotions, with description of basic feelings and motivations such as hunger, a desire for shelter and comfort, reflecting those mentioned by the text itself and at times echoing Hemingway’s own descriptive style:

Nick was hungry and wanted to set up camp for the night. He took special care of the ground he was going to sleep on, making sure it was smooth so he could have a comfortable nights [sic.] sleep. (Group C)

Nick wanting to set up camp looked for a leveled ground in order to set camp up. He also wanted to cook so he needed to make camp and pitch a tent before he could. (Group C)

He was trying to set up camp which included his bed area and some cover from the elements. He knew what he needed to do before he cooked and ate his meal. (Group D)

These responses suggest that, when interpreting Mrs Verloc and Nick, the context for their construal in terms of wider narrative events and local aspects of style influenced the way in which readers attributed specific mental states such as emotion. This differential role of context also provides a likely explanation for why ‘awareness of her/his surroundings’ in question 5 prompted a significant difference in response to my text alteration for Nick, who is directly interacting with his surroundings, but not Mrs Verloc, who is instead interacting with another character. Illustrating the role of context in the interpretation of mind styles, these results suggest the range of factors influencing mind-modelling and possible distinctions in the way we attribute different types of mental state.

Finally, this data also provides some insight into the relative comprehensibility of the different versions of these texts, and their respective stylistic profiles. Taking as we have here, a random sample of readers, varying in age and reading habits, one possible explanation for the effects upon mental state attribution is a difference in the extent to which the actions and events described are recognised and remembered by readers of the text. By this reasoning, the cause of readers’ reduced ratings of intentionality for Mrs Verloc and Nick when their actions are construed noncanonically might not be due to decreased attention to the agent and patient, but more simply a lack of awareness that the action has taken place. Here, the quantitative data in response to question 6 offers one source of insight (see Figure 5). Statistical analysis of these ratings, again using the Mann-Whitney U test, show no significant difference for Groups A and

B, but a significant decrease in ratings of comprehension for Group D compared to Group C ($p < 0.01$; see Appendix 3). What this reflects, perhaps, is a loss of comprehensibility in my own attempt to replicate a noncanonical construal in 'Big Two-Hearted River', which Conrad's original version of *The Secret Agent* skilfully avoids.

[Insert Figure 5 here]

Interestingly, the written responses to question 7 tell a slightly different story. While summaries of both versions of 'Big Two-Hearted River' by Groups C and D are similar in their descriptions of Nick's actions in setting up camp, the descriptions of Mrs Verloc's actions by Groups A and B differ in their description of the murder itself. The following examples from Group A indicate uncertainty through epistemic modality as to whether or not the killing has actually taken place:

Mrs Verloc is not happy with her husband. She grabbed a knife and was going to stab him, I assume. (Group A)

If I understand it correctly, their son had been killed by a bomb linked to her husband, and Mrs. Verloc grabbed a carving knife to kill her husband for killing their son. At least, that's what the last line suggested. (Group A)

Mrs Verloc had a carving knife and was walking towards Mr Verloc possibly with the intent to kill him? (Group A)

While unmodalised descriptions of the murder are also seen (e.g. 'Mrs. Verloc stabbed her husband to death with a knife') these types of responses make up only around half of those collected for Group A, compared with the responses in Group B, all of which describe Mr Verloc as having been 'stabbed' or 'killed'. For some readers, then, a noncanonical construal may create ambiguity as to the actuality and sequencing of narrative events. Clearly, to understand this ambiguity, more sensitive measures of comprehension than those adopted here are needed.

There are of course other issues with experimental reader response studies such as this. The non-naturalistic conditions under which readers encounter these extracts is likely to result in a self-conscious reading experience and interpretation, which may differ from those of readers in other contexts. At the same time, the relative freedom of reading environment permitted by the online survey format, as opposed to a paper questionnaire filled out under controlled conditions, means that participants' attention to the text is likely to vary greatly, with individuals reading at different times of the day (in different time zones), at different speeds, with different motivations (e.g. financial or recreational) and possible distractions. And yet, in spite of all these variables, this study has found clear similarities between the interpretations offered by such readers and those put forward by stylisticians. In doing so, this experimental method adds strength to discussions of the interpretative, affective and ethical effects of transitivity choices in texts.

4. Conclusion

This article has developed an account of the low-level interpretative effects of a specific set of stylistic choices, often identified as working together within a range of different contexts. These choices, typically analysed in terms of Halliday's transitivity system, can be related in terms of Cognitive Grammar and their shared consequences for construal. Drawing parallels between linguistic and psychological research, this article's conclusion is that the interpretative effects of transitivity choices observed in both stylistics and critical discourse analysis are, at a basic level, effects for mind-modelling, and, more specifically, the attribution of particular thoughts, feelings, beliefs and goals to the individuals portrayed.

As demonstrated by responses to the two texts compared here, this lowest common denominator in understanding can manifest as part of complex and remarkably varied interpretations of individual characters and situations. While attending to the significance and

value of context, including ‘the entire constellations of features that constitute [texts’] styles’ (Hoover, 2004: 114), stylistics also juggles a fundamentally predictive rationale, or what Simpson calls its ‘comparative principle’:

the rationale behind much modern stylistics is that not only does the use of linguistic models offer greater ‘purchase’ on texts but that it also provides the basis for comparative analyses of other texts using those same linguistic models. (Simpson, 1993: 94).

By clarifying and specifying the nature of interpretation, even at a rather reductive level, the present cognitive account provides a basis for detailed comparison of texts and a starting point when considering new textual data. For example, given these predicted effects for non/canonical construal, we might consider the discourse of ‘Pro-life’ and ‘Pro-choice’ campaigns concerning abortion law, and the extent to which we are invited to attribute mental states (e.g. consciousness) to the women and foetuses represented. Further research into mind attribution in psychology has distinguished the *types* of mental states (e.g. crude emotions vs complex thought) that we differentially attribute according to specific perceptual cues, and their consequences for moral judgement (e.g. Gray et al., 2012). By considering transitivity choices in these cognitive terms and examining their effects in different foregrounded or backgrounded contexts, such analysis may offer new insights into this aspect of style and its interpretative significance.

The experiment seen here is necessarily narrow in focus. By grouping together six features, rather than manipulating and testing them individually, no claims can be made regarding their individual influence other than those suggested by their intuitive distance from a theoretical action chain prototype. In addition, this study has overlooked a range of related stylistic choices including modality and negation, or those relating to the ‘interpersonal function’ of language, which also contribute to construal (Halliday and Matthiessen, 2014).

Whether a process is described as having certainly or only potentially occurred, or as having not occurred at all, will also have consequences for readers' impressions of the individuals involved (Kennedy, 1991: 87; Simpson and Canning, 2014). These choices, related to the *grounding* of events in a 'conceived' or 'projected' reality (Langacker, 2008: 296-309), were not altered in this study, since doing so would likely change the plot of the narrative. Further, by carefully selecting extracts consisting mainly of material processes, as opposed to mental and verbal ones, this study has avoided considering the interacting effects of explicit cues for mind attribution in the form of speech and thought presentation (see Nuttall, 2015). While the mental state attribution task adapted here from psychology provides one useful methodology for reader response research, other experimental designs and a greater range of textual stimuli are needed to explore our complex responses to people and mind styles in texts.

This article represents one attempt to integrate psychological methods with attention to the complexity and richness of real textual data (see also Sanford and Emmott, 2012; Simpson, 2014). This interdisciplinary approach provides support for new accounts of reader processing offered in cognitive stylistics and, importantly, links these to the interpretative, ideological effects that have long been observed and replicated in stylistic analysis.

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Appendix 1: Questionnaire

Below is an extract from a work of fiction. Before you read it, you should first read the context paragraph below, which explains a little about the book from which it is taken.

Context: This extract is taken from a novel which describes the experiences of a character Mr Verloc and his work as a spy. The novel describes Mr Verloc's relationship with his wife, Mrs Verloc, and her brother, Stevie, who has learning difficulties. In this scene, Mrs Verloc has just learned that her brother Stevie has been killed by a bomb linked to her husband.

[OR]

Context: This extract is taken from a short story which describes the experiences of a young man, Nick. At the start of the story, we see Nick return from a journey to find that the town he once knew, Seney, has been destroyed by a fire. Leaving this changed landscape behind, Nick has set off into the woods, following the river.

[Extract]

Once you are ready to move on, click 'Next'. You will be asked a few short comprehension questions about what you have read. You will not be able to return to this page.

Now answer some questions about one of the characters

The following questions concern the character *X*.

For each question, tick **one** box to rate your impression of *X* from the options provided.

1) To what extent was *X* in control of *her/his* actions?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

2) To what extent did *X* feel emotions?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

3) To what extent was *X* acting intentionally?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

4) To what extent was *X* able to influence the outcome of *her/his* situation?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

5) To what extent was *X* aware of *her/his* surroundings?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

Now answer some questions about your understanding of the text.

6) How well do you feel you understood the extract?

	Not at all	A little	Quite a bit	Very much so
Choose one:				

7) Briefly (in one or two sentences) summarise what happened in the extract.

Please now provide some information about yourself.

8) Is English your first language?

- Yes
- No

Unsure

If you selected 'Unsure', please provide information about your language background below.

9) What is your age?

18-25

26-35

36-45

46-55

55+

10) What is your gender?

Female

Male

Other

11) How often do you read fiction?

Never

Rarely

Sometimes

Often

Very often

12) Did you recognise the book that the extract was taken from? If so, please write the book title and/or author here.

Appendix 2: Characteristics of participants in online survey

Group	Age					Gender			L1 English		
	18-25	26-35	36-45	45-55	55+	Female	Male	Other	Yes	No	Unsure
A	8	23	6	1	2	18	22	0	40	0	0
B	8	21	6	2	0	16	21	0	37	0	0
C	8	11	11	6	4	17	23	0	40	0	0
D	5	25	6	1	2	15	24	0	39	0	0

Reading habits: how often do you read fiction?

Group	Never	Rarely	Sometimes	Often	Very often	Total survey participants
A	1	7	11	18	3	40
B	1	7	18	8	3	37
C	1	4	15	17	3	40
D	3	5	17	7	7	39

Appendix 3: Mann-Whitney U test

The Mann-Whitney U test is used to compare independent samples of ordinal data and does so by comparing the medians of the two samples (see also Simpson, 2014 for its use in stylistics). This test was carried out for questions 1-6 in my survey using SPSS 24 (Windows).

The test statistics given here are the exact 2-tailed significance generated by this analysis.

Test		Q1.	Q2.	Q3.	Q4.	Q5.	Q6.
Mrs Verloc	Group A median	3	3.5	4	3	3	3
	Group B median	4	4	4	4	4	3
	Mann-Whitney U test for significance	0.003	0.109	0.028	0.000	0.07	0.630
Nick	Group C median	4	3	4	4	4	3
	Group D median	3	2	4	3	3	3
	Mann-Whitney U test for significance	0.003	0.266	0.001	0.028	0.015	0.003

ⁱ This meant that 98% of their previous surveys were deemed satisfactory by other survey-creators, or 'Requesters' on the site. In a smaller pilot version of the study, a 95% approval rate resulted in a greater proportion of anomalous (seemingly disingenuous) responses to the task. See Buhrmester et al. (2011) and Crump et al. (2013) for benefits and issues surrounding data collected via this site.

ⁱⁱ Participants were able to see and participate in only one version of the survey on the Mechanical Turk site, each of which was released consecutively. Their allocation to one of the four groups therefore depended purely upon the day on which they logged onto the website.

ⁱⁱⁱ One notable difference is my use of 4-point Likert scales as opposed to the more common 5 or 7-point scales in psychology. Since participants were required by the survey website format to choose one of four options, as opposed to an unspecified point on a sliding scale, having fewer points allowed easier labelling (and participant understanding) of what each point meant. Opting for an even number of points meant that no neutral answer was available to participants, which was appropriate given the nature of my questions. Finally, given the relatively small number of participants in my study (40 per condition), fewer options meant a reduced spread of data points which was advantageous for statistical analysis.