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Aesthetics

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The problem of a science fictional aesthetic

Science fiction is extremely diverse as a genre, encompassing a wide range of narrative types and expressive patterns: you will find stories cast in the form of crime and detective puzzles, theological and philosophical explorations, ripping yarns, shoot-outs and battles and meditative extrapolations; both pacy narrative drive and lyrical contemplation; characters that resonate as rich fictional people and characters that are everyman tokens and plot devices. You will find magical realism, modern gothic, postmodernism and the absurd, omniscient narration and psychological stream of consciousness; the registers of action-adventure, experimental narrative, science, humour and psychobabble; stories both heavy with demotic dialogue and elsewhere brimming with specialized terminology; and a rich and still-expanding set of sub-genres across the many media forms of print and screen. All of this diversity makes it very difficult to delineate a single unifying aesthetic that can be said to identify science fiction as a cultural phenomenon. However, it seems to me that this is a fault of our traditional understanding of aesthetics, rather than a problem unique to science fiction.

Though the term *aesthetics* gained widespread usage only in the late 18th century, drawn from Greek into German and thence to English, over the course of several thousand years of history different thinkers have expressed their views of literary art in many diverse ways as well. We can identify several usages. Firstly, at its most scholarly, aesthetics has been the term that encompasses discussions of artistic value, based on setting out the principles and beliefs that underscore a particular art object or movement: this is aesthetics as philosophy (Janaway 2006, McMahon 2007). Secondly, aesthetic discussions have often centred on considerations of the nature of beauty and the measurement of a particular work of art: this is aesthetics as (literary) criticism (Armstrong 2000, Gumbrecht 2004). Beyond the academy, however, there are several other fields of commentary that treat aesthetics in a different sense. The beauty or otherwise of an artwork can be considered not only in terms of its own properties nor in terms of its creative intentions but also for the effect it has on a viewer or culture: this treats the aesthetic value of a work in terms of its social impact. Finally, there is a sense in which the aesthetic of an object relates in journalistic and popular usage to the 'look and feel' of the work: this is aesthetics as fashion.

Across these different senses and applications within the field of literature, in general there is a set of uses that pertains to the internal properties and features of the literary text, and another related set that inclines towards the generic and social positioning of the work. To give a simple example, here are the openings to five short stories from the same collection by science fiction writer Roger Zelazny (1971):

1.
I'm a baitman. No one is born a baitman, except in a French novel where everyone is. (In fact, I think that's the title, *We are All Bait*. Pfft!) How I got that way is barely worth the telling and has nothing to do with neo-exes, but the days of the beast deserve a few words, so here they are.

Roger Zelazny (1971) 'The Doors of His Face, the Lamps of His Mouth'

2.
Born of man and woman, in accordance with Catform Y7 requirements, Coldworld Class (modified per Alyonal), 3.2-E, G.M.I. option, Jarry Dark was not suited for existence anywhere in the universse which had guaranteed him a niche. This was either a blessing or a curse, depending on how you looked at it.

So look at it however you would, here is the story:

'The Keys to December'

3.
'*... I is this ?hearers wounded-wonder like stand them makes and stars wandering the conjures sorrow of phrase Whose...'*

He blew smoke through the cigarette and it grew longer.

'Divine Madness'

4.
Drax and Dran sat in the great Throne Hall of Glan, discussing life. Monarchs by virtue of superior intellect and physique – and the fact that they were the last two survivors of the race of Glan – theirs was a divided rule over the planet and their one subject, Zindrome, the palace robot.

'The Great Slow Kings'

5.
I was busy translating one of my *Madrigals Macabre* into Martian on the morning I was found acceptable. The intercom had buzzed briefly, and I dropped my pencil and flipped on the toggle in a single motion.

'A Rose for Ecclesiastes'

On the social and cultural dimension, Zelazny is widely regarded as a 'literary' science fiction author (Yoke 1979, 1985, Lindskold 1993), with an MA in Renaissance literature and with a style of writing that often blended classical mythologies, literary allusion and quotations from French, Latin and Greek. The first example above illustrates the blend of what appears to be scholarly and literate allusion with a demotic dialogic style, and even a science fictional neologism ('neo-exes'). Excerpt 2 exemplifies the immersive and idiomatic style that can often be found in science fictional openings. Like the first extract ('a few words, so here they are'), the introduction refers to itself as text ('here is the story'), which is both conversational and self-consciously artsy, and it blends conversational idioms with technical terms that the experienced sf reader might decode: a genetically modified person in the form of a Cat suited for Alyonal, a cold planet which has 3.2 times Earth gravity.

Excerpt 3 is the most literate and self-conscious of all, with graphological marking drawing attention to the opening sentence in italics and reversed word-order: corrected, it is a quotation from Shakespeare's *Hamlet*. It retains internally the science fictional suggestion in 'stars', and then introduces an oddity in the sentence that describes the smoked cigarette

growing longer. The reversal is iconic in the rest of the story, which deals with a character who – between seizures – lives backwards through the immediate future, in what turns out to be a redemptive love story. Excerpt 4 displays the grandiose register of overblown mythological science fiction, quickly undermined in bathos. The final extract immerses the reader into the futuristic world, presented as if it were familiar – a common technique in sf which is here lyrically enriched with the alliterative 'm' and the anachronistic blend of pencil and toggle.

These examples have been selected here because they neatly illustrate – within one book – several different features of science fictional writing within a text. Any comprehensive aesthetics of science fiction would have to allow a principled account of all of these features, and more, and also recognize that Zelazny is at one, literate and allusive end of a spectrum that stretches to more action-driven and one-dimensional examples of formulaic genre fiction.

One possible way of dealing with genre-diversity would be to work out different aesthetic principles for the different forms of sf. So we could explain separately the characteristically appealing features and effects of the writing of the inter-war US pulp magazines, or the British 1960s New Wave, or 1980s cyberpunk, and so on. However, this approach neglects to recognize the intuitive sense shared by many readers that sf is generically and wholly a particular thing. Sub-genres have family resemblance with each other, even if those at extended ends of the spectrum appear superficially dissimilar.

An alternative is to claim that sf is not easily amenable to the customary perspectives of literary scholarship, because the latter arose alongside a literature of character, lyrical sensibility and artistic self-reference that has diverged from the history of sf writing. Science fiction therefore requires its own, bespoke scholarly aesthetic account. The most famous proponents of this position are the sf authors and critics Samuel Delany (1977, 1984) and Joanna Russ (1975). Delany argues that science fiction is necessarily and by definition richer (an aesthetic judgement) than what he terms 'mundane' fiction because of its greater potential for possibilities that are not restricted to natural realism or the parochial and everyday. However, this position is an evaluation of poetics rather than aesthetics, properly. The enhanced richness is a matter of a larger scope for propositional content and meaning; Delany does not claim that sf allows a wider or qualitatively different intensity of emotional attachment than other literary art.

Russ (1975: 112) contrasts the emphasis and value placed in literary criticism on lyrical intensity with the 'drastically different form of literary art' of sf. She describes science fiction as essentially didactic rather than contemplative, with characters that are collective or representational rather than individual psychologies, with an emphasis on phenomena and possessing a quality that is awed, worshipful and generally religious in tone.

> Criticism of science fiction cannot possibly look like the criticism we are used to. It will – perforce – employ an aesthetic in which the elegance, rigorousness, and systematic coherence of explicit ideas is of great importance.
>
> (Russ 1975: 118)

This position might appeal to anyone with a rebellious or contrarian streak who enjoys being an sf fan as an act of alternativity, but there is something of the ghetto and special pleading about it. Treating sf as essentially a different form of art only serves to marginalise it even

further, rather than dealing directly with the common processes of aesthetic perception that we all share. It is not psychologically plausible to imagine a separate type of reading and appreciative process evolved solely for sf, and it is not socially plausible to separate sf out from the continuity of other human experience whether of literature or art or life in general.

Russ points out the close connections and similarities between medieval literature and science fiction (indeed, it is noticeable that many sf scholars are also medievalists: for example Edward James (1994, 2001) and Tom Shippey (1978, 1991)). Medieval and science fictional literature share, she claims, many features of didacticism and exposition, everyman character tokens, materialism and a 'sense of wonder' (Knight 1967) − the last of these captures their common aesthetic effect. However, this observed continuity undermines the argument that sf needs to be treated differently from other forms of literary art. Later in this chapter, I suggest three dimensions in which science fiction in general can be regarded as being engaging in ways that readers find attractive and in ways that are common to all other forms of literature; but it is worth arguing at this point that there are good theoretical reasons for asserting this continuity. These arguments draw on the history of art and our current scientific understanding of mind, as set out below.

Aesthetics old and new

From classical times up to the early modern era, in general beauty has largely been understood in terms of proportion, balance, harmony, planned design and symmetry. Ugliness in this understanding is not a thing in itself but is a turning away from beauty, a failure of proportion, balance, and so on. Non-beauty is therefore formless. In our contemporary terms, we might say that beauty has been understood as figure (a good, well-formed gestalt shape) possessing psychological prominence and attraction, while non-beauty has been conceived as ground (the indistinct, property-less background that simply defines the space behind the edges of the figure). Much of what we would now call aesthetics scholarship from Plato and Aristotle to St Thomas Aquinas and St Bonaventure was concerned with setting out the rules and principles for achieving artistic beauty in literature, painting, sculpture, architecture, landscape, and so on. Up until the 17th century in western philosophy, beauty was a matter of identifying and articulating prescriptive rules, even if those prescriptions were based on an educated consensus of what constituted beautiful objects.

With the late Renaissance and into the Enlightenment, observations on aesthetics take a turn towards a more subjective understanding that we might start to recognise as modern: beauty is not (just) a property of objects, but is a perceived property. Differences in feeling become important in delineating and categorising different aesthetic effects. So Burke (1767), for example, differentiates between the beautiful and the sublime as mutually exclusive effects: the sublime allows for intensity of feeling caused by pleasurable terror at immensity or transcendence. He also emphasises the personal and subjective in understanding such feelings, and the power of language to convey them:

> Certain it is, that the influence of most things on our passions is not so much from the things themselves, as from our opinions concerning them; and these again depend very much on the opinions of other men, conveyable for the most part by words only.
>
> (Burke 1767: 335)

Kant (1764) also develops the distinction between beauty and the sublime by further sub-dividing the latter into the noble sublime, splendid sublime and the terrifying sublime. In maintaining this distinction, he proposes what we might now see as a very modern, cognitive psychological understanding of the perceptual basis of figure and ground: beauty is a judgement of an object in the world, while the sublime transcends objects and is a more formless and intense feeling (Kant 1790). This division of the source of aesthetic feeling into two categories more or less sustains a Cartesian dualism between body and mind, instinct and reason, emotion and concept, even if the different iterations of the division retain some other subtleties.

In terms of the literary art of the 19th, 20th and 21st centuries following, it is a distinction in which the science fiction tradition from *Frankenstein* (in 1818) onwards (as defined by Aldiss and Wingrove 1986) comes off badly: sf is firmly placed in the sublime category. This is evident in the genre's key feature of awe-some-ness, the sense of wonder, or what in mid-20th century American science fiction was called the 'gosh-wow!' effect (see Stockwell 2000: 76-106). The reason this is a bad outcome for sf is that, by strong contrastive implication, it denies sf access to the category of beauty. Even if beauty and sublimity are scaled prototypically along a cline, with one blending into the other as proposed by Schopenhauer (1818), sf still remains located in both senses at the 'other-worldly' pole with awe, terror and wonder, rather than alongside lyric, passion, emotion and the other effects of pure observed beauty. Schopenhauer's sublime is self-effacing, as the observer forgets their own situation and is transported elsewhere in transcendence.

Now it must be said at this point that not all science fiction achieves this sort of sublimity! Part of the problem of the entire history of the study of aesthetics is that commentary tends to be reserved for good examples of high art, with the prescriptions that are expressed often functioning in a circular way to define what counts as high value and what does not. Either way, sf loses out, being seen either merely as low art not worthy of scholarly value or as a type of art that appeals to simple reason and childish wonder, rather than anything more resonant, tasteful, or emotionally sophisticated.

In a valiant attempt to reappropriate some of these values for sf, Istvan Csicsery-Ronay (2008) sets out the 'seven beauties of science fiction'. His approach aims at description rather than prescription, though there is certainly a sense that he intends a persuasive element to his scheme:

> Rather than a program-like set of exclusive rules and required devices, this mode is a constellation of diverse intellectual and emotional interests and responses that are particularly active in an age of restless technological transformation. I consider seven such categories to be the most attractive and formative of science-fictionality.
>
> (Csicsery-Ronay 2008: 5)

His 'seven beauties' (the phrase echoes a 12th century Persian epic poem of didactic, romantic and astrological adventure) are:

- science fictional sublime
- science fictional grotesque
- imaginary science
- future history
- fictive neology

- fictive novum
- the technologiade.

It should be immediately clear that most of these features primarily concern poetics (content and technique) rather than aesthetics (effect), though one of the attractive aspects of Csicsery-Ronay's scheme is the implicit assertion that technique and effects cannot be simply separated. His set of features is also presented as a 'constellation' rather than a set of necessary criteria, so different sf works will possess different combinations of these aspects.

Csicsery-Ronay's features represent the elements that differentiate sf from other forms of literature. In this respect, and in spite of its advance on earlier delineations of the genre (Delany 1977, 1984, Russ 1975, Suvin 1979, 1988), it functions still as an argument for sf as being special, odd, alternate or deviant from other literary art, even as it promotes this otherness as valuable.

Instead, and gathering together the discussion so far, we can turn to our current best understanding of mind and literary appreciation to revisit the notion of aesthetics and apply this to science fiction. As sketched out above, in very crude terms there has been a shift in aesthetic description from prescription to description in the course of over two millennia. The prescriptive tradition remains alive in journalistic and popular discourse on high and low culture and the definition of art, whereas most modern scholarly work in aesthetics is concerned with the anthropology and social psychology of artistic value, or with the comparative study of art across cultures and histories, and is mainly descriptive. However, implicit even in this descriptive analysis is often an inescapable and entirely human inclination to convince others of the rightness of the view being expounded: in other words, even the most anthropologically descriptive discussion of aesthetics has a persuasive element that means aesthetics as a field is neither objective nor entirely subjective but is necessarily intersubjective.

This means we need to draw on those aspects of human experience that are common to us, while trying to describe them in as transparent and systematic a way as possible. The best current framework for achieving this resides in the insights for art and literature emerging from cognitive science (Stockwell 2002, Hogan 2003).

The cognitive turn (Steen 1994) in humanities involves several principles that reject the Cartesian dualities of mind and body, reason and emotion, poetics and aesthetics. These are replaced by continuities such as the embodied mind, the inter-animation of meaning and feeling, and the assertion that our processes and experiences of life and art are not separate. In essence, real emotion and literary emotion, real people and literary characters, remembered experiences and recounted experiences are processed very similarly, with the only difference being one of mere existence. One consequence here is that science fictional aesthetics cannot be treated separately from a literary or artistic aesthetics, because literary feeling is still fundamentally the same as feeling in general (Stockwell 2009a). We can identify – drawing on cognitive science – the common aesthetic patterns that sf shares with other art and experience in general; and we can also identify the particular patterns of science fictional singularity.

For example, it is clear from different sources such as gestalt psychology and the cognitive psychology of visual perception that certain shapes and concepts are universally regarded as more attractive than others (in the sense both of attracting attention and being aesthetically

appealing: see Styles 2006, Stafford 2007). And it is possible to apply the same principles to the effects of literary reading (see Stockwell 2009a), to produce a usable toolkit of the linguistic features of good attractors in a literary text. For example, it might be thought obvious that attention is grabbed by the current textual position in reading, and perhaps clear that agency, topicality and activeness are regarded as attractive, but it might not be so obvious that definiteness and empathetic identification are also similarly attractive, and that even denotations of brightness, fullness, noisiness, largeness, and oddness have also been found to attract attention in a satisfying way (Stockwell 2009b, see also Emmott, Sanford and Morrow 2006, Emmott, Sanford and Dawydiak 2007). Literary works exploit these linguistic resources to generate aesthetic effects in readers, and these patterns are as effective in science fiction as in other forms of literature.

This is not to say that sf is identical with other forms of literary art, of course: the task of the literary critic ought to be in identifying where sf draws on culturally shared aesthetic patterns as well as identifying where sf adapts those patterns in a singular and unique way. A literary critic of this sort needs to be adept at a close cognitive poetic analysis of style as well as aware of aspects of literary historiography and both scholarly and popular reception. I am, of course, presenting an ideal model of a literary critic as a science fictional blend of scientific awareness and cultural sensibility, and arguing polemically for a literary practice in the third millennium as an artful science.

Compulsion in science fiction

The distinction between beauty and wonder only works for a narrow understanding of experience and in relation to a (self-defined) narrow section of artistic enterprise. Instead, I would like to propose the encompassing notion of *compulsion* as the power that literary reading generates. This is the feeling that the book is compelling and gripping, important beyond its mere materiality or the world and plot that it designates, and the feeling that readers are transported or self-effaced or transformed in the process (see Gerrig 1993, Miall and Kuiken 2002). Science fiction (at least, those works that people think of as good science fiction) is compelling in this sense, just as much as any sort of literature can be. At its best, it is utterly compelling to the point of enthusiastic immersion.

Understanding science fictional aesthetics as a compulsive effect requires a holistic understanding of its textual and narratological features together with the creative enrichment and enthusiasm brought by its readers. Science fictional sublimity and beauty are essentially then different emphases for the same phenomenon. In the rest of this chapter, I outline very briefly and mainly by example three forms of beauty in which science fiction excels, starting with the least expected.

Beauty of expression

Science fiction is not generally regarded as poetic in the common sense, though in fact I would argue that the creative neologism and fictive novum identified by Csicsery-Ronay (2008) are poetic forms of expression at different levels that are more richly exploited in sf than in other genres. Nevertheless, there are examples of great poetic and lyrical writing in the sf canon, even without resorting to 'special' arguments about the peculiar grandeur of Tolkien's or Pratchett's style which, it is argued, are simply not understood by elitist literary critics. The obvious example is the prose style of Ray Bradbury, an appreciation of which grows the closer it is examined.

> The captain stared from the huge dark-lensed port and there indeed was the sun, and to go to that sun and touch it and steal part of it forever away was his quiet and single idea. In this ship were combined the coolly delicate and the coldly practical. Through corridors of ice and milk-frost, ammoniated winter and storming snowflakes blew. Any spark from that vast hearth burning out there beyond the callous hull of this ship, any small firebreath that might seep through would find winter, slumbering here like all the coldest hours of February.
>
> ('The golden apples of the sun,' Bradbury 1953: 165)

The success of this is largely in the aptness at the semantic level and the balance at the syntactic level. The poetically striking nature of its meaning is carried by the metaphors in various different forms: some compressed as noun-phrase modifiers ('milk-frost'), others by quick empathetic personification ('callous hull'), or both of these together as a personifying lexical blend ('firebreath'); others by explicit analogy ('like all the coldest hours'), others by reference in which the target of the metaphor remains stylistically invisible but still present ('that vast hearth'). This metaphoric exuberance is not simply a modernist technique for its own sake: the short story itself (like much sf) literalises a metaphor about going to the sun, and does it by overlaying a science fictional spaceflight scenario onto W.B. Yeats' poetic 'And pluck till time and times are done, the silver apples of the moon, the golden apples of the sun'.

The sense of space-travel motion, delicacy, and the contrast of the safe interior and sublimely dangerous exterior are captured in the continuous feeling of the additive syntax and the locative expressions ('that sun' in contrast to 'slumbering here') and the spatial prepositions ('from', 'Through', 'beyond'). In one paragraph, Bradbury conveys not simply the denotation of the story but the sensation of it simultaneously. He even deploys /k/ and /l/ sounds systematically throughout to associate these sounds iconically with coldness.

The following passage is even more striking. Read this aloud for the full effect.

> They had a house of crystal pillars on the planet Mars by the edge of an empty sea, and every morning you could see Mrs. K eating the golden fruits that grew from the crystal walls, or cleaning the house with handfuls of magnetic dust which, taking all dirt with it, blew away on the hot wind. Afternoons, when the fossil sea was warm and motionless, and the wine trees stood stiff in the yard, and the little distant Martian bone town was all enclosed, and no one drifted out their doors, you could see Mr. K himself in his room, reading from a metal book with raised hieroglyphs over which he brushed his hand, as one might play a harp. And from the book, as his fingers stroked, a voice sang, a soft ancient voice, which told tales of when the sea was red steam on the shore and ancient men had carried clouds of metal insects and electric spiders into battle.
>
> (*The Martian Chronicles,* Bradbury 1951: 14)

The long syntactic addition, co-ordination and compounding in each of these three sentences literally takes your breath away. Each added phrase is framed definitely and by precise specification, so the effect is of assuming a familiarity with golden fruits and crystal walls that only increases the thrilling alienness of the metal insects and electric spiders from ancient Martian history. Again, Bradbury sets up particular consonant clusters (/kl/, /dz/ and /tl/) that echo through the passage and bind it together subliminally, so that when these phonetic patterns reach a crescendo in the final couple of lines, the reference to ancient

history appears to be prefaced by the future in a peculiarly iconic science fictional manner. Bradbury even manages to include a delicate Homeric allusion in the link between 'fossil sea' and 'wine trees' to the 'wine-dark sea' of the *Iliad*.

Examples such as these are not restricted to Bradbury: any list would only make a start with the stylistic richness of Brian Aldiss, Kurt Vonnegut, Charles Stross, Ursula Le Guin, Russell Hoban, Octavia Butler, Jeff Noon, Margaret Atwood, and many hundreds of others – prose styles of intricacy, poetic resonance and thematic relevance that are the equal of any literature. The last feature here is important: science fictional poetic style is often motivated and immediately thematically relevant to the world being evoked itself, rather than as an experiment that (self-)references an artistic movement – this is what distinguishes the wildly creative stylistic experimentation of Aldiss' (1969) *Barefoot in the Head* from James Joyce's superficially similar *Finnegan's Wake*.

Science fictional poetic style often serves an immersive function, placing the reader's interior narrative voice (as narratee or as implied reader) into a position of assumed familiarity with the imagined world. The dialectal style of William Gibson is often cited as the iconic example of this, though in fact it is pervasive in sf. The effect is often conversational, intimate, and slick – rendering an impression of sf style as cool. This Gibsonesque extract is in fact earlier, by John Brunner:

> At present I am being Arthur Edward Lazarus, profession minister, age forty-six, celibate: founder and proprietor of the Church of Infinite Insight, a converted (and what better way for a church to start than with a successful conversion?) drive-in movie theatre near Toledo, Ohio, which stood derelict for years not so much because people gave up going to the movies – they still make them, there's always an audience for wide-screen porn of the type that gets pirate three-vee satellites sanded out of orbit in next to no time – as because it's on land disputed between the Billykings, a Protestant tribe, and the Grailers, Catholic. No one cares to have his property tribaled. However, they normally respect churches, and the territory of the nearest Moslem tribe, the Jihad Babies, lies ten miles to the west.
>
> My code, of course, begins with 4GH, and has done so for the past six years. *Memo to selves:* find out whether there's been any change in the status of a 4GH, and particularly whether something better has been introduced … a complication devoutly to be fished.
>
> (*The Shockwave Rider,* Brunner 1975: 5)

This is a style on the boundary of recognition, not so far from contemporary idiom as to be obscurely alien, but sufficiently unfamiliar to feel as if you are inhabiting another mind. The small efforts of decoding required here ('three-vee', 'tribaled', '4GH') maintain the self-awareness that there is a tension between your world and his, and this dialogic pattern is a significant part of the characteristic sf aesthetic.

Beauty of structure

The narrative drive of most science fiction is part of its compelling nature: sf texts are often 'page-turners', with a resolution, dilemma, or catastrophe to be fulfilled or averted. Most science fiction is end-directed, and rarely if ever ends in the sort of aporia that is characteristic of much modernist short story writing and postmodern novels. Even where the end of a science fiction story is not resolved, such works tend to close with apocalypse or a

gesture towards transcendence (Stockwell 2010). Work by Arthur C. Clarke provides good examples of this, especially in his novel *Childhood's End* and both the screenplay and novelization of *2001: A Space Odyssey*. The former ends with a witness escaping the apocalypse of Earth and the latter ends with a witness attempting to articulate transcendence, and the reader and viewer are right there alongside.

Science fictional literary narrative has been closely influenced by cinematic editing techniques, since the two have evolved often in a mutual feedback. Flashbacks, parallel storylines, a strong third person reporting narrative voice, and other features are part of the shared poetic techniques of both art-forms, and the aesthetic experience of both can also be regarded as somewhat comparable. Such structural fragmentation in the context of science fictional narrative resolution tends to be felt not as disjunction as it might in another genre but as a sense of paciness and excitement.

The work of China Miéville provides good examples. *The City and the City* (2009) begins as a detective novel but the peculiarity of the setting soon distracts the reader: one city is overlaid on another occupying the same space, with each population prohibited apparently by threat of alien punishment from seeing the other city. The murder inquiry ensures the novel is a page-turner, but the achievement of the work lies in the way it lines up crime story, political satire, ontological contemplation and uncertainty over whether the framework is science fictional or psychological – and then fires each of these structures at the reader at once. *Kraken* (2010) similarly has a heist mystery at its heart, but quickly expands into a wild pursuit narrative that encompasses religion, politics and magic.

Miéville's (2011) *Embassytown* displays all the features of a beauty of structure, with an alien race whose language and thought are so intertwined that they cannot conceive of a lie nor utter it. Human contact almost destroys their civilisation, and the novel again combines politics, philosophy and narrative paciness and excitement, with a brilliant resolution.

> *Embassytown* is a fully achieved work of art [which]... works on every level, providing compulsive narrative, splendid intellectual rigour and risk, moral sophistication, fine verbal fireworks and sideshows, and even the old-fashioned satisfaction of watching a protagonist become more of a person than she gave promise of being.
>
> Ursula Le Guin, Review in *The Guardian,* p.10, 7 May 2011

In science fiction, often, the narrative structure itself is sublime.

Beauty of world

It is in the richness of its evocation of non-actual worlds that science fiction distinguishes itself from most other forms of literature. Most sf worlds are over-engineered for the fictional purpose at hand, with a wealth of detail and texture that is not minimally necessary for the mechanics of the plot nor the placement of meaning. Technologies are invented, named and described even where they do not advance the story, civilisations appear that are incidental to the main account, languages are created that are sophisticated far beyond the requirements of the narrative at hand (see Adams 2011). This richness of world-building is compelling, and is one of the features that clearly makes authors return to their own invented universes to write sequels and sequences.

There are numerous examples that are particularly rich and wide-ranging in historical and spatial sweep, such as the novels and novellas in Alastair Reynolds' *Revelation Space* series,

or Iain M. Banks' 'Culture' universe, or Isaac Asimov's ingenious interweaving of his *Foundation* and *Robot* series. Although each book is self-contained, there is an additional pleasure for the reader who recognises cross-textual references and the elaboration of motifs from elsewhere in the same universe. The literary theorist Gerard Genette (1979) proposed the term 'architext' to account for the web of possibilities that any single literary work with all its intertextual and paratextual features could point towards, but science fiction *materialises* Genette's abstract notion. Not only do many science fiction sequences provide an over-profusion of elaborated detail for its own sake (Neal Stephenson's *Baroque Cycle*, for example), but they often furthermore gesture towards an even richer, unstated universe than is actually described directly. Where, in a realist and naturalist literary novel a reader focuses only on the imaginary setting within a backgrounded but indistinct familiar world, in a science fictional universe the spaces between the worlds and each narrated setting are also available for readerly completion. The aesthetic effect is often vertiginous, immersive and overwhelming.

The attraction of science fiction

It is possible, then, to talk about the beauty of science fiction in terms that are not exclusive to the genre, that draw on our best current knowledge of human reading, and that is neither straightforwardly prescriptive nor delusionally neutral and descriptive. An analysis of the aesthetics of sf (or anything) needs to be based on human commonalities as well as particular textual variations. Science fiction sometimes displays a beauty of style that can be poetic, iconic and immersive. It can have a beauty of structure that engages a narrative drive, aims at a satisfying resolution, and feels pacy and urgent. And it characteristically evokes a beauty of world in a rich immersion, architectural consistency, resonance and persistence of effect. All of this makes science fiction compelling for many readers and a compulsive genre of literary art.

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