The Poorest Things Superfluous: On Redundancy

Steven Connor

A talk given at the Rubbish Symposium, Birkbeck College, London, 30 July 2011

Like many other words, 'redundancy' has undergone a remarkable shift over the last five hundred years or so. Well into the eighteenth century, 'redundance' and 'redundancy' were part of a family of words that signalled overflow, or superfluity, often of a desirable or opulent kind. 'The *Cause* of *Generation* at all *Seasons* seemeth to be *Fulnesse*: For *Generation* is from *Redundance*', wrote Francis Bacon (Bacon 1627, 195). In 1769, Edward Bancroft reported with amazement on the unsurpassed fertility of the soil of Guiana, which, like the land adjoining the Nile, was under water for much of the rainy season, 'those superundations [being] ... the source of its redundant fertility' (Bancroft 1769, 12). Redundance, and some allied, but now disallowed words, like 'exundance', or 'superundance', carry associations that are extremely close to 'abundance'. A word like 'superabundance' embodies that desire to enlarge on enlargement itself that one finds in redundant contemporary supererogations like 'over-exaggeration'.

Grace Abounding, John Bunyan's spiritual autobiography written in prison in 1666, articulates the connection between this principle of excess and the Christian doctrine of grace. For divinity is identified, not just with law and necessity, but also with what is gratuitous. Divinity differs from an exceeds nature in that the godhead is capable of suspending or surpassing its own law. The divinity can indundate justice with mercy. Bunyan writes 'I had two or three times, at or about my deliverance from this temptation, such strange apprehensions of the grace of God, that I could hardly bear up under it, it was so out of measure amazing, when I thought it could reach me, that I do think, if that sense of it had abode long upon me, it would have made me incapable for business' (Bunyan 1909, 140). Bunyan's very title is an instance of a redundancy, since grace is precisely what is gratuitous, and therefore abounding itself. One could scarcely imagine a moderate, regulated, or thrifty apportioning of grace, since grace must always be in some sense immoderate or surplus to requirement. Grace is always infinite, because it is always beyond measuring itself, especially for Protestants, who insisted that salvation could not simply be paid for by good works, in a simple, double-entry accountancy, but that was a

special and gratuitous occurrence. Religious exaltation continued to be expressed in terms of this kind of positive overflow, for example in the poem 'On Joy' by the New England poet John Adams:

> A Soul that's sprinkled with the sacred Blood
> That flow'd from *Jesus* in a purple Flood;
> Whose pious Tears gush out in willing Streams
> And then are dry'd by Mercy's warming Beams;
> That Soul, with Joy's Redundance overflows (Adams 1745, 23)

Redundancy of conception and linguistic performance was unfeignedly praised, as for example when, following a formal entertainment in the Hague in 1641, Queen Henrietta called her host Prince Frederick 'in your eloquence a younger *Iupiter*, out of whose redundant brain the *Minerva* of eloquence is extracted' (Frederick Henry 1641, sig A4r),

It is scarcely surprising that such overflowing should also, in periods more persuaded than we of the sovereign value of continence, also occasion negative judgements. Thomas Fuller commented sarcastically on Catholic stories of the miracles wrought by St Augustine in England, 'being so Redundant in working them on Triviall Occasions' (Fuller 1655, 54), even though his miraculous powers did not apparently extend to speaking the language, for which he needed interpreters. It is true that in the seventeenth century, physicians were everywhere alert to bodily excesses of various kinds, and on the lookout for means to purge or deplete them, for example 'the redundant...the exorbitant Fluxes of the peccant or deviating humours and blood' and the '*Cachochymy*, or *redundance of Humours*' for which Henry Stubbe enthusiastically recommended the exercise of bleeding in 1671 (Stubbe 1671, 135). This accorded with the suspicion of bloated or redundant discourse, as for example in the swipe at the '*lactea ubertas*, that milky redundance, or overflowing of Style' in Peter Heylyn's *Extraneus Vapulans* (Heylyn 1656, 344). This is nowhere more emphatic or influential than in Thomas Sprat's *History of the Royal Society*, in which he praises the meticulous watch taken by the Society over its discourse, since 'unless they had been very watchful to keep in due temper, the whole spirit and vigour of their *Design*, had been soon eaten out, by the luxury and redundance of speech. The ill effects of this superfluity of talking, have already overwhelm'd most other *Arts* and *Professions*' (Sprat 1667, 111).

Redundancy could still have a positive cast well into the nineteenth century. In *Roderick Hudson*, Henry James describes the bride brought back by a seaman as 'a handsome, blonde young woman, of redundant

contours, speaking a foreign tongue'. A writer's style could be described as 'elaborate, but never unnatural…[o]ccasionally redundant, but always vigorous' in 1851 (Giles 1851, 177). Nevertheless, the fortunes of the word 'redundancy' have paralleled those to some extent of the word 'superfluity', both of which have slowly slid apart from their association with the group of words signifying opulent or fertile abundance. The commonest use of the word 'redundancy' nowadays is of course in relation to employment, a redundant employee being one for whom there is no longer any need or use. Redundancy also applies of course to technologies, processes and concepts. The redundancy argument in philosophy, also known as the deflationary argument, is the argument that propositions about the truth of other propositions add nothing at all to the proposition itself. So the statement that 'the statement "dogs have four legs" is a true statement' adds literally nothing to the statement itself, which is true if and only if dogs in fact have four legs. In many such cases, there is a strong implication that the redundant object has become useless or been put beyond use, has passed from what a condition of 'use-time' to a condition of 'waste-time', to employ the extremely useful concepts that Will Viney has developed. We might suggest that the spatial sense of overflowing that is to the fore in earlier uses of the words 'redundant' has shifted to a temporal dimension. Or perhaps we might say that it has been time-shifted. Instead of referring to a future possibility, through the idea of an opulent store or surplus on which one may be able to draw, the idea of redundancy normally refers nowadays to a reserve of value that has been depleted over time.

Plainly, this more modern notion of redundancy belongs to a world of carefully-calculated efficiencies and narrow margins of profitability. But systems which rely upon this kind of exact calculation of consequences, with no margin for error, or insurance against unexpected contingency are in fact very fragile: rationality protects against risk, but must also protect against itself. Rational planning therefore requires not only the reduction of redundancy, but also the prudent preservation or even extension of it. Engineers routinely design redundant features into physical structures, machineries and networks, as what are sometimes known as 'fallback' or 'failsafe' mechanisms. Security comes from carefully-calculated inefficiency. The more we understand of genetic and evolutionary mechanisms, the more indispensable such inefficiency seems to be - in the form for example of 'junk DNA' that does not code for proteins and yet is under strong selection pressure in many organisms.

This raises an interesting problem, that is as psychological and philosophical as it is technical. How much redundancy is enough? How

big should one's margin of error be? What is the most efficient kind and level of inefficiency? How much nonnecessity is strictly necessary? As all obsessive-compulsives know, once redundant procedures have become part of a routine, often tied to numbering or quantification protocols (checking the knobs on the gas stove three times), this will suggest the need for a further margin of redundancy, as insurance against the failure of the redundancy routine. Once you begin to count on redundancy, it loses its surplus value, or value as surplus, and is therefore no longer redundancy.

This recognition of the paradoxical necessity of the inessential, and therefore, to an extent, the superfluity of the essential, is to be found in King Lear's response when he has been driven to a humiliating wrangle with his daughters on the size of the retinue he will be allowed to bring with him when visiting them. 'What need you five and twenty, ten, or five?', says Goneril, to which Regan acidly adds 'What need one?', which stings Lear into the great, explosive protest:

> O, reason not the need! Our basest beggars
> Are in the poorest things superfluous;
> Allow not nature more than nature needs,
> Man's life is as cheap as beast's. Thou art a lady;
> If only to go warm were gorgeous,
> Why, nature needs not what thou gorgeous wear'st,
> Which scarcely keeps thee warm. But, for true need — ,
> You heavens, give me that patience, patience I need! (*King Lear* 2.2.454-60, Shakespeare 1997, 255-6)

But there is an extra component in the idea of the redundant that we should register before we move away from the history of the word. The prefix of the word 'abundant' signifies a kind of pure breaking away, as in a word like 'aberration': the prefix '*ab-*' has the force of an out-ness or away-ness. The prefix *super-*, and its derivative *sur-*, as they appear in words like *superabundance, superundance* and *superfluity*, signify that which is in excess or on top of a given quantity. But the prefix *re-* has the force of reflexivity, of turning back on oneself. Abundance, we may say, is extensive, but redundance is intensive. Thus, while abundance is coupled with the verbal form 'to abound', 'redundance' couples with the verbal form 'to redound', which is most familiarly used in the sense of resound, or rebound, as in something which 'redounds to one's credit', or in Milton writing about the devils' rebellion in *Paradise Lost* 'The evil soon/Driv'n back redounded as a flood on those/From whom it sprung' (*Paradise Lost*, VII.57, Milton 1968, 778). A 1655 commentary on St Paul makes the distinction between abundance and redundance:

> These things that the Spirit works in us are called Graces: because they come from out of our selves by the Spirit. so wisdome is called Grace, because it comes from the Spirit: the Spirit comes from Christ, and Christ hath grace, not onely grace in himself, but he infuseth Grace into us: he hath not onely abundance, but redundance; not only Grace flowing in himself, but redundant, overflowing to all his members (Sibbes 1655, 297-8).

Other usages imply that redundance is not a mere emptying out, but a kind of echoing, reverberation, or redoubling of grace: 'Albeit ye have nothing of your own, yet in Christ you have all: for in him is all fulnes both repletive and diffusive, both of abundance, and of redundance too, both of plenty and of bounty' (Trapp 1647, 60). A similar idea is found in a polemical text of 1624, which imagines the angel saying to Mary at the annunciation '*In the redundance and effusion of grace upon the creatures, the Lords power and will is so accommodated unto thine, that thou mayest seeme to be the first in that, both diadem, and tribunall*' (Ussher 1624, 431). Edward Leigh made a similar distinction in 1650, 'betweene the fulnesse of the choycest beleevers, and the fulnesse of Christ; there is in him *plenitudo fontis*, a fulnesse of the Fountaine; in them *plenitudo vasis*, a fulnesse of the Vessell; in him (say the Schoole-men) there is a fulnesse of sufficiency, bounty, preheminence and redundance' (Leigh 1650, 280). Another seventeenth-century divine was similarly at pains to distinguish the excursive energies of a created being, who 'is constrained out of thus to go out of it self, which speakes much indigence and want within it self' (Binning 1667, 160-1), and the plenitudinous 'exundance' of the Creator, which 'flowes from the infinite excesse of perfection and exundance of self-being, that his Majesty is pleased to come without himself, to maintain his own Glory in the works of his hands, to decree and appoint other things beside himself, and to execute that decree' (Binning 1667, 161). The idea of a rebounding, or reverberative communication between exponent and respondent is also to be found in the argument given by Sir Humphrey Lynde in 1628 for prayers in church to be in the vernacular rather than in Latin, since '*there is a better redundance from the soule to the body, by a vehement affection and deuotion*' (Lynde 1628, 257).

Finally, and most emphatically, Thomas Heywood's *General History of Women* uses the idea of redundance to evoke a kind of drawing together or orchestral *da capo*, through the figure of Calliope, the eldest of the Muses, who was also the mother of Orpheus who recovered his head after he had been dismembered by the Thracian maenads:

> The Muse *Calliope*, under whom I patronize this last book, being no other then a redundance of sound, or one entire Musick, arising from eight severall instruments, and therefore as she participates from every one, so she exists of all; therefore in this succeeding tractate, I purpose by the help of the divine assistance, to take a briefe survey of what hath passed in the eight former books. (Heywood 1657, 588)

This signifies an important and persisting ambivalence within the redundant; indeed, we may say that it is the necessary essence of the redundant, or the inessential. The redundant is given out, and may therefore be regarded as a wasteful or profligate diffusion. If you are made redundant, you are no longer a functioning part of the organisation, the implication being that you should now be discarded or set aside from it. And yet, the majority of the workers in an organisation will actually be employed to secure and reproduce the form in which the organisation currently exists, rather than to transform it into something else. This is to say that they will be there to keep intact the feedback loops that sustain the organisation - that the organisation in fact is. Feedback, reflexivity, flowback, literally *redundance*. This means that, if you are declared redundant, it is because you are seen as no longer contributing to the work of maintaining the levels of redundancy at a high enough level to ensure the persistence of the organisation. Redundancy means a failure to contribute to positive redundancy.

For, in fact, not only do all organisms and organisations of all kinds include and require forms of redundancy for their effective operation, such organisms and organisations may be seen as mechanisms for maintaining redundancy. To understand how this may be so, we need to review some of the perspectives of what in the years following the Second World War, became known as 'information theory', in which the concept of redundancy has been put to new use.

Redundancy is defined by information theorists such as Claude Shannon as the total amount of information sent in a message minus the total amount necessary for its transmission employing the most efficient code. William Paulson defines redundancy as 'a ratio denoting, in effect, the portion of a message given over to the repetition of what is already found elsewhere in the message' (Paulson 1988, 58). Redundancy is that proportion of a message that can, at least theoretically, be dispensed with. Put differently, it may be thought of as the measure of its compressibility. Typically, therefore, redundancy is measured with values between 0 and 1. Redundancy in any message is a nuisance and an irritant – think of those interlocutors who employ phatic formulae like

'you know what I mean?' relentlessly in their speech. But it can also perform a useful function; if there is interference on the line, or we are trying to make ourselves heard against a noisy background, the simplest form of redundancy, namely repetition of certain portions of the message may be essential to its successful transmission.

Redundancy can therefore be regarded as the reduction of uncertainty. In this respect, it seems to resemble information itself, since the amount of information in a message can be regarded as proportional to the amount of uncertainty it resolves. As in Lear's passionate protestation, redundancy is in fact a necessary feature of any message.

If redundancy is zero, this means that it is not possible to compress the message in any way. But this makes zero-redundancy functionally identical with chaos or maximal disorder, a chaotic system being one that allows for no description of its operations that is more economical that the operations themselves. There are two contrasting ways in which a message can be degraded, by accretion and by depletion. Accretion means all the 'noise' that can invade or arise in any channel. Depletion means the omission of certain key components of the message. The first moves into the direction of noise, the second in the direction of redundancy. Think of the two ways in which a telephone message can be made unintelligible. It can be swamped by extraneous material – that of another conversation, for example – or it can break up, or be clipped, so that only selected segments or frequencies from the full range of the message are heard.

So noise and redundancy can be thought of as symmetrical but opposite pressures on information. But neither noise nor redundancy are in a simple inverse ratio to information. Where there is maximal noise, no information gets through: there is nothing to distinguish any one frequency or frequencies from what is known as 'white noise', a sound containing every frequency within the range of human hearing. Where there is maximal redundancy, there is equally no possibility of any message being imparted, since once again, there is nothing that disturbs or departs from the absolute self-identity of the redundant elements. Noise is the blizzard, redundancy the untrodden snowfield. All information exists between the alternatives of the 0 of maximal noise and the 1 of maximal redundancy. Sometimes, therefore, a measure of noise (randomness, uncertainty) is needed to animate maximal redundancy into information. At other times, redundancy – repeatability, reduction of uncertainty – is needed for there to be information.

In so far as redundancy involves the reduction of uncertainty through repetition, it can be regarded as a kind of self-signification. Whenever there is repetition of a piece of information, the code or channel seems to be conveying itself. To repeat an utterance is to enact a performative; it is to say 'I hereby say again'. It is not for nothing that the central metaphor of redundance is that of the wave (*unda*), which moves forward by turning back on or into itself. Redundancy approximates to the channel. In this sense, subjectivity itself, considered as a redundancy-function of communication, belongs to the code rather than the message.

Michel Serres, the whole of whose work may be regarded as a series of mediations on the nature of information, has recently suggested that the whole of what he calls the Grand Récit, the maximally-integrated narrative of the evolution of human beings, itself integrated with the story of the evolution of life and of the planet itself, can be seen in terms of this alternation between noise, redundancy and information. Returning recently to the theme of his 1980 book *Genesis*, he has described the creation narrative of the book of Genesis in terms of the alternation between redundancy and noise. In the beginning, before the beginning, God exists in a condition of pure redundancy, absolute self-coincidence: 'in the realm of redundancy, of identity, of the performative, in the regime of Eternity, in the pregnancy of the format and of the subject, the perfection of the channel annihilates the abundance of information. Optimal saying does everything but says nothing; says nothing but the omnipotence of saying' (Serres 2006, 141).

Serres defines information as that which does not repeat – therefore, as the unnecessary, the arbitrary, what arises without determination or precedent. What has become known as the philosophy of the event, in the work of Lyotard and, more recently and systematically, the work of Alain Badiou, may be seen as a reflection on the relations between the pure necessity of redundancy – doxa, or the State, for Badiou – and the pure contingency of what simply surges up out of nowhere, what happens to happen. For Badiou, an event is anything that occurs entirely unanticipated by the realm of the accounted-for-in-advance. The problem of whether there can be such a thing as a wholly undetermined function or event is a deep and far-reaching one, as much in mathematics as in political theory. As Badiou and Serres both indicate, this is a theological issue as well.

Claude Shannon, who was responsible for much of the development of information theory, defines information, by contrast, as 'that which is invariant under all reversible encoding or translating operations' (Shannon 157, 171). For Shannon, therefore, information is what persists

or comes back to itself, rather than departing from the repletion of self-identity. He therefore defines information more through the operations of redundancy on noise, while Lyotard, Serres and Badiou define information more through the operations of noise on redundancy. Neither of these can be complete or decisive. At the very moment at which information emerges from redundancy, it must, if it is to stay in being, also begin, however minimally, to turn back on itself, in an atom of recoil that matches the Lucretian 'atom of angle' (Serres 2000, 11) that brought it into being.

These relations are here described as though noise, redundancy and information were simple and invariant in relation to each other. But the noise-information-redundancy triad only makes sense with a relatively closed system of relations. In actuality, inversions can occur, as different systems interlock with or assimilate each other. A telephone conversation may be taking place in a railway compartment in which the whole three-way orchestration of noise, redundancy and information functions as noise in relation to other informational contexts. Alternatively, noise can be resolved or integrated into information. Modern music has moved from a dependency on the grammatical or syntactical redundancies of melodic and harmonic encodings – the storable and iterative dimensions of music – to the performative noisiness of tenor and timbre, only for those timbral qualities – the grain rather than the structure of music – to begin to acquire their own vocabularies and techniques. Recording makes every cacophony potentially a euphony, every noise capable of being subjected to the redundancy that transforms it into music. Michel Serres's grandiose claim at the end of his *Récits d'Humanisme* is that we are seeing the beginning of a convergence of the necessary and the contingent, towards which the narrative has always been tending. 'The Grand Narrative presents simultaneously the maximum of the necessary and the maximum of the contingent, the optimum of the universal – all the laws of all the sciences – and the maximum of singularities – all the circumstances which arise in the time of the universe and in its tiny tail of history' (Serres 2006, 161).

Redundancy is at the heart of information because it mediates between time and space, between continuity and discontinuity, repetition and novelty, the accounted-for and the unaccountable. It is not possible to account for this movement itself, which is incessant, without the actions of narrative, which may be defined as the introduction of redundancy into the pure flux of time - even though, one level down, narrative itself is formed from the dynamic alteration of noise and redundancy.

Of course, not all redundancy is communicational or informational redundancy. We call many things redundant that are simply exhausted, or superseded, or beyond use. But there is no form of waste, junk or residue that is incapable, given the right observer, or observational circumstance, of becoming a sign, instance or figure of the redundant, and, by thus simultaneously doubling and economising on itself, supplying a kind of information or reduction of uncertainty. I began by pointing to the ambivalence of redundancy. Perhaps I have earned the right to conclude with the suggestion that redundancy is so caught up in the oscillation of the necessary and the contingent, as to represent ambivalence itself, the necessary gratuity and the gratuitous necessity of value.

Though there is always a possibility for redundancy to rebound into abundance, such that, in the words from Bacon with which I began, '*Generation* is from *Redundance*' (Bacon 1627, 195) a steep probability gradient nevertheless separates those in the most prosperous regions or circumstances who have the capacity to effect translations of signs, images and codes, and those by contrast for whom value can be extracted from waste and detritus only through exacting physical labour. There is an enormous gulf between the writers, artists and musicians who are in a position to take pleasure and advantage from the recodings of the apparently worthless, whether in art or theory, and the denizen of the rubbish tip in Mumbai or Lagos, trapped in an older world in which recoding is much dirtier, more exhausting and more dangerous. There is defining difference between a voluntary perversity of abundance, which accepts no limits or final values, allowing appetite to enlarge even into the sphere of the negative or the abject, and the enforced perversity of poverty. Though there may be a certain abstract measure of generativity attached to redundance in either case, there is a huge difference between the desire to continue consuming even one's waste products and the desperate condition of having only waste products to consume. The cultivation of various forms of informational disorder is therefore a consequence and expression of power, prosperity and safety. Poverty, desperation and danger express themselves in a conservative will to order. It is perhaps a mark of the move from what Serres calls the hard to the soft that the inversions and exchanges of information, redundancy and noise become easier, swifter and more abundant. Indeed, abundance may be measured by the capacity to recode redundancy, and wretchedness by the degree of resistance that noise, dirt or waste put up to being transformed into value.

References

Adams, John (1745). *Poems on Several Occasions, Original and Translated*. Boston: for D. Gookin.

Bacon, Francis (1627). *Sylua Syluarum: or A Naturall Historie In Ten Centuries*. London: John Haviland and Augustine Mathewes for William Lee.

Bancroft, Edward (1769). *An Essay on the Natural History of Guiana, in South America*. London: for T. Becket and P. A. de Hondt.

Binning, Hugh (1667). *The Common Principiles [sic] of Christian Religion Clearly Proved and Singularly Improved*. Glasgow: R.S. Frederick.

Bunyan, John (1909). *Grace Abounding to the Chief of Sinners*. London: Religious Tract Society.

Henry, Prince of Orange (1641). *The Prince of Orange, His Royall Entertainment to the Qveen of England*. London: for Henrie Barwicke.

Fuller, Thomas (1655). *The Church-History of Britain from the Birth of Jesus Christ until the year M.DC.XLVIII*. London: for Iohn Williams.

Giles, Henry (1851). *Lectures and Essays*. Boston: Ticknor, Reed and Fields.

Heywood, Thomas (1657). *The Generall History of Women Containing the Lives of the Most Holy and Prophane, the Most Famous and Infamous in All Ages, Exactly Described Not Only from Poeticall Fictions, but from the Most Ancient, Modern, and Admired Historians, to Our Times*. London: W.H. for W.H.

Heylyn, Peter (1656). *Extraneus Vapulans: or The Observator Rescued from the Violent but Vaine Assaults of Hamon L'Estrange, Esq. and the Back-Blows of Dr. Bernard, an Irish-deane*. London: J.G. for Richard Lowndes.

Leigh, Edward (1650). *Annotations Upon all the New Testament Philologicall and Theologicall*. London: W. W. and E G. for William Lee.

Lynde, Sir Humphrey (1628). *Via Tuta the Safe Way. Leading All Christians, by the Testimonies, and Confessions of Our Best Learned*

Aduersaries, to the True, Ancient, and Catholique Faith, Now Professed in the Church of England. London: G. M. for Robert Milbourne.

Milton, John (1968). *The Poems of John Milton*. Ed. John Carey and Alistair Fowler. London: Longman.

Paulson, William (1988). *The Noise of Culture: Literary Texts in a World of Information*. Ithaca NY: Cornell University Press.

Serres, Michel (2006). *Récits d'Humanisme*. Paris: Le Pommier. --------------- (2000). *The Birth of Physics*. Trans. Jack Hawkes. Manchester: Clinamen Press.

Shakespeare, William (1997). *King Lear*. Ed. R.A. Foakes. Walton-on-Thames: Thomas Nelson and Sons.

Sibbes, Richard (1655). *A Learned Commentary or Exposition: Upon the First Chapter of the Second Epistle of S. Paul to the Corinthians*. Ed. Thomas Manton. London: J.L. for N.B.

Sprat, Thomas (1667). *The History of the Royal-Society of London For the Improving of Natural Knowledge*. London: T. R. for J. Martyn …, and J. Allestry.

Stubbe, Henry (1671). *An Epistolary Discourse Concerning Phlebotomy*. London: no publisher.

Trapp, John (1647). *A Commentary or Exposition Upon All the Epistles, and the Revelation of John the Divine*. London: A.M. for John Bellamy.

Ussher, James (1624). *An Answer to a Challenge Made By a Jesuit in Ireland*. Dublin: Societie of Stationers/London: Eliot's Court Press.