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*Mem'ry These Augurin's Well:*  
*Cloud Atlas* and the Future of English

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## Abstract

David Mitchell's 2004 novel *Cloud Atlas* is impressive in many ways. What might be the most interesting aspect of the book for linguists, though, is Mitchell's use of language throughout the chapter that is set in a post-apocalyptic future. In order to create a reading experience that is that much more immersive and realistic, he went to great lengths to alter the English language and thereby acknowledged the existence of language change, something few writers would bother doing. However, none of the changes he made were random; instead, he paid careful attention to the language around him to end up with three different sources of inspiration: current language change in English, characteristics of English dialects and features unique to spoken English. This paper will examine some of Mitchell's futurognostics to see whether the manifestations of his inspirations inside the chapter are in any way realistic by comparing them to real-world examples of language change, which will help provide more insight into the potential future of English and the transferability of language changes across languages.

*Keywords:* *Cloud Atlas*, David Mitchell, futurognostics, future of English, language change, dialect, spoken language, pleonasm, verb regularization, reduplication, triplication, elision, contraction

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## 1. Introduction

This paper sets out with the rather audacious aim of predicting the future; that is, it will attempt to provide more insight into the potential future of English. This will be done through thorough examination of the use of language inside the post-apocalyptic chapter of David Mitchell's 2004 novel *Cloud Atlas*. Said chapter features a form of English that was meant to perplex contemporary audiences by means of its drastic unfamiliarity. The changes Mitchell effectuated in current English to bring about such a gargantuan divide were not chosen at random, however, as he carefully heeded his linguistic surroundings in order to draw inspiration from the developments he discerned there. Explicating four of these changes and comparing them to similar real-world examples will to some extent reveal the probability of these changes being integrated into Standard English at some point. It will also provide some insight into what types of language change fit what types of language.

“But do not let the blurbs put you off. These are not hype so much as a loss for words,” writes George Gessert (2005) in reaction to newspaper reviews of Mitchell's novel (p. 425). It has been widely lauded by critic and Everyman alike and was wholly unsurprisingly shortlisted for the Man Booker Prize. This grand-scale epic takes readers on an incredible journey through six different eras of past, present, and future in what could be described as an inverted eleven-step pyramid of interwoven stories that contain one another in recursive fashion like a matryoshka doll. Its most prominent themes are those of reincarnation, dog-eat-dog societies, and man's self-destructive powers, which recur in several of his other works. Mitchell's attempt to represent the surroundings of his protagonists as accurately as possible across time and space impresses, and it is therefore no surprise that *Cloud Atlas* was adapted to film in 2012.

What might be most impressive about this novel, however, is Mitchell's use of language throughout the atemporaneous episodes spanning some 500 years. Not one of his focalizers uses English in the same way, and due to the mostly large periods of time that separates them it would barely be possible (nor logical) for them to do so. The characters that Mitchell employs for the stories that would chronologically precede his lifetime (Ewing's (1850) and Frobisher's (1931)), for instance, use the type of English that can be expected to have been spoken around that time. This may come across as not all that remarkable, as he did of course have access to a plethora of nineteenth- and twentieth-century English literature to draw inspiration from. Writing the two chapters that chronologically take place during his own lifetime (Rey's (1975) and Cavendish's (2004)) must have taken him even less effort linguistically.

However, having written these four chapters Mitchell moves on and pulls the reader with him into the future – the same future that is inevitably filled with linguistic uncertainties. Throughout the two chapters set in this future (Sonmi's (22<sup>nd</sup> century) and Zachry's (24<sup>th</sup> century)),

Mitchell emphatically reinvents the English language in various ways in order to imbue his novel with much more life and provide the reader with a reading experience that is much more immersive. Using language in such a way gives novels a new level of depth; however, many writers of English literature that set a story in the future would not go to such lengths and rather retain the English that is known now. Such writers therefore implicitly deny that language is a “living” thing which is *per se* in a perpetual state of flux.

As far as using language to captivate goes, there are of course the precedents of writers such as Tolkien, who create entire languages from scratch; it is exactly this clean slate, though, that exempts such authors from any responsibilities and restraints that reinventions are laden with. Engineers striving to emulate the likes of the inventor of the automobile Karl Benz must perforce find that they are limited by several fundamental design features boasted by cars. The same applies in the realm of language to authors such as Mitchell: he has to deviate from the norm, but cannot do so unfettered, as any altered form of English should still be recognizable as English. Moreover, the changes that are made should be realistic in some sense: a null-subject English, for example, would be hardly plausible.

An effective means of designing a somewhat sensical concept of future English would be to examine current developments in the language and take one's cue from those. Writers doing so could therefore be called visionaries in a sense: they employ futurognostics by extrapolating current developments into the future (Glushko, 2003, p. 30). Authors going about the language altering process with the two abovementioned guidelines in mind will prompt their readers to compare the English language as represented in the book to how it is at this time and, most importantly, to speculate about the author's reasoning behind any and all differences that are found. It is therefore essential that any writer taking on such a task be fully aware of what that task constitutes, and Mitchell is an excellent example of such a writer. Both futuristic chapters feature language “which was “doctored” by Mitchell to create a distinctly different feel and yet maintain coherence and intelligibility for speakers of present-day English” (Vandelanotte, 2012, para. 2).

The first of these chapters can be said to serve as a linguistic appetizer to the chapter this paper is concerned with, giving the reader a taste of what will be done to the English language on a much larger scale in the next part of the novel. It revolves around the character of Sonmi-451 and solely consists of an interview between two highly intelligent individuals with a superb command of the English language; it is therefore clear that their usage of *tho* for *though* and *lite* for *light*, to name but two examples, is not caused by ignorance. Mitchell simply imagines a future in which English has developed in such a manner as to minimize several discrepancies between its phonology and corresponding orthography, a development he has no doubt been able to observe around him already. Another thing that becomes clear from the interview is that many words that

are currently simply known as brand names have established themselves as the noun of choice to describe any object that falls into the same category as the original product. Cars, for example, are referred to as *fords*, shoes as *nikes*, and guns as *colts*. Mitchell did not summon this development out of thin air either, as it is a form of metonymy that is quite common today, too. One can nowadays hear many people refer to any whirlpool as a *jacuzzi*, the nomenclature that is eponymous with the company that was founded by seven Italian brothers in 1915. Similarly, the word *dumpster* was originally trademarked by Dempster Brothers Inc., yet has now become a common noun to refer to any type of skip. These are only two examples, but both are part of the increasingly elaborate development referred to as *trademark dilution*. This term describes the phenomenon of trademarks being used as common nouns even though they were originally created to refer uniquely to a specific product (Wiegand & Klakow, 2014, p. 2291). As with the previous example, Mitchell clearly knew what was happening “behind the scenes” of the linguistic realm around him – and picked up on it. Echoing both of these developments in his characters' use of English in the 22<sup>nd</sup>-century world he created for them contributed immensely to making this world appear more realistic to the reader.

It is therefore unsurprising that Mitchell aspired to echo even more of the developments he noticed around him in the chapter following Sonmi's (i.e. *Sloosha's Crossin' an' Ev'rythin' After*). It is a story that takes place “106 winters after the Fall” according to the Mitchell-approved film in a world that was fatally struck by a self-inflicted apocalypse that wiped out the vast majority of mankind and necessitated most of its survivors to revert to a lifestyle of primitiveness (Tykwer, A. Wachowski, & L. Wachowski, 2012). The reader is confronted with life in this world through the eyes of Zachry Bailey, an elderly man relating his experiences as a teenager on “Big Isle”, a name that is currently in use as a cognomen of the Island of Hawai'i, the biggest island of the Hawaiian Archipelago. Even though the English that Zachry uses does not seem to have been influenced by any Hawaiian languages, it is in clear juxtaposition with the erudite language the reader saw Sonmi and her interrogator use in the previous chapter. What would be of main interest to present-day linguists, however, is its vast dissimilarity to current English, a dissimilarity brought about by the novel's pivotal event. After the Fall had fundamentally upended the world and had thrown most of society back into a primeval state, there were no more educational institutions left on Big Isle to safeguard the form of English known then from any undesired changes. It was from this point onwards that language change could finally run rampant and occur in its purest (and indubitably rarest) form. Mitchell created an environment where no one forced a particular template of English on anyone else, and due to the islanders' isolated position from the rest of the surviving world there were no linguistic influences acting upon them from the outside either. The only forces they experienced were their own intuitions about language, and the self-fashioned linguistic system these

instincts led them to create quickly became the only one they knew about.

The results are clear 106 years later, and again Mitchell closely heeded his linguistic surroundings in order to design this stylized version of English, dazzling many readers with the finished product of his endeavours. The inspirations leading to this product seem to stem from three different sources: the developments that are slowly altering the standard form of English from the inside, the characteristics of dialectal variations of English that could eventually bring about changes in their origin language from the outside, and the features unique to spoken language that can be adopted by any speaker of English or its derivations and are means to facilitate face-to-face communication. Due to their real-world origins, such elements can be examined in order to gain insight into the potential future of English. This paper will therefore analyse four of them in order to assess the general accuracy of Mitchell's futurognostics – that is, in order to assess the likelihood of these four elements becoming integral parts of today's English. This will be done by comparing them to similar developments that have already managed to bring about permanent change in English or other languages, which will also provide some insight into what types of language change are likely or unlikely to occur in what types of language. It will now first give a brief overview of the three abovementioned sources Mitchell drew his inspirations from, however.

## 2. Language Change, Dialect, and Spoken Language

### 2.1 Language Change

Language change has been around since the dawning of mankind. There have always been inventions of new means to communicate and reinventions of old ones, whether one believes that every language came from one common ancestral tongue or from several individual languages that came into existence separately and developed independently from one another. The acclaimed web-based publication *Ethnologue* (2015) currently asserts the total number of languages spoken in the world to be well over 7,000, a variety that would not have been able to come about had it not been for language change, that ever-present inexhaustible process. Such change can (and does always at any time in any language) occur grammatically, orthographically, lexically (either due to semantic change or through borrowing), and phonologically.

Grammatical change influences the morphology and syntax of a language, i.e. how words are formed and how these words go together to form sentences. A feature that serves as an example of such change is one that is claimed to be almost as old as the language it is a part of and is very common today (Araus, 1985, pp. 17-19). Many Hispanophones nowadays use the phenomenon that was dubbed *queísmo* in their speech, and then especially one particular subform: the habit of omitting the prepositional part of a prepositional verb if it is immediately followed by the complementizing form of *que*. One example of this can be observed in the sentence *\*Confío que mi padre pueda conducirnos a casa* (intended as “I am confident my father can take us home”), which

is erroneous Spanish because the verb *confiar* always selects the preposition *en*. Use of *queísmo* is still spreading nowadays, and even though it has not caused an official language change as of yet there is no reason to believe it will not do so eventually. All the usual signs of an impending language change are there.

Orthographic change influences the spelling of a language. One example of such change is a decision that was made by the well-known Académie française in 1990. The change concerns a collection of adjustments affecting about 2400 words that would make French easier to learn, most notably the omission of circumflexes wherever these accents do not influence the pronunciation or meaning of a word (as in *paraître* and *coût*, of which the official spellings have been *paraitre* and *cout* since 1990). The council themselves aver that these changes make it easier to apply the rules of the French language “because they gain in consistency and suffer fewer exceptions” (L'Académie française, 1990, p. 9). The new spellings have been the official ones ever since, but the old spellings are still valid anywhere, including schools. It will only be a matter of time before everyone who was taught the old spellings has disappeared, however, and the spelling of about 2400 French words has not only officially but also permanently changed.

Semantic change influences the meaning of words, which can happen in a vast variety of ways. Two common types are the broadening or narrowing of a word's meaning. If the meaning of a word is broadened, this word acquires a broader semantic domain and can therefore be used to refer to a larger variety of things than previously was the case. Narrowing, on the other hand, restricts a word's meaning so that it can only refer to a subset of the things it could refer to earlier. Two excellent examples that illustrate both types are the English words *hound* and *dog*. Their Old English equivalents *hund* and *docga* respectively referred to all types of canines and only a specific, very powerful breed of canid. Due to language change their meanings have basically swapped: *hound* now only refers to dogs that are used for hunting, whereas *dog* is the word that is used to refer to any member of the dog family (Crowley & Bower, 2010, p. 200).

Borrowing is the process which brings so-called loanwords into a language, i.e. words that were “borrowed” from other languages. Lyle Campbell (1998) explains that there are three reasons to borrow a word: need, prestige, or derogation. A need to borrow words is created when new concepts are introduced into a community: these concepts need words to denote them, and borrowing words from a language that already has a way of denoting these new concepts is easier than creating them from scratch. Hunger for prestige can bring a community to borrow from a language that is considered more prestigious than theirs in order to be associated with that language and become more prestigious themselves. Finally, a community can also borrow words for the purpose opposite of prestige, i.e. derogation. The word in question is then burdened with negative connotations, such as French *hâbler* [to brag] from Spanish *hablar* [to speak]. As can be seen from

the example, the Spanish infinitive was not taken over letter by letter into the French language. Its morphology was instead altered slightly so that it could fit into the French language, and French infinitives cannot end in *-ar*. Phonological alterations are required when the borrowing language does not contain all of the phonemes that make up the original word (pp. 59-64).

Phonological change is the most common type of language change and can occur in a staggering amount of different ways. This type of change is often thought to be caused by speakers' laziness; that is, it is frequently suspected that speakers cannot be bothered to make the articulatory effort to pronounce every word precisely as it is supposed to be pronounced and instead make small changes in order to make pronouncing these words less strenuous. There is no real evidence to back up such claims, however, as there is still much unknown about phonological change and what causes it (Sihler, 2000, p. 19). One such change is known as assimilation and revolves around two phonemes becoming more similar. This is the reason why e.g. Latin *victima* evolved into Italian *vittima* whereas the Spanish cognate is *víctima*: the Italian variant has been subject to regressive assimilation whereas the Spanish one has not. The second consonant of French *cheveu*, on the other hand, is sometimes pronounced without voice as a result of progressive assimilation acting from the voiceless first consonant. As said, assimilation is just one example of phonological change amongst many.

Today's language purists often seem to forget the simple fact that the language they speak, love, and desperately want to protect against change is itself a result of countless mutations and can therefore never be deemed pure to begin with. They are opposed to any change to their language, whether it was forced into the language by some authoritative power (such as the changes made by L'Académie française) or simply snuck in "under the radar" as part of the everyday linguistic behaviour of the people around them (such as *queísmo*). These two types of language change are opposites and are based on the antonymic pairs of power versus powerlessness and stringency versus laxity. If an authority that holds sway over a particular language mandates that a change be made that authority is going to be opposed by the purists identifying with that language; however, these purists rarely have a chance to retain the status quo they have grown to love so much, as the people that actually hold the strings will normally remain unperturbed by such resistance and force the change on the speakers of the language regardless. As opposed to this type of language change, natural language change can only occur when many speakers of the same language become too lax in their adherence to the grammatical rules of their language. Again, though, any purists that notice such a development around them are powerless to prevent a permanent change to their language; just as powerless as they would have been had an authority forced the change on them, the only difference being that in this case their powerlessness stems from their lack in numbers rather than from their lowly position in the power hierarchy. Campbell (1998) therefore correctly claims that

“complaints against language change [are] both futile and silly” (p. 3).

## 2.2 Dialect

There are two different definitions in use to refer to the word *dialect*. The first one, which is the most common amongst linguists, describes a dialect as any variety of any language, therefore also including any standard varieties. It frequently refers to regional patterns of speech (regiolect), but it can also denote a language variety that is only spoken by members of a certain social class (sociolect) or by members of a certain ethnicity (ethnolect) instead. This definition includes the tacit assumption that classifies any nonstandard language variety in a certain area that is in the same language group as the standard one as a derivation of this dominant variety. The second definition describes dialects as language varieties that are related and subordinate to the standard variety in a certain area while not actually having been derived from that variety. Any standard varieties are not counted as dialects.

Most people use both definitions interchangeably, but this can give erroneous impressions of certain varieties. The many nonstandard Romance languages of Italy, for instance, are frequently referred to as *the Italian dialects*, which many people (using the first definition) take to mean that they were somehow derived from Italian when in fact they are directly based on Vulgar Latin and are only cognate with Italian, which means that they only fall under the second definition (Maiden & Parry, 2006, p. 2). One factor that is likely to play a role in causing this error of judgment is the fine line between what can be called a language and what a dialect. Linguists can at times struggle to establish whether a particular language variety is to be classified as a language or a dialect, and one of the tests which can help settle this is to see if the variety in question has a *de jure* or *de facto* status anywhere in the world. If the variety passes the test, it is usually counted as a language. This may lead some people to conclude fallaciously that any variety that does not pass the test cannot be considered a language and should be classed as a dialect instead.

Another prominent criterion that is used to establish whether or not a particular variety can be called a language is that of mutual intelligibility. This criterion says that if a speaker of one language variety can understand a speaker of another with ease, the two varieties are to be classified as dialects of the same language. If they have trouble understanding each other, on the other hand, the two varieties should be classed as separate languages. Trouble arises, however, if it transpires that intelligibility between two particular varieties is unidirectional rather than mutual. There can also be cases where speakers of two separate varieties cannot understand one another while speakers of a third variety can understand both language groups effortlessly. The latter problem is especially common inside dialect continua, which consist of many language varieties that differ only slightly (yet sometimes crucially) from the ones they are adjacent to. As a result of such issues, linguists do by no means consider application of this criterion a panacea to all their differentiation

problems. British linguist William Entwistle (1953), for example, states that “mutual ease or difficulty of understanding is not the primary consideration” and brings up another problem with this criterion, viz. “Norwegians and Swedes, Spaniards and Portuguese, can understand each other fairly well in their different languages” (p. 31). The criterion's proneness to classifying well-established languages such as Norwegian and Swedish or Spanish and Portuguese as two dialects of the same language might be its biggest flaw.

### 2.3 Spoken Language

*Spoken language* is the term that is used to denote the type of language that is vocally or gesticulatively (in the case of sign languages) produced by humans and is opposite to its written counterpart. Many of its characteristics are unique and are not shared by written language. What is generally believed to be the biggest difference between the two is that only spoken language is biologically determined to be learned and understood, whereas written language is merely “an artifact and a surrogate of speech” and therefore “neither natural nor biological” (Aaron & Malatesha Joshi, 2006, p. 263). Another big difference is that face-to-face conversation is truly spontaneous and consists of two persons who both have an active share in the shaping of every one utterance, while written conversation constantly alternates between two participants that are deprived of any real-time interaction and who have the opportunity to think about whatever it is they want to write next.

It is very common for speakers of a particular language to write as they speak, behaviour that is greatly determined by one's level of literacy. Such practices can foreground the many discrepancies that usually exist between the two language media within any language. The English language is often ridiculed for its lack of consistency between its spoken and written formats, which becomes apparent from pairs such as *sieve* vs *seize* – both words use the same vowel, but this one vowel is not represented the same for both words when written down. A similar case can be made for pairs such as *horse* vs *worse* and *choose* vs *lose*. Anyone not expecting so many exceptional spellings is very likely to make mistakes while writing. Disparities of this kind are as common in English as they are mostly because of a reality that affects any language, to wit the inertia that the written medium of any language is prone to. The orthography of any language is simply not as flexible as its phonology, and the English language is renowned for having gone through countless phonological changes compared to relatively few orthographic ones.

Since many dialects employ distinctive phonetics, many of the spoken language features that exist are dialectal and are unlikely to be found in any standard variety of spoken language. Its characteristics also include such features as contractions, however, which were originally established in a specific attempt to make speaking more efficient and facilitate dialogic processes. Even though contractions can have no such purpose when used in written language, they are

nevertheless found on paper frequently. Examples include *don't* for *do not* and *you're* for *you are*, but other common contractions – such as *'em* for *them* and *y'all* for *you all* – have dialectal origins and were never integrated into the written standard language. The rules of academic writing state that contractions are only to be used in spoken contexts, further explicating how illogical their place – and by extension that of any speech-only feature – in written contexts really is (Singhal, 2004, p. 11).

### 3. Analysis of Mitchell's Futurognostics

As mentioned in the introduction, the English Mitchell employs in the post-apocalyptic chapter of *Cloud Atlas* is an interesting mixture of language changes that are currently happening in English, features of English dialects that Standard English itself does not boast, and characteristics that originated in spoken English and have no use in its written counterpart. Four of these attributes will be examined from an English perspective below in order to speculate about the likelihood of these traits ever to pass into Standard English. Note that these four represent only a fraction of the features that can be found throughout the chapter and that the list presented here is therefore by no means comprehensive.

#### 3.1 Language Change

##### 3.1.1 Pleonasm

Pleonasm is a form of linguistic redundancy that can occur in any language. It can come in the shape of syntactic pleonasm, which is part and parcel of many a language's grammar and includes such well-established rules as pluralizing a noun modified by a plural numeral in e.g. English (a type of overinflection) or multiple negation in e.g. Portuguese. Such behaviour as including understood subject pronouns in null-subject languages or the use of so-called dummy elements is also subsumed under syntactic pleonasm. Pleonasm may also manifest itself semantically, and many of the pleonastic collocations that have formed over time have managed to slip into the English language inconspicuously and are in wide use. Many priests still “join together” two individuals at a wedding ceremony, and the term *hackneyed cliché* has only become more and more autological after it first appeared. Especially official documents tend to be full of redundancies; these have become so typical of their style, even, that translators of such documents often aim to fully transfer them into the target language (Kasperavičienė, 2012, p. 57). Prescriptivists of course disapprove of any and all pleonastic behaviour (Ronai, 1993, para. 1), but many people who know that what they are about to say is pleonastic say it nevertheless for the purpose of emphasis.

The element of pleonasm can be found in two different but closely related semantic forms inside the chapter. It either appears as two synonymous adjectives that form one compound modifier (e.g. *quicksharp*), or as two synonymous words that are separated by the conjunction *and*

(e.g. *battlin'n'fightin'*). The first construction is not so common but always pleonastic, whereas the second construction is extremely productive but varies in pleonasticity, with only two-word variants being possibly pleonastic. The possibility of reducing *and* to a single phoneme brought about a situation very conducive for providing two or more words “for the price of one”, although this construction should not be confused with a homologous one featuring a reduced form of comparative *than* (notice the usage of both in e.g. *we staggered'n'tripped an' got back more freezin'n'livin'*). The occurrences of this construction together comprise a continuum, with pleonastic phrases such as *ord'nary'n'norm'ly* on one end and antonymic phrases such as *white'n'dark* on the other. The middle part contains such phrases as *horses'n'crossbowmen*, that consist of two distinct but nonantonymic words, and *kickin'n'wrigglyin'*, that are not composed of actual synonyms but instead of words that implicate each other. It is interesting to note that even though this construction is sometimes used as an effective means of enumeration (e.g. *sheeps'n'goats'n'pigs'n'all*) it is used far more often to give only two words. This strongly suggests that this specific two-word construction has undergone the process of grammaticalization and has become a separate and integral part of how the language is to be produced. As a result, this construction was bound to be employed needlessly to forgo its original purpose of providing additional information and instead became a conducive vehicle for pleonasm.

As said, today's English is rife with pleonasm, most of it semantic. A big difference with Zachry's English, though, is that current pleonastic collocations are hardly ever comprised of two words of the same category, whereas Zachry's most prominent type of pleonasm only features such constructs. This pitfall therefore seems to be avoided with relative ease by speakers of the English language; however, mistakes are numerous when it comes to combining two words from different categories. It appears that pleonasm occurs when someone separately deems two elements that happen to overlap in meaning (say, *polar* and *opposite*) worthy of a place in the sentence and then merges them without realizing how crucially they are related. The resulting constituent can be called a case of “overconveyance”: it conveys the same meaning more than once and is therefore partially worthless.

It needs iteration, however, that many instances of pleonasm are brought into being by design rather than by accident. It can even be argued that accidental pleonasm would not exist if it had not been for particular people who first chose to emphasize their statements by means of overconveyance, thereby inventing English semantic pleonasm. Things that were “absolutely essential” would have been denoted as such to indicate that they were somehow more essential than others – an impossibility considering the absolute meaning of *essential*, but also an effective means of emphasis. People that were not cognizant of the pleonastic qualities of such collocations might have regarded them simply as any other combination of noun and adjective, verb and preposition,

and so on. Their using it in any regular circumstance would then have made pleonasm more commonplace and eventually established it as a regular part of the English language, robbing it of its “niche” value. It is interesting to consider that Zachry's two-word pleonasm might have undergone a similar process, but then indeed with two words that are part of the same lexical category. Giving two of such words separated only by a doubly clipped *and* might have started out solely as a means of emphasis, only to then be taken over into common speech so profusely that it eventually became a grammaticalized feature.

An interesting parallel to Zachry's one-word pleonasm in current English might be the rise of the informal *\*irregardless*, a word that should logically negate the meaning of *regardless*. The two are semantically equivalent, however. One theory that might provide an explanation for this remarkable coinage could assert that it is a result of the unique distributional relationship between *regardless* and its positive counterpart *regardful*. As language users tend to speak in positive utterances, it is normally so that the positive half of an antonymic pair is employed more often than the negative one. The opposite can be said of *regardless* and *regardful*, though, as the former is used much more frequently than the latter. The fact that *regardless* hence possesses a characteristic that is typical for positive terms might have brought about a felt need to negatively inflect an already negative word so as to invent its negative counterpart. As such, a doubly negative word was created that is equivalent to its base *regardless* by virtue of only being singly negative: a case of pleonasm. This word is probably the closest likeness of one-word pleonasm such as *quicksharp* in modern English (even though its pleonasm is syntactic rather than semantic).

It can be inferred from the foregoing paragraphs that today's and Zachry's two-word pleonasm might share similar pasts despite the differences regarding categorical selection. This would logically assert that current pleonasm is going to end up the same way Zachry's did, viz. by eventually going through the process of grammaticalization. According to this comparison one would therefore have to expect pleonasm to become an integral part of English rather than a fringe feature that is looked down upon and considered inelegant. This would not include one-word pleonasm, however, as any connections between the two versions of English are tenuous in this respect. None of the extreme pleonastic variants that were conceived by Mitchell seem likely to find their way into the English language considering its current state, however, which is why his prediction regarding pleonasm is hardly plausible.

### 3.1.2 Verb Regularization

All languages have plenty of irregular elements, i.e. elements that do not adhere to some or all of the appropriate paradigms that are in place and which are therefore out of line with their regular counterparts. They are notorious for causing language learners trouble due to their idiosyncratic nature. These irregularities in a language can occur in any part of speech that is

subject to morphological rules. A noun such as *mouse* is irregular by being pluralized into *mice* instead of following the *-s* paradigm; an adjective such as *good* is irregular by taking *better* and *best* as the comparative and superlative form respectively instead of following the *-er/-est* or *more/most* paradigm; a verb such as *begin* is irregular by being conjugated into simple past *began* and past participle *begun* instead of following the *-ed* paradigm; an adverb such as *fast* is irregular by taking the same form as the adjective *fast* instead of following the *-ly* paradigm.

It may seem rather odd at first that something that was invented in order to convey information clearly and orderly and that is often so heavily controlled can contain any inconsistencies at all. This is especially peculiar considering human brains are not prepared to deal with them, as is evidenced by people's (and especially children's) tendency to overregularize – that is, to treat irregularities as regularities and apply the rules they were taught where they should not be applied. An excellent example of overregularization in current English is the informal *\*thusly*, which is an altered version of *thus*. *\*Thusly* is an adverb – but so is *thus*. By not conforming to the traditional *-ly* paradigm for adverbs, *thus* is devoid of the one characterizing morphological trait adverbs usually have. This idiosyncrasy therefore appears unsound to many people, causing them to involuntarily morphologize it to *\*thusly*. This is a clear case of overregularization and coincidentally also an ad hoc variant of the syntactic pleonasm mentioned earlier, since it is an attempt to adverbialize an adverb. Such examples are a further testament to the sway that rules and regularity hold over languages and their speakers' minds.

Many English verbs are still irregular as well in spite of being overregularized regularly. Lieberman, Michel, Jackson, Tang, and Nowak (2007) explain that “regularity is not the default state of a language,” stating that “[i]n prior mille[n]nia, many rules vied for control of English language conjugation” and that irregular forms are merely the “fossils” of the rules that lost this battle (p. 716). Even though less than 3% of all English verbs are irregular, however, these remnants are rather paradoxically still abundantly encountered in current English. One look at the list of the most frequently used verbs helps clarify this, as the top ten (*be, have, do, go, say, can, will, see, take, and get*) are all irregular (Lieberman et al., p. 713). Despite being largely outnumbered by regular verbs, irregular verbs evidently still play a paramount role in the English language. It is not hard to see how this came to be: with the regularization of irregular verbs running rampant, only the most salient members of this group were able to retain their minority status – and that only through sheer ubiquity. Any irregular verb that did not occur as often was bound to be regularized instead by virtue of being memorable.

The above tendencies are still a reality today, as there have always been and will always be verbs that make the transition from irregular to regular. A house overtaken by a hurricane is more and more often “blowed away” rather than “blown away”, and its remains are increasingly

frequently “seeked for” rather than “sought for”. The owner of the house is subsequently quite likely to be reported having “shaked” his head in disbelief upon spotting his razed home instead of having “shook” it. It is clear from Zachry's chapter that such transitions were also taken notice of by Mitchell, as Zachry uses many regular simple pasts and past participles of verbs that are currently still irregular. Many of these verbs appear to be in transition, as both their regular and their irregular conjugations can be found throughout Zachry's story. Other verbs, however, appear to have undergone the complete process of regularization, as only their regular conjugations are used. It is important to note, though, that most currently irregular verbs that are encountered during the chapter are still fully irregular.

The study Lieberman et al. (2007) conducted can be used to analyse Mitchell's use of regularization, as its purpose was to concretize the abovementioned regularization trends in order to gain insight into the fate of 177 Old English irregular verbs. The results of this study can be found in Appendix 1. Lieberman et al. were able to estimate the “half-lives” of these irregular verbs by means of corpus analysis, which indicated that “[i]rregular verbs regularize at a rate that is inversely proportional to the square root of their usage frequency” (p. 714). This means that if, say, the standard simple past and past participle conjugations of a certain irregular verb are found 11,000 times in a first corpus analysis and only 1,000 times in a second corpus analysis conducted 50 years later, this verb is regularizing 100 times as fast as it was 50 years ago. Calculating half-lives on the basis of usage frequency will give an estimation of the time it will take before that particular irregular verb has turned fully regular. Each frequency bracket is associated with a different half-life.

In order to apply these findings to Mitchell's use of regularization inside the chapter, both the regular and the irregular simple pasts and past participles of the 98 verbs that Lieberman et al. (2007) marked as still irregular in Modern English were all searched for inside the chapter using an online copy of *Cloud Atlas*. 33 of these verbs could not be found in any of these forms. Occurrences of these forms for the verbs *burn*, *leap*, *dive*, and *shed* were ignored, as the OED indicates these are also regular nowadays. The remaining 61 verbs were used to create the table in Appendix 2. The final frequency bracket ( $10^{-6} - 10^{-5}$ ) was not included in this table, as the only still irregular verb it contains was one of the 33 that did not occur inside the chapter in either form. It is also important to note that certain verbs that did occur can only be found as a simple past and not as a past participle or vice versa, which means that such verbs can in theory not conclusively be said to be fully regular or fully irregular; after all, they might be in transition without the reader being able to glean it from Zachry's story.

A few things become clear from the table. Firstly, a relatively large percentage of the verbs in each bracket is still irregular. This makes sense, as Zachry's story takes place only a few centuries

into the future. Something else that becomes clear is that the uncommoner a verb is, the more likely it is to have been fully regularized in Zachry's world. This is in line with the predictions of Lieberman et al. (2007). A third thing this table indicates is that the verbs in the second bracket have a higher chance of being in transition than the verbs in any other bracket. These verbs seem to strike a perfect balance between uncommonness and commonness in order to enter the process of regularization: they are uncommon enough to be regularized in theory, but also common enough to be regularized in practice. This balance is completely lost in the last bracket, as the verbs it contains appear to occur too rarely to be generally recognized as originally irregular. Such verbs seem more likely to be taken for regular a priori rather than to enter a proper regularization process which features both regular and irregular forms before reaching completion.

The main thing that is evidenced by this table, therefore, is that Mitchell put much thought into his usage of regularization instead of regularizing verbs willy-nilly. He clearly realized that regularizing every irregular verb used by Zachry would have gone too far, but what his eventual selection of fully regularized verbs also shows is that he took the aforementioned correlation between verb rarity and probability of regularization into account during the decision process. He furthermore acknowledged that verbs do not just turn regular overnight by including several verbs that are conjugated both regularly and irregularly by Zachry and are therefore in transition. Such careful considerations bespeak both Mitchell's linguistic intelligence and his taking serious of matters pertaining to futurognostics, which eventually led to a well-weighed prediction regarding verb regularization that is generally quite accurate.

## 3.2 Dialect

### 3.2.1 Reduplication and Triplication

Reduplication and triplication are linguistic processes that have to do with the morphology of a language. They concern the repetition of a word or part of it either in order to inflect a word so as to enable the conveyance of more advanced grammatical functions or in order to create new words (i.e. as part of lexical derivation processes). Examples of the former type include reduplication and triplication of the Pingelapese verb *saeng* [to cry], which can receive a change in aspect and become the present continuous durative form *saengaesaeng* [crying], with *saengaesaengaesaeng* [still crying] being the triplicated form expressing a present continuous continuative meaning (Hattori, 2012, p. 34). The Hungarian adjective *pici* [small], on the other hand, can be reduplicated to intensify its meaning, becoming *icipici* [very small]. Reduplication and triplication are used to form new words in languages such as Turkish, where *adım adım* [step step] takes on the meaning of *incrementally*. Many more instances of different types of reduplication and triplication occur across many different languages and language groups, but the processes vary in productivity. The status of the linguistic elements that come forth from these processes can vary,

too: in some cases they are part of the backbone of a language, whereas in others users of such elements may be considered lowbrows.

These two elements are mostly used in the chapter for the purpose of intensification. A place that is “far-far” away, for instance, is almost inconceivably far away instead of only as far away as most other known places that are not near, and something that is done “hushly-hushly” is not just done quietly to any regular extent, but instead exceptionally quietly. An adjective such as *true* is repurposed as a noun after reduplication, with a statement that is “true true” being not just veridical but in fact true beyond all possible doubt. Reduplication and triplication cannot only be used as a means of intensifying words, however, but also for the purpose of intensifying emotions. At one point Zachry imagines an owl mocking him for lacking the bravery to save his father's life and after having told it to shut up it supposedly screeches scornfully, “O, for the sake o'my chicky-chick-chicks do have mercy!” Zachry states that after these events he “sobbed'n'sobbed'n'sobbed,” employing a kind of triplication that fulfils the advanced grammatical function of indicating duration in a very similar manner to the Pingelapese example mentioned earlier. Comparative reduplication can be encountered as well, with e.g. a grip that becomes “tighter'n'tighter” being one that gets progressively tighter as time goes on. Lastly, there exists an onomatopoeic type of reduplication and triplication that is either full or partial. It is either used to represent the sound or movement something makes (e.g. *clip-cloppin'*, *flumfy-flumfy*, and *flippy-flappin'*) or to specify the name of a musical instrument (*squeezywheezy*, *tom-tom*).

Present-day English is not a language that is particularly known for reduplication or triplication. Examples of triplication are scarce and often ad hoc, whereas the few forms of reduplication mostly produce informal lexical items. The three main types have been around for centuries, which are rhyming reduplication, that reduplicates the whole word but changes the onset (*easy-peasy*), exact reduplication, that reduplicates exactly (*pretty-pretty*), and ablaut reduplication that replaces the high vowel of the first part with a lower vowel in the second (*chit-chat*) (Mattiello, 2013, p. 142). These three types can be used in a wide variety of ways, such as intensification (*super-duper*), onomatopoeia (*quack-quack*), voicing one's disapproval (*hoity-toity*), and so on. Exact reduplication is especially associated with baby talk (*night-night*). A much younger type of English reduplication is shm-reduplication, which originated in Yiddish long before it was taken over by speakers of English and is used “to downplay or deride a particular phrase” (Nevins & Vaux, 2003, p. 706). An example is *philosophy-shmilosophy*, in which case the speaker used shm-reduplication to indicate his disapproval of the use of the word in question. Even when it is not quite clear what the purpose of an instance of English reduplication might be, it is generally agreed that it has to be “indexical of the user's states, or, at least of his 'non-serious' attitude” (Merlini Barbaresi, 2008, p. 235). Of these four informal forms of reduplication only the last one is

productive in present-day English, and that one cannot be found in Zachry's speech whereas the first two can. Exact reduplication actually fulfils a grammatical function the way Zachry uses it, though, which is not the case in today's English. The only two grammatically meaningful types of reduplication in Standard English are comparative reduplication, which (as mentioned) Zachry indeed does use, and contrastive focus reduplication, which is a means of indicating the concerned word should be taken as literally as it can be (i.e. as some sort of Platonic ideal) and which is not used by Zachry. Both types are fully productive.

Dialects of English, however, are often full of entirely productive forms of reduplication and triplication that are considered an ingrained part of the dialect. Speakers of South African English, for example, might say that something needs to be done “now-now” to indicate that it really needs to be done immediately, intensifying the meaning of *now* similarly to Zachry's intensifying of *far* and *hushly*. An intensification with striking resemblance to Zachry's *true true* is Sranan Tongo *trutru*, meaning exactly the same as Zachry's version but differing from it by being part of the same lexical category as its monomorphemic counterpart, something that cannot be said of *true true*. Reduplication in Tok Pisin occurs either because the word was simply created that way, such as *liklik* [small], or as a means to differentiate two similar English words from each other, such as *sip* [ship] and *sipsip* [sheep]. Indian English features a type of reduplication that is specifically used to emphasize determiners, as in the sentence *Each-each boy take one-one chair*. It is thus pointed out that there is exactly one chair per boy and that no boy should take more than one chair and that no boy should take none at all.

Most reduplication is iconic and therefore revolves around an unarbitrary relationship between form and meaning, which is why reduplication for the purposes of onomatopoeia and intensification are commoner than other forms. Form and meaning essentially become one in the case of onomatopoeia, whereas intensification features more of a word's meaning which is supported by its form becoming more of the same as well. It is for this reason that such straightforward types of reduplication are frequently associated with languages that are not so complex (yet) due to their extempore nature and relative youth, such as creoles. The belief is that in such languages the two abovementioned “easy” types of reduplication will proportionately outweigh more complex ones by a larger margin than is the case in languages that are more complex and well-established, such as English (Kouwenberg & LaCharité, 2011, p. 197). It is clear from Zachry's ragtag and almost makeshift English that Mitchell was aiming to recreate a sense of creolism in his protagonist's use of language after society on Big Isle was thrown back several millennia. This is also reflected in Zachry's disproportionate use of onomatopoeic and intensifying reduplication as compared to the more complex types of reduplication that occur in English. Even if a similar apocalypse were to take place in reality and English indeed becomes simpler in some parts

of the world, however, it is unlikely to believe that many of the more complex forms of reduplication that were already established in English will suddenly fall out of use in those areas, let alone if such a disaster were not to happen at all. The inevitable conclusion is therefore that Mitchell's representation of future English (whether or not this future ends up being post-apocalyptic) is not very realistic in the respect of reduplication.

### 3.3 Spoken Language

#### 3.3.1 Elision and Contraction

Elision and contraction are employed in a wide variety of languages. They are two linguistic processes that are often corollary and the terms denoting them are therefore sometimes assumed to be synonyms. The truth is, though, that elision is the process that deletes phonemes and the graphemes they represent and that contraction is the process that deletes phonological and orthographical breaks, something elision often allows for. The processes work together in order to increase the euphonic value of a word or phrase, i.e. the ease with which it is pronounced and the pleasure with which it is perceived. There is also frequently a gain in efficiency, since one fewer syllable needs be produced in many cases. Elision is therefore often employed within poetry to maintain meter, leading to words such as *glitt'ring* and *o'er*. As mentioned before, though, use of elision and contraction is not considered appropriate in formal written English, even though both elements play a major part in all other contexts. This restriction is an interesting one, since most languages that make heavy use of elision and contraction have integrated them into the standard language to such an extent that their usage is always mandatory, regardless of register or style. Any alternatives are incorrect.

One of the most common combinations of elision and contraction concern function words that are attached to lexical words or other function words, which is why the Italians say *nell'acqua* rather than *\*in la acqua*. Saying /nelakwa/ is simply much less of an effort than saying /in la akwa/ and is also more aesthetically pleasing. The second contraction in this phrase is a form of apocope, since the elision occurs at the end of the article. An instance of apocope that does not include contraction would be Spanish *gran*, the apocopation of *grande* that is only used attributively. The opposite of apocope is aphaeresis, which revolves around the deletion of phonemes at the start of a word. The name *Syria*, for example, comes from Ancient Greek and is an aphaeretic form of *Assyria*, the name of the ancient kingdom that was located in Upper Mesopotamia. It is only logical to assume that the first syllable of *Assyria* was completely unstressed in Ancient Greek – as it is now in English – and that this made it very prone to elision. Syncope is the type of elision that occurs within words rather than at either boundary. A good example would be Turkish *şehri*, which is the definite accusative form of *şehir* [city]. The expected form would have been *\*şehir*, but by choosing to syncope the middle vowel the amount of syllables from the nominative is retained and

there is an increase in euphonic value.

The reason many function words have a weak form that contains unstressed vowels is that it allows for easy elision. Function words were bound to be cliticized from their very inception because of their lack of meaning: they only exist to allow for meaningful interaction between lexical words. This characteristic burdens them with inherent inferiority to their expressive counterparts, since language's sole purpose is to convey reality. Function words are merely the oil that makes the semantic cogs go round and are not held in the same regard as content words. This is the reason most of the function words in any language are rather small in size. Determined to be as resource-efficient as possible and use as little oil to grease their cogs as they can, though, language users often take to making both the orthographical and phonological representations of their function words even smaller. This ensures maximum salience of the words that actually matter on an expressive level. However, this does not mean elision only affects function words. It can also affect content words in the right circumstances, as some of the examples above show.

Zachry uses four types of elision in the chapter, two of which are always complemented by contraction. One can never be accompanied by contraction, whereas the other one causes contraction most of the time and is dependent on the morphology of the word in question. This last one is the type of elision that deletes (*hun'erds*) or simplifies (*decidin'*) phonemes and can trigger contraction depending on the location of the elision. The most ubiquitous subtype concerns the deletion of schwas, i.e. unstressed vowels. This can happen at any location inside a word (*reck'n*, *'gainst*, *dis'pointment*) and will therefore sometimes delete an entire syllable by deleting its sole occupant. Sometimes vowels which are not currently schwas are deleted (as in *'cusations*), which suggests that the vowels in some words were simplified into schwas over the years to allow for complete elision. This type of elision can lead to doubly clipped words such as the aforementioned *'n'*, which allows for two words to contract with it. It is also interesting to note that any /ŋ/ that concludes a noun will still be simplified into /n/ if this noun is pluralized, which causes the required /s/ to be added onto the elision and triggers a phonological contraction in the process. This first type of elision will effectuate a separate one if a word ending with an elided phoneme is followed by a word starting with one (e.g. *writin' 'bout* turning into *writin'bout*). This would qualify as an act of eliding elision and neither that nor its corresponding contraction has any phonological impact. Another type of elision results in the cliticization of function words: *savage than* becomes *savage'n*, *of her* becomes *o'her*, *do you* becomes *d'you*, and so on. The cliticizations that already exist in current Standard English also feature in the chapter, such as *-ll* and *-n't*, as do colloquial object personal pronoun cliticizations such as *gimme*. The fourth type of elision can delete several phonemes at the start or end of a word in order to eliminate one of its syllables, hence abbreviating it in the process. This can occur to some specific adjectives, but also to any word that originated as

two words or that includes a prefix. Examples of the former include *delish* for *delicious* and *spesh* for *special*, whereas examples of the latter include *confess* becoming *'fess*, *reflection* becoming *'flection*, *because* becoming *'cos*, and *already* becoming *'ready*.

It is interesting to consider the extent to which the society Zachry lives in have taken elision and contraction. They have gone so far that even parts of content words can be elided in their version of English, and having two separate function words that are homographs of each other when contracted with two words (i.e. *and* and *than*) is bound to lead to ambiguity. A hypothetical question such as *Did you eat more mangoes'n'grapes yesterday?* can either be answered with *yes* or *no* or with *mangoes* or *grapes* depending on which of the two possible interpretations one makes.

It is not always this bad, though. A case in point is the situation of soundalikes *accept* and *except*. Based on the data that can be gleaned from the chapter, it would not be illogical to expect both words to be abbreviated to *'cept*. After all, the first syllable of *accept* has a schwa in place and *except* is only used as a function word by Zachry. However, only *except* is abbreviated in this way, whereas *accept* is not abbreviated at all. This suggests the general rule that the question whether or not a word is a function word is more important than the question whether or not it contains a schwa in the first syllable. This makes sense, as it is nigh impossible to transmute a function word into a content word or vice versa, whereas divesting a vowel of its stress in order to change it into a schwa is infinitely more workable.

A colloquialism in current English that is very similar to Zachry's aphaeretic abbreviations is the usage of *most* when *almost* is meant, as in *\*most always* or *\*most every*. The word *almost* originated as a compound of *all* and *most* and therefore bears great resemblance to the abovementioned usage of *already* (a compound of *all* and *ready*) and *because* (a compound of *by* and *cause*) by Zachry. Regardless of the means by which this behaviour has spread, an interesting question would be how this *most* is perceived by the speakers that use it. Do they view it as what it rightly is, i.e. an abbreviation of *almost*, or do they consider it an additional usage of *most*? Considering there is no apostrophe attached to signify elision, the latter seems most likely. There would be some sense in this perception, though, since *almost* and *most* are still very much related in current English. After all, *almost everything* is synonymous with *most of everything*. This would also explain why *because* can so instinctively be abbreviated to *'cause* in spoken language. Something similar cannot be said of e.g. *'ready*, which is not common in present-day English despite there being no chance of it being confused with *ready* by virtue of it belonging to a different lexical category. The meaning of *already* can simply not be gleaned from the sum of its two parts quite as intuitively as is the case for *almost* and *because*.

The rest of the elisions and contractions that feature in the chapter are quite common in today's spoken informal English, which means including those as the chapter's cornerstone was a

sensible decision. Mitchell's choice to build on such a sound basis allowed him to compound the phonological elements it contains in order to ensure Zachry's use of language is an accurate reflection of the primordial society he lives in while at the same time safeguarding the intelligibility of his story to contemporary readers. The ubiquity of such elements combined with the condemnation many people face by employing them in their speech was perfectly suited to this purpose, making Mitchell's choice to use them as a stepping stone to a grander incarnation all the more logical.

However, in order to achieve a satisfactory end result in line with his intentions Mitchell not only had to compound the phonological idiosyncrasies he observed around him but also had to invent some of his own. This was not without risk, though, as taking it too far might have made Zachry's English deviate rather too much from today's English, thus leaving readers nonplussed rather than fascinated. Executing such a fine balancing act is no menial feat, but Mitchell's attempt is certainly skilful. His transforming regular vowels into schwas to allow for their elision is far from an unthinkable future development given many speakers' insistence on ever succinctor utterances. This perspicacious prediction reveals an advanced knowledge of the more technical aspects of language, as does his abovementioned distinction between *accept* and *except*. Despite intending Zachry's English to be chaotic and seemingly random, Mitchell did not forget that even the most simplistic of languages have a stable core and rules that determine and limit output. It is for such reasons that his careful manipulation of the English language demonstrably ended up shaping a concept of future English that is far from unrealistic as far as the elements of elision and contraction are concerned.

#### 4. Conclusion

One thing has become crystal clear by considering within their real-world context four of the numerous elements that Mitchell used to reinvent today's English. This is that Mitchell did not just make some arbitrary changes here and there and then hoped his version of future English would appear legitimate enough to function as a tool of immersion and fascination. Instead, it is plain to see that he has done a substantial amount of research in order to come up with changes that both suited his intentions and are futurognostically plausible.

However, this paper also shows that Mitchell made several concessions in favour of the former in order to further enhance and ensure the unfamiliarity and uniqueness of his mesmerizing redesign of the English language. One example of this that was considered is Mitchell's use of grammaticalized pleonasm: it is a very clever and distinctive change to make, but it is also an immensely pervasive one that does not seem at all likely ever to occur in real-world English. A similar case can be made for the large-scale implementation of reduplication and triplication, which perfectly befitted Mitchell's purposed sense of creolism but are also rather disconsonant with the

expected future of the English language as it is now.

Mitchell's use of elision and contraction, however, is a much better example of accurate futurognostics. His extrapolation of the increasingly prominent phonological shortening of words he noticed around him resulted in many regular vowels being transformed into schwas through phonetic reduction to allow for their elision, which is quite a probable future development indeed. The same can be said of Mitchell's usage of verb regularization, a process which he correctly understood to have affected many verbs in the past and to affect many more verbs today. However, he also recognized that rarer verbs are much more likely to enter this process than verbs that occur more often, while furthermore acknowledging that any such verb is subject to a gradual transition from irregular to regular rather than to a sudden transmutation.

All in all, therefore, it can be concluded from the four examined examples that Mitchell's attempt to present a plausible future of the English language is rather impressive despite not being wholly accurate, especially considering that futurognostical accuracy was never his primary aim to begin with. Being a gifted writer rather than a linguist, his main goal was to produce a relevant piece of literature that is entertaining and makes people ponder their ruinous ways. His secondary efforts to produce a future version of English that is not entirely nonsensical should therefore only be reckoned a delightful bonus.

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Appendices

Appendix 1

*Lieberman et al., 2007*

**Table 1: The 177 Irregular verbs studied**

Frequency	Verbs	% Reg	Half Life
$10^{-1} - 1$	<i>be, have</i>	0	38,800
$10^{-2} - 10^{-1}$	<i>come, do, find, get, give, go, know, say, see, take, think</i>	0	14,400
$10^{-3} - 10^{-2}$	<i>begin, break, bring, buy, choose, draw, drink, drive</i>	10	5400
	<i>eat, fall, fight, forget, grow, hang, help, hold, leave, let, lie</i>		
	<i>lose, reach, rise, run, seek, set, shake, sit, sleep, speak</i>		
	<i>stand, teach, throw, understand, walk, win, work, write</i>		
$10^{-4} - 10^{-3}$	<i>arise, bake, bear, beat, bind, bite, blow, bow, burn, burst</i>	43	2000
	<i>carve, chew, climb, cling, creep, dare, dig, drag, flee</i>		
	<i>float, flow, fly, fold, freeze, grind, leap, lend, lock, melt, reckon</i>		
	<i>ride, rush, shape, shine, shoot, shrink, sigh, sing, sink</i>		
	<i>slide, slip, smoke, spin, spring, starve, steal, step, stretch</i>		
	<i>strike, stroke, suck, swallow, swear, sweep, swim, swing</i>		
	<i>tear, wake, wash, weave, weep, weigh, wind, yell, yield</i>		
$10^{-5} - 10^{-4}$	<i>bark, bellow, bid, blend, braid, brew, cleave, cringe</i>	72	700
	<i>crow, dive, drip, fare, fret, glide, gnaw, grip, heave</i>		
	<i>knead, low, milk, mourn, mow, prescribe, redden, reek, row</i>		
	<i>scrape, seethe, shear, shed, shove, slay, slit, smite</i>		
	<i>sow, span, spurn, sting, stink, strew, stride, swell</i>		
	<i>tread, uproot, wade, warp, wax, wield, wring, writhe</i>		
$10^{-6} - 10^{-5}$	<i>bide, chide, delve, flay, hew, rue, shrive, slink, snip</i>	91	300
	<i>spew, sup, wreak</i>		

**Table 1.** 177 Old English irregular verbs were compiled for this study, and are arranged according to frequency bin and in alphabetical order within each bin. Also shown is the percentage of verbs in each bin which have regularized. The half-life is shown in years. Verbs that have regularized are indicated in red. As we move down the list, an increasingly large fraction of the verbs are red; the frequency dependent regularization of irregular verbs becomes immediately apparent.

## Appendix 2

*Percentual breakdown of Zachry's irregular verbs for each bracket and state.*

Bracket → State ↓	$10^{-1} - 1$	$10^{-2} - 10^{-1}$	$10^{-3} - 10^{-2}$	$10^{-4} - 10^{-3}$	$10^{-5} - 10^{-4}$
Still irregular	100 <sup>1</sup>	45.5 <sup>2</sup>	57.1 <sup>4</sup>	37.5 <sup>7</sup>	50 <sup>10</sup>
In transition	0	54.5 <sup>3</sup>	17.9 <sup>5</sup>	25 <sup>8</sup>	0
Regular	0	0	25 <sup>6</sup>	37.5 <sup>9</sup>	50 <sup>11</sup>

<sup>1</sup> 2 verbs: *be* and *have*.

<sup>2</sup> 5 verbs: *do*, *get*, *go*, *say*, and *see*.

<sup>3</sup> 6 verbs: *come*, *find*, *give*, *know*, *take*, and *think*.

<sup>4</sup> 16 verbs: *begin*, *drink*, *eat*, *fight*, *forget*, *hold*, *leave*, *let*, *lie*, *lose*, *rise*, *run*, *set*, *sit*, *stand*, and *write*.

<sup>5</sup> 5 verbs: *choose*, *draw*, *fall*, *grow*, and *speak*.

<sup>6</sup> 7 verbs: *break*, *bring*, *shake*, *sleep*, *teach*, *throw*, and *understand*.

<sup>7</sup> 6 verbs: *beat*, *fly*, *sing*, *slide*, *steal*, and *tear*.

<sup>8</sup> 4 verbs: *blow*, *creep*, *dig*, and *ride*.

<sup>9</sup> 6 verbs: *bind*, *freeze*, *shrink*, *spring*, *wake*, and *weave*.

<sup>10</sup> 2 verbs: *slit* and *swell*.

<sup>11</sup> 2 verbs: *shear* and *slay*.