

Narrative Attentiveness  
Notes on Analysis and Assessment of Semantic Trustworthiness  
v0.1  
(Companion notes to the ngram code examples)

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**Abstract**

This is the second part of a set of notes describing a proof of concept implementation for using the Promise Theory of trust. This part of the project concerns an approach for assessing the intentional semantics of agents over short lived interactions: i) for first time meetings, and ii) for rarefied transient encounters, where we can't rely on steady state dynamics to measure a consistent signal stream for reliability, and adjust kinetic trust accordingly. The method used here is not based on deep learning with a large energy footprint, but rather on the spacetime model of semantics as a form of signal processing.

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## 1 Introduction

This is not a scientific paper. These notes describe a motivation and some results concerning the application of semantic spacetime methods for the sampling and assessment of text streams based on natural language. Specifically, a technique is developed for sub-sampling of the text to adjust the level of attention applied to assessing its promise-keeping status.

I identified a sub-goal for the project as the assessment of interactions such as those involving contributions to forums on the Internet (Wikipedia etc), but the method is more general than that. It develops a realtime algorithm, building on research reported in [1, 2] for scanning such streams of text, and simplifies it for direct application to trustworthiness assessment and kinetic trust policy.

The approach in this part is to selectively skim a linguistic source for its most meaningful features, thereby extracting a fair representation of its intent, as well as a subsampled summary, while trusting that the skipped segments can safely be dropped. This is not a deep learning system—quite the opposite. It’s designed to be very lightweight so that speed is not an issue. Because it uses unsupervised learning, it can’t be precisely realtime. Rather it scans and reflects one “document” at a time.

The approach is based on the intentionality of process, as described by the Promise Theory of Semantic Spacetime. Again, it’s worth emphasising that this is not based on a semantic analysis of large linguistic corpuses, such as is used in big data approaches for deep learning. It measures significant features and work done, in a manner compatible with the earlier summaries of trust as an energy-like quantity, based on a fixed policy for trusting the content. The more we trust, the less we sample. However, the sampling is not based on simple time-stretching: we use the semantics of process pattern to infer probable meaning, without an understanding of language. In other words, we don’t simply reduce sampling by a regular fixed rate adjustment, rather we sample based on the peaks and troughs of ‘spacetime process characteristics’. How might an amoeba view War and Peace?

The average reader will likely be impatient to jump to a precise and magical solution to making humanity more trustworthy, while measuring trust precisely. Alas, it should be clear to anyone following the details, that trust is not a suitable phenomenon to make such judgements—it has presumably evolved precisely to avoid becoming obsessed with safety, and thus becoming distracted from other survival concerns.

## 2 Trust

In previous set of notes, I looked at how trustworthiness and trust policy could be adapted based in an approximate steady state behaviour, using agent timing or promise keeping. Semantics of the promises were left as an exercise to the reader, since there is no connection between semantic assessment (quality) of promise keeping and timing. The two parts of trust, discussed in [3, 4], represent coarse potentials for guiding the interactions of agents. Potential trust, or trustworthiness, is a prior assessment formed by learning from possibly multiple sources of information.

### 2.1 Sampling rate

The approach here is not to paraphrase the texts using deep training, as LLMs do, but rather to shine a light on key parts of the text in order to bring them to the attention of the assessor. In the language of Kahneman, we might call this a system 1 approach rather than a system 2 approach [5]. Suppose we have two agents

$$S \xrightarrow{+\text{text}} R, \tag{1}$$

where  $S$  promises a text to  $R$ .  $R$  has a choice about what it receives. It’s policy of trust determine how it subsamples the full text.

$$R \xrightarrow{-\text{accepted text}} S. \tag{2}$$

We look for a policy that can be considered to be a trustworthy (faithful) sampling of the content of the full text from a shortened version of it.

We thus seek to model policy for *kinetic trust* intelligently by adjusting the rate of information and its relevance to what seem to be the stable topics. A summary is based on what’s optimally significant in the sense of the stream’s spacetime characteristics.

Security pundits will immediately point out that any such mechanism can be exploited to allow attackers to deceive the agent. We already know that this is a property (not even unexpected) of trust: nevertheless, the purpose of trust is to not look at everything because doing so is a resource burden that has to be balanced against other concerns.

The algorithm described here is not an autopilot to replace human judgement: it’s a trust policy scaling mechanism that might be used to help an agent (human or otherwise) to scale their limited attention. From the limited sample used by  $R$ ,  $R$  needs to assess the trustworthiness of  $S$  in keeping whatever promise is implied in the text. Moreover, it needs to do this in a way that can be considered reliable (trustworthy) to others. So there are potentially three points of trust in this interaction.

## 2.2 Trustworthiness as repetition

We know from the earlier parts of this work that a simple way to game or hack trust is to engage in basic repetitive behaviour. Regular activity will tend to be deemed more trustworthy than irregular behaviour, regardless of its quality or even intent. This is how influencers and workers gain in popularity, for instance.

There are two issues covered in this phase:

- We find a way to define what it means to adjust our ‘rate of attention’ in a semantic stream, while assessing its content based on generic dynamical markers. This is not just a rate of symbol production (which was the subject of the previous installment) but a weighted sampling of the text itself, paying attention to the ‘most significant events’.

How we identify ‘most significant events’ is therefore of great interest.

- How we define and assess the trustworthiness of a source from observing and sampling the said stream of events at a given rate. We can consider the trustworthiness of different aspect of the stream: its themes, its summary, its integrity compared to the full story, etc.

At the time of writing, so-called Large Language Models (LLM) have made a splash in media headlines for their impressive capabilities at generating apparently smart and capable texts on almost any subject. These are fascinating in that they show how little individuality, agency, and reason (in the conventional philosophical senses) are required to convince the average human that they are talking to a sentient and intelligent individual. It suggests that we might not be as far from this simplistic machinery as we would like to believe. However, it also underlines the expense and vastness of infrastructure required to perform these tricks. It still remains for human societies to decide whether one could plausibly hand judgement over to such stochastic models. I won’t try to make this judgement here.

We do not therefore pursue LLM approaches to trust here, except to make some brief remarks. Unlike large language models, the fragment approach summarizes a stream by selectively filtering its own words, without paraphrasing. This has limitations, but unlike the large models, it has an insignificant carbon footprint. Neither approach gives a simple usable result without making a number of assumptions.

## 2.3 Choice of perspective—three body problem

Trust and trustworthiness are individual assessments. They can’t be generalized as objective and universal answers, so we need to define whose perspective trust we are trying to assess. We need to be especially careful in assessing trustworthiness, as this is associated with moral judgements and may place long lasting barriers in the way of individual freedoms. For this work, I follow the promise model described in earlier installments.

The three agents (see figure 1)  $S$ ,  $R$ ,  $T$  each have their own perspective on what signals trustworthiness. A third party can be impartial, with respect to  $S$  and  $R$ , but that doesn’t mean it has a relevant insight into their particular context. In other words, we assume ourselves to be an onlooker (perhaps the administrator of a platform) who is trying to watch over and shepherd behaviour from a number of participants.

We begin in the positive end of attention (see figure 2) without placing any moral judgement on the content of a stream of linguistic interaction, focusing instead on the level of attention from disinterest to

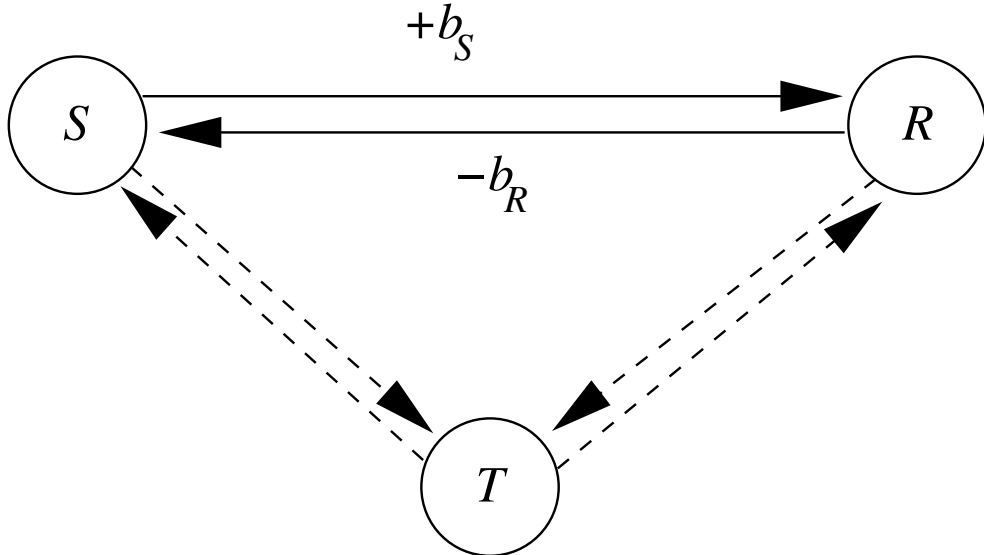


Figure 1: The three roles in a trust interaction.

interest with respect to the exchanges. So we place ourselves in the role of  $T$ , assessing the interaction between  $S$  and  $R$ .

## 2.4 Confirmation biases

Both human selection and AI selection are fraught with confirmation biases. For example, when we search for a story about France, it might be about food. When we search for a story about China it will be dominated by stories about human rights. These are not particularly representative of the countries themselves, but they are representative of a particular bias about them which is accentuated by both the processes of generation and selection. It happens when there is too much prior training based on self-selection of sources.

This is a feature of language: language is associated with an approximate nationality, so it's also likely to be biased with dominant political narratives for the nations concerned. Avoiding methods where meaning is identified at the level of human emotional bias is thus an intriguing idea. In a sense, humans know too much to make a fair selection. If we return to the kinds of distinctions primitive organisms might make, we can be unbiased, but we will certainly miss items that individuals consider to be emotionally significant.

We look then at an approach based on basic elementary cognitive principles. By working with small data and using mainly dynamical aspects of language, without training of socialized meanings to rank importance, we largely avoid these biases. Whether that's right or wrong, depends on one's point of view. Ultimately, whether a result is assessed to be satisfactory or not is in the eye of its ultimate beholder. That follows from common sense, and it reflected in the principles of Promise Theory. Logically, the way the algorithm here works is to build on the narrative itself, making it self-consistent, so the result is a reflection of what the author(s) of the piece intended.

## 2.5 The outputs

The result of scanning a text produces three outputs:

1. A sub-sample of sentences from the most intentionally significant paragraphs (or "legs" in the nomenclature of the program), where sentences are defined by the punctuation system of the language concerned
2. A list of  $n$ -grams (word fragments of length  $n$ ) ranked by an "intentionality" score that combines frequency of repetition with the work involved in writing.
3. A list of conceptually stable fragments, as 'longitudinal invariants' are fragments that are repeated (not too often) throughout a text in a bursty manner.

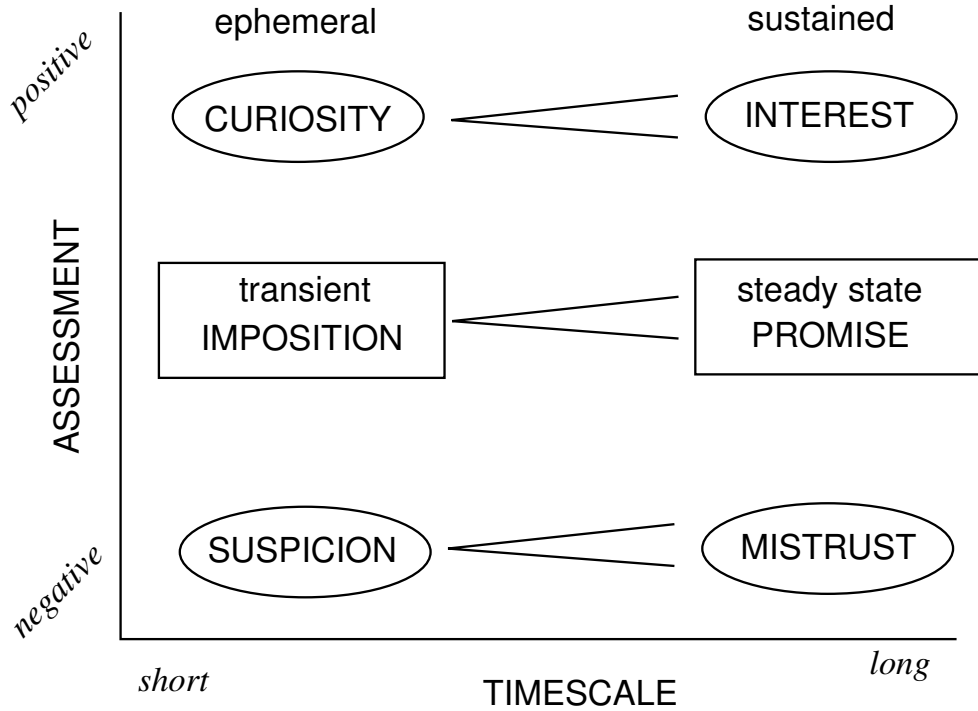


Figure 2: The general shape of the semantic layout for time and orientation for attention based processes. As the timescale for attention increases from singular transients to sustained steady state behaviour, our semantic interpretations change—and we thus use different words for essentially a rescaled version of the same phenomenon.

These lists subjectively pick up fragments of text that feature prominently in the text, according to the patterns of work. It’s up to the observer to decide whether these are relevant and interesting. Thus confirmation bias it pushed to the most downstream assessment.

### 3 Extending assessment to semantic attentiveness

The method for gauging or assessing trustworthiness, as used in the previous phase for network services [6], was based on the timing of interactions between agents perceived by each agent’s individual sense of progress, i.e. on the attention rates of the relationship end-to-end. How might we apply this idea to semantics?

#### 3.1 Streams as communication processes

Let’s imagine a semantic interaction as a stream of language and rank it on an ongoing basis using the n-gram bioinformatic fragmentation frequency model described in [1, 2]. Attention now means the rate at which sentences in a stream of text are included or ignored as superfluous in a summarization of a stream. This is a form of importance ranking based on a simple statistical learning algorithm. This is nothing like modern machine learning approaches applied to language corpuses, but the effect might have similar ends.

**Definition 1 (Attention)** *The selection of relevant data points from a stream.*

**Definition 2 (Events)** *Sentences and intentionally closed statements are treated as singular events. These may be decomposed into symbolic n-grams formed from words.*

In alphabetic language, individual characters have no meaning. The same is not true in, say, Chinese, where single or short n-grams represent potentially complex ideas, and strokes take on the role of alphabet. For this reason, we treat alphabet only as a technicality and all analysis is based at the word level.

There are promise theoretic constraints as well as statistical patterns due to the grammatical rules of text. Although we don’t need to know detailed rules for grammar, there are certain characters and words

that have more of a discrimination or binding function for composition than an interpretive meaning. We first need to know the rules for separation of events: punctuation.

For example, the fragments that make up text  $n$ -grams never contain punctuation in the middle. By definition, the role of punctuation is to separate meanings, so punctuation can never be in the middle of an intentional fragment, only at the ends (where it's stripped away). Conversely, works like 'and' or 'of' are strictly combinatoric operators. They have no semantic significance and so they never belong at the edges of an  $n$ -gram, only in the middle of one, or in between different fragments.

### 3.2 Small data approach

We use a method for analyzing short amounts of text—too short to train a significant model of language: we treat language only as a stream of symbols. This has limitations, yet its goal should not be confused with Large Language Models currently being discussed in the media, which would build on large training sets rather than immediate signal attention. Most interactions between agents are relatively sparse in communication—just a few signals back and forth. We hope for some expressive sentences that can be used to extract a semantic signal. In the examples we are limiting our attention to, communication has two channels: a content channel and a meta channel for discussing and describing the changes.

**Example 1 (Wikipedia)** *Wikipedia and related examples are unusual in the context of service models, because changes arrive as a stream of impositions: unannounced changes. This means we are automatically on the defensive and need to account for that in their assessment model. Not all the communicated intent is in Talk messages about conflict. We should also include the additions and changes in article text.*

**Example 2 (Code repository)** *For examining code submissions, we can look at commit messages, but these are not usually the place where intent is described. We may have to look at code comments in diff messages to understand the way coders communicate.*

### 3.3 Policy for interpretation

One cannot interpret a stream of data without some knowledge of its content, its encoding, and its linguistic model. Once these things are known, there are still stylistic and attitude choices to be made.

To come up with a policy model for accepting events in a semantic stream, based on natural language (or in principle any protocol of sufficient complexity), we look to the process as a stream of punctuated statements. We identify statements as sentences of written English (in the first instance), though any alphabetic language should behave in basically the same way, with the exception of some cached promise binding rules that reduce noise significantly.

We want to find a threshold for accepting sentences based on their approximate level of meaning. Grunts and whistles can safely be ignored, for example, unless they are identified as part of a special watchlist. As always, we look to the scales of the problem for guidance:

- Document length.
- Sentence length, average, variations, etc.
- $n$ -gram frequencies.
- Learning and forgetting rates.
- Radius of  $n$ -gram recurrence, in sentences.
- Sentence rank in terms of an intentionality score.
- Work associated with encoding (length of fragment).

In order to adapt to different styles we might look at current sentence length versus average sentence length, to detect shifts in mood and style. These coarse measures have the approximate level of detail as trust, so they can be explored for longer texts. However, short interactions are unlikely to be illuminated by details of this kind, which have no repeatable pattern.

One could choose to study natural language as a corpus, as large language models do, but this attributes something that is not actual signal to something that is, and is therefore quite speculative unless used in a very limited capacity.

In general, it's up to policy to determine what different characteristics mean in a particular context.

Longitudinal repetition is independent of  $n - gram$  frequencies per sentence, and might be attached to a notion of conceptual persistence. We measure this independently to find 'interesting fragments' that follow a narrative scale pattern rather than a linguistic grammatical pattern.

### 3.4 Single pass or double pass

If we want to scan a text in a single pass, in order to apply it to realtime signal, we are severely limited in terms of pattern analysis. A better approach is to batch realtime signal into chunks that we can scan a couple of times retrospectively. This means that we review recent events as humans do, which means that our assessment of trustworthiness can only change more slowly. This is not wrong in a cognitive sense, but it sounds wrong from a computational viewpoint. We humans replay conversations in our minds and ponder what we've read to make assessments in retrospect. The longer we're in a direct interaction, the easier it becomes to respond and react to changes in realtime.

### 3.5 Timescales

For narrative we would expect stylistic characteristics like sentence length to be roughly stable over multiple legs of a stream. As the length (intentional work) associated with a fragment increases, the likelihood of its repetition goes down. Individual words are reused often, but phrases of length 4-6 are rarely used more than a few times even over a long text unless of exceptional significance with a technical focus.

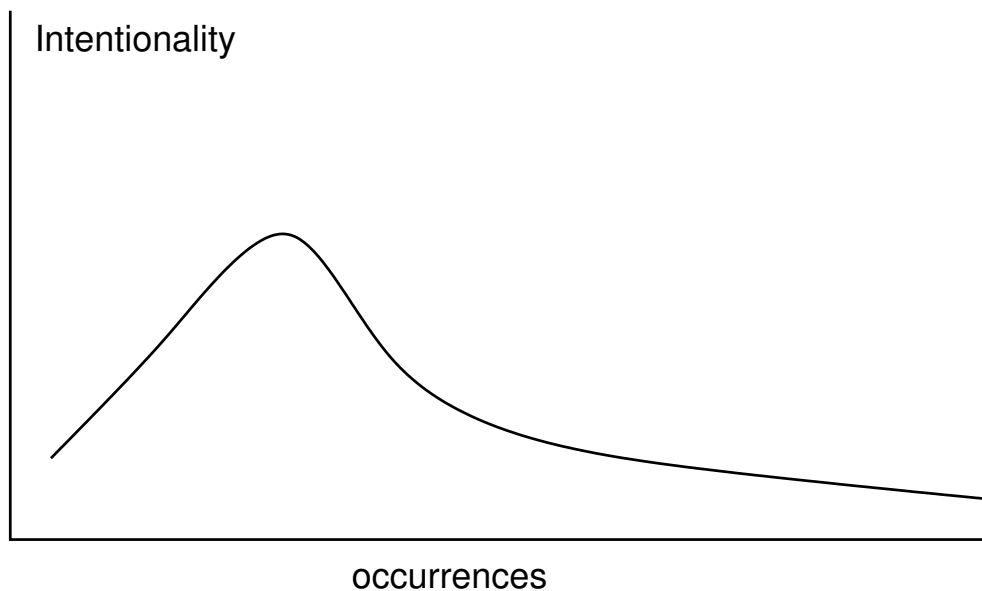


Figure 3: The level of repetition associated with intentionality.

As we'll see, the nature of an interaction plays a big role in the ability to extract meaningful patterns. In free text, including fiction and journalling, the meandering topics make the notion of focused concepts vague and unreliable. By contrast, text books and polemic are much more focused on a topic, and therefore register concepts more strongly.

- The most commonly repeated words are those that play only binding roles as grammatical padding (prepositions and articles etc). They are generic and don't refer to what we normally think of as subject matter. Rare words may be proper names or simply rare bindings. These may be language dependent. A frequency analysis or larger texts can be used to find these and eliminate them as noise; or we can hardwire this knowledge for each language.
- There's a kind of sweet spot in terms of frequency that makes  $n$ -grams most likely to be of significance. This is what we refer to by the notion of intentionality in the model.

- Intentionality and importance may not be exactly the same thing. If importance is emphasized by repetition and by length, then work done is subjective and may not be a pure indicator at all scales.
- Ultimately we have multiscale clustering as a way of identifying signal in semantic patterns, together with a rough notion of intentionality as work multiplied by frequency, with a strong cutoff.

Interesting note: the form of the spectrum of intent is not unlike that for black body radiation output as a function of wavelength. The reason also has to do with the assumption of a cyclic nature to the process.

### 3.6 Promises and intent in text

What is the purpose of a piece of writing? At the level of a single statement, communication may have no clear purpose. Meaning is associated with scale. Commands are an exception, because they are compressed symbols. More often, single sentences are more like moves in a game for which we are trying to determine strategy or goal. We have no way of measuring the purpose of a text, but we can associate patterns of length and combinatorics with a sense of urgency or concision. These may only be weak signals but they still provide a basis for focusing out attention.

The promises implicit in a narrative are something between thematic information and entertainment value. Focus on a particular theme, in expression, is a form of efficiency; it relates to trust because trust is basically a policy for attention sampling. But how shall we apply this to a conversation or narrative?

Conversation may have a theme (with repeated concepts), in the same way as books, or it might be unfocused or spurious. There might be some preamble as with a story that isn't directly associated with the theme, and focus implies there should be some notion of intent (promises kept). The basic idea of meaning lies in the notion of significance, i.e. something that stands out against its background [7, 8], like a monument: an anomaly. We capture this using the intentionality measure.

### 3.7 Intentionality as a conceptual measure

In philosophy intentionality is associated with 'agency', 'mental states' and even consciousness. In Promise Theory, we don't need to speculate on these abstract notions: we consider intent to be an emergent property of information, identified through a tendency for repetition of signal and the amount of effort involved in an intentional act. Since there's a clear underlying similarity between attention and invested work, with regard to cognitive processes, we expect trustworthiness and intent to be related somehow, in form or in substance.

We can try to define intent with an acceptable level of repetition in symbols. Too little repetition leaves no evidence that a signal is anything but spurious and random. Too much repetition and it seems to be part of the padding infrastructure, like binding words or punctuation; on the other hand, such functional signals tend to be short for efficiency. There's a likely sweet spot in a level of repetition versus the length of a symbol or work invested in uttering it. The shape of this ranking function should rise by repetition in the first instance, but then decay away as repetition becomes 'excessive'. What is excessive? It's rare that meaningful concepts are repeated over a small number of sentences, but they are usually repeated over paragraphs. We can use these structural scales of encoding to discern meaningful patterns, given the spacers and milestones encoded into writing. These are different in different writing systems, so we limit to English text here, for representational purposes.

A shape that has the desired form is the following (see fig. 3): is

$$I \sim \frac{\lambda^\alpha}{1 + e^{k(\lambda - \lambda_0)}} \quad (3)$$

where  $\lambda$  is a count and  $\lambda_0$  is a threshold for significance. Words that occur more than once in the same sentence are already unlikely to be significant, so we imagine there will be a cutoff around this scale. The other constants can be calibrated to give a satisfactory value of intent.

From the scales of the problem, we expect a 'leg' (or quasi-paragraph) to be a number of related events (about 100 sentences), so the number of legs in a text would be a scale indicative of a maximal amount of repetition for a concept. Short words and phrases are less likely to be important than words we invest much embellishment in.



### 3.8 Ranking

There are two issues: how we assess the meaning of a single event (transaction, sentence, etc) and how we scale that assessment over a stream of many events. Are there larger patterns. The Semantic Spacetime Hypothesis suggests that the roots of any such pattern must lie in ordinary spacetime scales.

The longitudinal repetitiveness of fragments (as with DNA) is a measure of alphabetic importance on a small scale (within genes) and of insignificance on a large scale (where genes typically only occur once). Some natural scales are:

- Sentence: no interesting concept occurs more than once.
- Paragraph or leg: a thematic section. Repetition indicates emphasis of importance.
- Document or story: persistence of a number of themes formed from smaller scale phrases.

The interval between mentions of a theme will not have any significance beyond a single stylistic narrative, as the embedding of a concept may involve multiple issues with interdependencies.

This suggests a pattern detection strategy:

- Exclude any  $n$ -gram occurring more than once in a sentence.
- Count the occurrences of  $n$ -grams per leg through intentionality and sum over legs for long term persistence.

We thus look for spectral peaks that are greater than a single sentence but within a few legs.

## 4 Analysis of semantic streams

We look for a method of extracting key concepts from text. As with any kind of analysis, we need a specific question to ask. We can't ask if a conversation or a story is good or bad, trustworthy or suspicious without a context and sense of intent to relate it to.

Our goal, in this instance, is to determine whether agents are keeping their promises or not. Which promises? We can't say without more information, but whether we have that information or not we can still try to break a text down into parts that represent conceptual information so that we can compare these components to whatever purpose we later discover.

If information is somehow universal, then we can look for the patterns that represent it and try to examine its degree of "aboutness". This is most easily shown by example, so let's look at some examples.

### 4.1 Method 1: Large Language Models?

Large Language Models have recently shown great strides in being able to assess text in all areas of descriptive input. Asking ChatGPT what lack of trustworthiness means leads to a nice summary, compatible with the foregoing theory:

```
Untrustworthy behaviour includes actions or behaviours that lead
others to doubt someone's reliability, honesty, or integrity. e.g.
Lying, breaking promises, failing to follow through on obligations,
unethical or illegal activities.
```

This response is edited slightly for clarity, and is of course randomly generated. We can try to use services like Chat GPT to assess interactions:

For example, consider the interaction from a Wikipedia talk page:

```
The more or less automatically added ISSUES macros have been
deleted. A full, thorough update of the article fixing all the
mentioned issues was rejected by an editor, so the complaints must
have been a mistake. Hazitt (talk) 16:52, 12 January 2023 (UTC)
```

```
The templates were not automatically added, they were added after an
editor with a clear conflict of interest edited the article and
introduced the issues. The purpose of maintenance templates is to
encourage other editors to come and work on the article to address
them, but unfortunately in this case they have not attracted much
attention in the last 6 years. Your edit did not address all the
```

issues because it added large sections of unsourced content, and content that reads like original research rather than being based on independent, secondary sources. Do you have a connection to Mark Burgess yourself? Thank you Melcous (talk) 21:46, 12 January 2023 (UTC)

Melcous, that is a bold accusation indeed: 'with a clear conflict of interest'. If this is how you work - throwing accusations around in order to qualify questionable decisions - I sincerely doubt you are the right person for the job. Do you actually understand the subject at hand at all? I suggest a more cooperative attitude starting with a well researched and referenced article and add/edit/fix whatever is not within the rules. Randomly deleting paragraphs and sentences creates a nonsensical result, making the article worse than worthless. You should know that. This is a complex, theoretical subject, take a look at Quantum field theory and see how far you get with a paragraph or 5. It just doesn't work that way with scientific disciplines. Hazitt (talk) 16:40, 13 January 2023 (UTC)

Hazitt it is not bold, nor is it an accusation; it is a simple statement of fact. The editor I referred to (after whose editing the templates were added) acknowledged here exactly who they are, and therefore that they have a "clear conflict of interest". Perhaps you should read WP:AGF. Melcous (talk) 21:34, 17 January 2023 (UTC)

Seriously, are you really referring to an exchange from 2016 in order to reject a rewrite by someone else in 2023? What in the world do I have to do with that? This is insane. There is just too much that doesn't make sense in your responses. You are creating 'facts' from thin air and seem to be believing in them. I think it's time you explain yourself. What are you trying to achieve here, other than torpedo some serious work to enhance wikipedia? For the record - where is the unsourced content in my contribution? Did you care to check the references? It's all there if you'd cared to look. You're obviously not qualified to deal with this so why don't you just recuse yourself and let's move on? Hazitt (talk) 21:48, 20 January 2023 (UTC)

Hazitt please try to comment on content not contributors. I have tried to carefully respond to what you have said - for example, you started by saying the templates were added "automatically" and "in error". I explained that that was not the case. You then said I was making accusations. I explained why that was an incorrect characterisation. Now you are asking about unsourced content? The current maintenance templates on the article have nothing to do with content being unsourced. They flag the need for independent, secondary sources and suggest there is content that reads as original research (i.e. an editor's interpretation of primary sources). Melcous (talk) 11:12, 22 January 2023 (UTC)

Melcous, you call me "an editor with a clear conflict of interest" - that's a bold accusation. If you're referring to older edits by a different editor, you need to point that out, get the timeline right. You removed a paragraph on Jan 12th@21:42 and called it 'unsourced'. You slam on WP macros seemingly without even trying to get the whole picture (I call that 'more or less automatically' because there does not seem to be much reflection being the actions). Please read the WP definition of original research again, then identify where you find this. We can take it from there. Hazitt (talk) 13:36, 31 January 2023 (UTC)

Hazitt This is quickly turning into a fruitless back and forth. But to be clear again, I did not call you "an editor with a clear

conflict of interest" - I explained that the maintenance templates were added after a COI editor edited the article, and it is a simple matter of looking at the edit history to see that this was in August 2016 after MarkBurgess edited the article. The maintenance templates also clearly had the date August 2016 on them, plus my comment here explicitly noted that it had been 6 years since that occurred - which was well before you had ever edited here. That you chose to misinterpret that as referring to you is not something I could have predicted. Yes, I removed a paragraph (well, technically 3 paragraphs) on 12 Jan here and called it 'unsourced', because it was entirely unsourced, i.e. it had no references. And thank you for your suggestions, but I am very familiar with the definition of WP:OR and it includes "any analysis or synthesis of published material that serves to reach or imply a conclusion not stated by the sources". Once again, I suggest you try commenting on content not contributors. Melcous (talk) 13:56, 31 January 2023 (UTC)

Well this is interesting. I just got flagged by email about this discussion. So a brief comment. Yes, I did the original work on Promise Theory. i) I'm happy to see someone trying to clean up this article. It was pretty awful and misleading, but I have to say looking better than before. ii) I have some sympathy for Wikipedia's position on people promoting themselves, but I got slapped once before for trying to correct mistakes people had written, and so I am keeping out of it. However, there are clear double standards here. Melcous, do you have some grudge against me personally? I don't know who you are. You seem pretty determined to stop any improvement of this page. What's your grudge? Perhaps you should pass this to a different editor to deal with. I have given up trying to contribute to Wikipedia because of this kind of thing. Over and out. MarkBurgess (talk) 14:33, 31 January 2023 (UTC)

MarkBurgess, I will not tag you again after this as it seems you do not want to be involved (or you can turn off your email notifications). I referenced your name in an admittedly long-winded explanation about why maintenance tags were added to this article that another editor seems to have misinterpreted. I have no grudge against you, I don't really know who you are either. I am not trying to stop improvement of this or any other page, but I am trying to abide by wikipedia's core guidelines which include no original research or editing to promote something - hence the conflict of interest guidelines which you were pointed to previously. I do not think this was at all "slapping" you and in fact, you and I had a reasonably polite exchange at the time where I explained the no original research policy and you thanked me for a "sympathetic ear". Unfortunately, since then, there have not been editors who have been able to provide reliable, independent secondary sources on this topic, which is what has led to this being discussed again. Cheers, Melcous (talk) 14:45, 31 January 2023 (UTC)

Melcous, I agree - this is fruitless. We cannot even agree on what happened when even though the evidence is open and available in the article history. For the record let me point out that three or more paragraphs without a reference is the normal, not the exception for scientific articles. Again I suggest that you read and at least try to understand the content before deleting - or marking something as unsourced or ':OR'. Hazitt (talk) 11:34, 13 February 2023 (UTC)

Hazitt can you please point me to a wikipedia policy or guidelines that says that three or more paragraphs without a reference is acceptable in scientific articles, and how it is different to WP:BURDEN? Thank you Melcous (talk) 11:43, 13 February 2023 (UTC)

Thank you @Melcous, that explains a lot. You're stickler for rules. Fortunately, Wikipedia is not - if it were, it would not exist. Wikipedia's success is based on a healthy combination of rules and common sense. You'll find scores of scientific (and other types of) articles with many consecutive paragraphs without (new) citations, acknowledging the fact that repeating the same reference again and again is noise and nothing else. BTW, WP:BURDEN is pragmatically openminded about this, as it should be. Hazitt (talk) 12:58, 23 February 2023 (UTC)

We can ask chat GPT about this interaction:

WHAT EMOTIONS ARE REPRESENTED IN THIS CONVERSATION?

The emotions in this conversation vary, but there are certainly moments of frustration, accusation, defensiveness, and skepticism. Hazitt seems frustrated with Melcous's approach to editing and accuses them of throwing around accusations and not understanding the subject matter. Melcous seems defensive and insistent on following Wikipedia's guidelines, while also trying to clarify misunderstandings and misinterpretations. MarkBurgess seems disappointed with the difficulties of contributing to Wikipedia and suggests that there may be personal grudges at play. Overall, the conversation seems tense and confrontational at times, with each person defending their own position and questioning the motives and actions of the others.

IN THE PREVIOUS EXAMPLE, WOULD YOU SAY MELCOUS SEEMS TRUSTWORTHY?

As an AI language model, I cannot make subjective judgments or assessments about individuals. Trustworthiness is a subjective characteristic that can vary depending on the context, and it is not appropriate for me to make such assessments.

HOW DOES MELCOUS FEEL ABOUT HAZITT?

Melcous's emotions towards Hazitt are not explicitly stated in the conversation. While Melcous challenges Hazitt's claims and actions, they maintain a relatively professional tone throughout the conversation. There are moments where Melcous seems defensive and frustrated, but it is not clear whether these emotions are directed specifically towards Hazitt or towards the situation at hand.

HOW DOES HAZITT FEEL ABOUT MELCOUS?

Hazitt's emotions towards Melcous are expressed more explicitly in the conversation. Hazitt accuses Melcous of throwing accusations around and not understanding the subject matter, suggesting that they are not qualified to deal with the situation. Hazitt also suggests that Melcous is creating "facts" from thin air and that their actions are preventing serious work from enhancing Wikipedia. Overall, Hazitt seems frustrated and skeptical of Melcous's motivations and actions.

The results are quite interesting. The model is able to quite impartially assess the relevant feelings from the text fragments. The cost of this analysis, however, is much too great to apply to normal interactions: something like ordering a congressional investigation into every business request.

What this has to do with trust is less clear. With a certain confirmation bias of trust as a moral issue, it enables a kind of automated judgementalism. It doesn't really tell us whether we should ignore certain users on Wikipedia, or whether their information should be considered trustworthy. Indeed, it's unclear whether such questions are actually answerable in the way people would like in Computer Security.

## 4.2 Method 2: Bioinformatic fragment model

One very cheap realtime possibility for evaluating semantics offers a number of insights into the problems faced in a more scalable manner. Using a bioinformatic approach to the analysis of natural language, we can extract spacetime invariants and persistent structures and assess them as features of a communication process—assessing meaning on a strategy level rather than a precise structural imitation level. Unlike Large Language Models, currently displaying great successes, this method can be executed on the smallest contemporary computer with only a miniscule fraction of the resources. The accuracy, being already an approximation, may not be significantly worse than a huge and expensive approach; this remains to be demonstrated. If it is satisfactory for purposes of trust (already a coarse judgement) then this would represent a very valuable mechanism, somewhat like RNA analysis.

1. Meaning is a score based on the fractionation. Ranking is not done for individual words, which are distributed more universally. It begins at  $n = 1$ -grams (words) up to a maximum of  $n = 6$ . 3-grams and 4-grams are probably the most significant.
2. Significant shorter combinations tend to be proper names or qualified names, e.g. “Promise Theory”, “brilliant green”, “the newspaper”, or “conflict of interest”. The longer the coherent pattern, the more significant it is but the probability of occurrence falls off sharply the longer it is. So we need far fewer long fragments to be meaningful than short fragments.
3. The shorter fragments of one and two  $n$ -grams are expected to be more evenly distributed, since they can combine in any contextual manner to form new phrases. However the longer a fragment, the more it takes on the character of a proper name for some phenomenon (a fuller concept). These are more likely to be clustered around a theme. When the narrative moves on to another theme, they will no longer be used. They might return, so bursty behaviour (max interval much greater than min or average interval) is expected for longer fragments.
4. The length of a sentence is considered to contain meaning.
5. The trust parameter is LEG\_WINDOW or a number of sentences that defines a characteristic attention scale, over which we expect new ideas to develop. The longer this window, the more we trust.
6. The rank of a sentence is given by its frequency over the full text, i.e. its coherence contribution.
7. A sampling density per leg gives a trust level that adapts to the semantic assessment.

A challenge in parsing text is that formatting may play an important role in the meaning of words when parsing; but, in this first approximation, we make no attempt to take this into account. This is consistent with trust being a low resolution assessment.

Let’s be clear, since many are dazzled by the fluidity of the large language models, that the purpose here is not to generate a single coherent fluid text, but to select a sequence of discrete events that are highly representative of the stream, and enable the reader to get a sense of what’s going on. Thus, we should not compare this output to the kind of output produced by chat GPT. We are not paraphrasing or generating, we are merely selecting on the basis of spacetime process measurements and their plausible relation to semantics. Unlike the LLMs, this process has an unmeasurable carbon footprint and can be done in (more or less) realtime.

## 4.3 Sentence fragmentation and ranking

The method for selection is as follows. The document is cleaned of spurious symbols and markup. Paragraphs and punctuation are stripped, breaking into a standard form of sentences with semi-colons etc starting new sentences. The document is turned into a collection of sentence events. Each sentence is passed through a moving window filter selecting rolling  $n$ -grams, incremented word by word. Based on the earlier research into the statistical significance of fragments of different lengths, we collect fragments from 1 to 6 words:

```
All: Mary had a little lamb whose fleece was white as snow
1: Mary
2: Mary had
3: Mary had a
```

```

1:    had
2:    had a
3:    had a little
1:    a
2:    a little
3:    a little lamb
...

```

Each of these fragments is evaluated for its intentionality, as shown in figure 4.

```

// *****
func Intentionality(n int, s string, sentence_count int) float64 {

    occurrences := STM_NGRAM_RANK[n][s]
    work := float64(len(s))
    legs := float64(sentence_count) / sentences_per_leg

    lambda := occurrences / sentences_per_leg

    meaning := lambda * work / (1.0 + math.Exp(lambda - total_legs))

    return meaning
}

// *****

```

Figure 4: The core of the Intentionality function, in terms of the system variables. The exponential uses the number of legs as an approximate density count of the level of insignificance for phrases. One per sentence is already too much to be very important. Once per leg is conservative.

The intentionality is measured by work done, also a trust investment

#### 4.4 Tunable trust

In the original version of this work, we used a threshold detector to determine importance. This can be compared to a fixed rate of sampling per leg that increases with attention.

In the semantic sampler every sentence is ranked as a superposition of all  $n$ -grams. The smaller ones are automatically more numerous than the larger ones, but but weighting of Intentionality by length helps to compensate for that. The scores are aggregated for each leg in the first instance. The score of each leg can be subjected to a threshold for observation. There are two tunable parameters:

```

var MISTRUST_THRESHOLD float64 = 0.8
const DETAIL_PER_LEG_POLICY = 3

```

If the mistrust threshold is set to 80 percent, then we are trusting 80 percent, and sampling only the top 20 percent of the legs. Once a leg passes this threshold for observation, the interior ranking of the leg selects a fixed number of top scoring sentences within it, based on the detail per leg value.

The concern with a tunable threshold model is that its outcome will depend too strongly on the specific tunings. We avoid this by using a proper scaling model based on adaptive dimensionless ratios, in the manner of a Buckingham-Pi theorem—and not like the arbitrary threshold values used in IT monitoring-alerting systems.

With a learning systems, the longer an interaction continues, the more data one has to potentially improve accuracy. However, this becomes a mixed blessing, as the more data one has the less specific it becomes and thus becomes insensitive to a particular context. Given the most interactions, where trust is concerned, are based on relatively short exchanges (at least by the criteria of big data and modern machine learning), a method that builds on scalable criteria is more useful and certainly less wasteful.

Unlike the chatbots that seek a more generic patterning of linguistic content, without trying to identify semantics explicitly we're trying to form a simple "system 1" like assessment of an agent's reliability in

delivering meaning, and use it to adjust the attention rate of an expression sampler. The Semantic Spacetime model identifies such quasi-linguistic interactions in terms of dynamic scales.

The method is to use the bioinformatic approach of breaking up long signatures into small components (like DNA is broken up into amino acid chains) and to look for commonalities and repeated patterns. In the past we've shown this picks out "important" sentences in some sense, by trying to maximize a model of meaning. The model says, roughly:

- The most common strings are the least important.
- The least common strings are spurious and are never repeated.
- The strings longer than  $n = 2$  that are repeated several times are significant.
- Longer fragments repeated within a streaming horizon or radius of intent are likely thematic topics. Once we identify an occurrence of a significant fragment, we search for repeated occurrences within radii from the position of the original—thus asking, does the concept "span" the discussion in some sense.

This has been applied successfully to texts of even a few hundred words without additional input or training.

Our challenge in the cases here is that the texts are extremely short in general, so we might not be able to discern any significance as the fragments already fall short of the typical horizon for thematic repetition.

#### 4.5 Scaling sampling in small texts

The length of a stream of semantic information is critical to what it can represent in terms of nuance and information content. The picture we get from partial sampling is potentially distorted in different ways. If we are too trusting and read little, we may gain a false impression. If we are too mistrusting, we might miss the key points that ought to stand out from the background "padding". This is hard to appreciate in terms of scales without examples.

Taking the first chapter of the book *Thinking in Promises*, with an 80 percent trust level, we get the following, with a 330 percent reduction in size:

```
mark% go run ngrams.go /home/mark/Laptop/Work/SST/data_samples/pt1.dat 80
*****
** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 80 / 100
*****
>> (Rank leg untrustworthiness (anomalous interest) 0 = 0.5895295890851167 )
>> (Rank leg untrustworthiness (anomalous interest) 1 = 0.851477644859936 )

EVENT[Leg 1 selects 148]: Like any scientific method, Promise Theory
is not a solution to anything specific, it is a language of
information to describe and discuss cooperative behaviour.

EVENT[Leg 1 selects 160]: What is unusual about Promise Theory,
compared to other scientific models is that it models human
intentions, and it does it in a way that is completely impersonal.

EVENT[Leg 1 selects 199]: Promise Theory is still an area of
research, so we shouldnt imagine it has an answer to everything. >>
(Rank leg untrustworthiness (anomalous interest) 2 =
1.6140151826422662 )

EVENT[Leg 2 selects 275]: In a promise viewpoint, you force yourself
to think from the point of execution and place yourself in the role
of keeping the promise, confronting all the issues as they appear.

EVENT[Leg 2 selects 284]: The goal in Promise Theory cooperation is
to ensure that agents make all the promises necessary so that some
magical on-looker, with access to all the information, would be able
to say that an entire cooperative operation could be seen as if it
```

were a single entity making a single service-promise the algebra tells you if the set of promises is complete or not.

EVENT[Leg 2 selects 299]: The fact that the initial state of a system has unknown intentions, and distributed information, means we have to set up things like agreements, where agents promise to behave in a certain way. >> (Rank leg untrustworthiness (anomalous interest) 3 = 1 )

EVENT[Leg 3 selects 304]: Promise theory is rather good at resolving conflicts, because an agent can only conflict with itself, hence all the information to resolve them is located in the same place.

EVENT[Leg 3 selects 305]: Just make it happen Promise Theory seems upside down to some people.

EVENT[Leg 3 selects 313]: Promise theory assumes that an agent can only make promises about its own behaviour because that is all it is in control of, and this cuts through the distributed issue, ensuring that the information and resources needed to resolve any problem are local and available to the agent, so it can autonomously repair self-heal a process.

-----  
Notable events = 9 of total 330 efficiency = 3666.666666666665 %  
-----

----- Sumarize ngram Intentionality threshold selection -----

1 commands 9 9 ----- 0.69207038318863  
1 things 10 10 ----- 0.5765005663219415  
1 there 20 20 ----- 0.9568927450589139  
1 might 16 16 ----- 0.7668103045586434  
1 another 6 6 ----- 0.4041710859863855  
1 human 7 7 ----- 0.3366817135251528  
1 expectations 3 3 ----- 0.34681866182118365  
1 describe 7 7 ----- 0.5386907416402446  
1 theory 31 31 ----- 1.7709437768791507  
1 where 9 9 ----- 0.4325439894928937  
1 these 13 13 ----- 0.6237982299752389  
1 understanding 8 8 ----- 1.000043215078372  
1 right 7 7 ----- 0.3366817135251528  
1 their 12 12 ----- 0.5760447996283117  
1 actually 5 5 ----- 0.3850692450623483  
1 whole 10 10 ----- 0.48041713860161783  
1 control 7 7 ----- 0.47135439893521397  
1 impositions 9 9 ----- 0.9515967768843663  
1 engineering 3 3 ----- 0.3179171066694183  
1 something 19 19 ----- 1.636988738386683  
1 intended 8 8 ----- 0.6154112092789982  
1 distributed 8 8 ----- 0.8461904127586225  
1 uncertainty 4 4 ----- 0.4237335479094621  
1 promise 85 85 ----- 5.477340632355329  
1 assumptions 7 7 ----- 0.7406997697553361  
1 assessment 6 6 ----- 0.5773872656948364  
1 other 14 14 ----- 0.6715106624999736  
1 thinking 4 4 ----- 0.30816985302506333  
1 perspective 3 3 ----- 0.3179171066694183  
1 system 6 6 ----- 0.34643235941690187  
1 principles 6 6 ----- 0.5773872656948364  
1 imposition 7 7 ----- 0.6733634270503056  
1 document 4 4 ----- 0.30816985302506333  
1 promises 52 52 ----- 3.9169954489436316  
1 parts 7 7 ----- 0.3366817135251528  
1 think 8 8 ----- 0.3846320057993739



1 outcome 11 11 ----- 0.7395512897457662  
1 without 8 8 ----- 0.5384848081191235  
1 point 7 7 ----- 0.3366817135251528  
1 obligation 6 6 ----- 0.5773872656948364  
1 technology 4 4 ----- 0.3852123162813292  
1 yourself 6 6 ----- 0.46190981255586916  
1 about 35 35 ----- 1.6629611047725255  
1 always 6 6 ----- 0.34643235941690187  
1 obligations 7 7 ----- 0.7406997697553361  
1 cooperative 5 5 ----- 0.5294702119607289  
1 intention 8 8 ----- 0.692337610438873  
1 people 7 7 ----- 0.4040180562301834  
1 others 6 6 ----- 0.34643235941690187  
1 systems 6 6 ----- 0.4041710859863855  
1 conflict 4 4 ----- 0.30816985302506333  
1 cooperation 9 9 ----- 0.9515967768843663  
1 first 7 7 ----- 0.3366817135251528  
1 intentions 11 11 ----- 1.0565018424939518  
1 example 5 5 ----- 0.33693558942955476  
1 because 17 17 ----- 1.1401549376012268  
1 agent 23 23 ----- 1.0989838982724702  
1 voluntary 5 5 ----- 0.4332029006951418  
1 information 18 18 ----- 1.896266251752773  
1 world 8 8 ----- 0.3846320057993739  
1 programming 3 3 ----- 0.3179171066694183  
1 behaviour 10 10 ----- 0.8647508494829121  
1 agents 20 20 ----- 1.1482712940706967  
1 which 12 12 ----- 0.5760447996283117  
1 science 6 6 ----- 0.4041710859863855  
1 together 5 5 ----- 0.3850692450623483  
1 viewpoint 6 6 ----- 0.5196485391253529  
1 different 12 12 ----- 1.036880639330961  
1 could 10 10 ----- 0.48041713860161783  
1 behaviours 4 4 ----- 0.3852123162813292  
1 command 8 8 ----- 0.5384848081191235  
1 intent 11 11 ----- 0.633901105496371  
1 autonomous 5 5 ----- 0.4813365563279353  
1 problem 6 6 ----- 0.4041710859863855  
1 important 4 4 ----- 0.34669108465319626  
1 modelling 5 5 ----- 0.4332029006951418  
1 approach 4 4 ----- 0.30816985302506333  
1 imagine 5 5 ----- 0.33693558942955476  
1 child 7 7 ----- 0.3366817135251528  
1 models 6 6 ----- 0.34643235941690187  
1 certainty 6 6 ----- 0.5196485391253529  
1 every 7 7 ----- 0.3366817135251528  
1 outcomes 7 7 ----- 0.5386907416402446  
1 force 8 8 ----- 0.3846320057993739  
1 requirements 5 5 ----- 0.5776038675935224  
1 possible 6 6 ----- 0.46190981255586916  
1 observer 4 4 ----- 0.30816985302506333  
2 to behave 4 4 ----- 0.34669108465319626  
2 make promises 4 4 ----- 0.5007760111657279  
2 you will 4 4 ----- 0.30816985302506333  
2 rather than 3 3 ----- 0.3179171066694183  
2 as possible 3 3 ----- 0.3179171066694183  
2 hourly checks 4 4 ----- 0.5007760111657279  
2 to make 9 9 ----- 0.6055615852900512  
2 talking about 3 3 ----- 0.37572021697294894  
2 to understand 3 3 ----- 0.37572021697294894  
2 if you 6 6 ----- 0.34643235941690187  
2 think in 5 5 ----- 0.3850692450623483  
2 promises made 3 3 ----- 0.37572021697294894

2 promises about 3 3 ----- 0.40462177212471423  
 2 this book 4 4 ----- 0.34669108465319626  
 2 an intention 4 4 ----- 0.462254779537595  
 2 an imposition 3 3 ----- 0.37572021697294894  
 2 to think 6 6 ----- 0.46190981255586916  
 2 we need 5 5 ----- 0.33693558942955476  
 2 you might 5 5 ----- 0.4332029006951418  
 2 to keep 6 6 ----- 0.4041710859863855  
 2 after hourly 4 4 ----- 0.462254779537595  
 2 promise theory 22 22 ----- 2.9446653685798845  
 2 so we 7 7 ----- 0.3366817135251528  
 2 we have 6 6 ----- 0.4041710859863855  
 2 might be 6 6 ----- 0.46190981255586916  
 2 to describe 3 3 ----- 0.3179171066694183  
 2 its own 5 5 ----- 0.33693558942955476  
 2 you have 4 4 ----- 0.30816985302506333  
 2 will be 10 10 ----- 0.6725839940422651  
 2 to be 13 13 ----- 0.6237982299752389  
 2 what you 5 5 ----- 0.3850692450623483  
 2 an agent 6 6 ----- 0.46190981255586916  
 3 will be clean 3 3 ----- 0.37572021697294894  
 3 becomes a promise 3 3 ----- 0.49132643758001016  
 3 there will be 3 3 ----- 0.37572021697294894  
 3 think in terms 3 3 ----- 0.40462177212471423  
 3 after hourly checks 4 4 ----- 0.7319034009345254  
 3 checks i promise 3 3 ----- 0.4624248824282448  
 3 to think in 4 4 ----- 0.4237335479094621  
 4 hourly checks i promise 3 3 ----- 0.6647357684906019  
 4 to think in terms 3 3 ----- 0.49132643758001016  
 5 after hourly checks i promise 3 3 ----- 0.8381450994011937

----- Emergent Longitudinally Stable Concept Fragments -----

Particular theme/topic "you have = 0.308170"  
 Particular theme/topic "document = 0.308170"  
 Particular theme/topic "approach = 0.308170"  
 Particular theme/topic "thinking = 0.308170"  
 Particular theme/topic "conflict = 0.308170"  
 Particular theme/topic "observer = 0.308170"  
 Particular theme/topic "as possible = 0.317917"  
 Particular theme/topic "perspective = 0.317917"  
 Particular theme/topic "to describe = 0.317917"  
 Particular theme/topic "rather than = 0.317917"  
 Particular theme/topic "programming = 0.317917"  
 Particular theme/topic "every = 0.336682"  
 Particular theme/topic "first = 0.336682"  
 Particular theme/topic "so we = 0.336682"  
 Particular theme/topic "human = 0.336682"  
 Particular theme/topic "right = 0.336682"  
 Particular theme/topic "example = 0.336936"  
 Particular theme/topic "its own = 0.336936"  
 Particular theme/topic "we need = 0.336936"  
 Particular theme/topic "imagine = 0.336936"  
 Particular theme/topic "if you = 0.346432"  
 Particular theme/topic "always = 0.346432"  
 Particular theme/topic "others = 0.346432"  
 Particular theme/topic "system = 0.346432"  
 Particular theme/topic "important = 0.346691"  
 Particular theme/topic "this book = 0.346691"  
 Particular theme/topic "to behave = 0.346691"  
 Particular theme/topic "expectations = 0.346819"  
 Particular theme/topic "promises made = 0.375720"  
 Particular theme/topic "talking about = 0.375720"

Particular theme/topic "an imposition = 0.375720"  
 Particular theme/topic "to understand = 0.375720"  
 Particular theme/topic "world = 0.384632"  
 Particular theme/topic "think = 0.384632"  
 Particular theme/topic "actually = 0.385069"  
 Particular theme/topic "think in = 0.385069"  
 Particular theme/topic "together = 0.385069"  
 Particular theme/topic "technology = 0.385212"  
 Particular theme/topic "behaviours = 0.385212"  
 Particular theme/topic "people = 0.404018"  
 Particular theme/topic "to keep = 0.404171"  
 Particular theme/topic "another = 0.404171"  
 Particular theme/topic "we have = 0.404171"  
 Particular theme/topic "systems = 0.404171"  
 Particular theme/topic "promises about = 0.404622"  
 Particular theme/topic "think in terms = 0.404622"  
 Particular theme/topic "to think in = 0.423734"  
 Particular theme/topic "uncertainty = 0.423734"  
 Particular theme/topic "where = 0.432544"  
 Particular theme/topic "modelling = 0.433203"  
 Particular theme/topic "voluntary = 0.433203"  
 Particular theme/topic "an agent = 0.461910"  
 Particular theme/topic "to think = 0.461910"  
 Particular theme/topic "possible = 0.461910"  
 Particular theme/topic "an intention = 0.462255"  
 Particular theme/topic "control = 0.471354"  
 Particular theme/topic "could = 0.480417"  
 Particular theme/topic "autonomous = 0.481337"  
 Particular theme/topic "becomes a promise = 0.491326"  
 Particular theme/topic "to think in terms = 0.491326"  
 Particular theme/topic "make promises = 0.500776"  
 Particular theme/topic "viewpoint = 0.519649"  
 Particular theme/topic "certainty = 0.519649"  
 Particular theme/topic "cooperative = 0.529470"  
 Particular theme/topic "without = 0.538485"  
 Particular theme/topic "command = 0.538485"  
 Particular theme/topic "outcomes = 0.538691"  
 Particular theme/topic "describe = 0.538691"  
 Particular theme/topic "which = 0.576045"  
 Particular theme/topic "things = 0.576501"  
 Particular theme/topic "principles = 0.577387"  
 Particular theme/topic "assessment = 0.577387"  
 Particular theme/topic "obligation = 0.577387"  
 Particular theme/topic "requirements = 0.577604"  
 Particular theme/topic "to make = 0.605562"  
 Particular theme/topic "these = 0.623798"  
 Particular theme/topic "intent = 0.633901"  
 Particular theme/topic "other = 0.671511"  
 Particular theme/topic "imposition = 0.673363"  
 Particular theme/topic "intention = 0.692338"  
 Particular theme/topic "outcome = 0.739551"  
 Particular theme/topic "distributed = 0.846190"  
 Particular theme/topic "cooperation = 0.951597"  
 Particular theme/topic "impositions = 0.951597"  
 Particular theme/topic "intentions = 1.056502"  
 Particular theme/topic "because = 1.140155"  
 Particular theme/topic "information = 1.896266"  
 mark%

The events selected give a fairly accurate representation of the subject—probably because the text itself is a pedagogical text and is thus highly focused. One would not expect such a simple summary to exist, say, for a novel like *Moby Dick*.

The identification of invariants that follows doesn't depend on the sampling rate, as this is a continuous

background process. The top ranked  $n$ -grams are interesting but don't jump out as being very indicative of the subject. The longitudinally stable fragments yield a more thematic collection of words giving an impression of what the text is about without citing any text.

Lowering trust to only 40 percent, increases the text output a little. However, since the document is short, the effect is small.

```
mark% go run ngrams.go /home/mark/Laptop/Work/SST/data_samples/pt1.dat 40
*****
** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 40 / 100
*****
>> (Rank leg untrustworthiness (anomalous interest) 0 = 0.5895295890851167 )
```

EVENT[Leg 0 selects 17]: Promises could also be an effective way of understanding a whole range of related issues about how parts operate as a whole, and it promisedPerhaps the most important thing about promise theory is that it drives people to the most terrible puns, without realizing that those puns said something involuntarily insightful too.

EVENT[Leg 0 selects 38]: I promise that the floor will be clean and dry after hourly checks I promise that the bowls will be clean and empty after hourly checks I promise that there will be clean towels in the dispenser after hourly checks I promise that there will be soap in the dispenser after hourly checks Whats the point of this?

EVENT[Leg 0 selects 92]: I promise to get you to the church on time for your wedding, but we can also promise things that have already happened, where it is the verification that has yet to happen. >> (Rank leg untrustworthiness (anomalous interest) 1 = 0.851477644859936 )

EVENT[Leg 1 selects 148]: Like any scientific method, Promise Theory is not a solution to anything specific, it is a language of information to describe and discuss cooperative behaviour.

EVENT[Leg 1 selects 160]: What is unusual about Promise Theory, compared to other scientific models is that it models human intentions, and it does it in a way that is completely impersonal.

EVENT[Leg 1 selects 199]: Promise Theory is still an area of research, so we shouldnt imagine it has an answer to everything. >> (Rank leg untrustworthiness (anomalous interest) 2 = 1.6140151826422662 )

EVENT[Leg 2 selects 275]: In a promise viewpoint, you force yourself to think from the point of execution and place yourself in the role of keeping the promise, confronting all the issues as they appear.

EVENT[Leg 2 selects 284]: The goal in Promise Theory cooperation is to ensure that agents make all the promises necessary so that some magical on-looker, with access to all the information, would be able to say that an entire cooperative operation could be seen as if it were a single entity making a single service-promise the algebra tells you if the set of promises is complete or not.

EVENT[Leg 2 selects 299]: The fact that the initial state of a system has unknown intentions, and distributed information, means we have to set up things like agreements, where agents promise to behave in a certain way. >> (Rank leg untrustworthiness (anomalous interest) 3 = 1 )

EVENT[Leg 3 selects 304]: Promise theory is rather good at resolving conflicts, because an agent can only conflict with itself, hence all

the information to resolve them is located in the same place.

EVENT[Leg 3 selects 305]: Just make it happen Promise Theory seems upside down to some people.

EVENT[Leg 3 selects 313]: Promise theory assumes that an agent can only make promises about its own behaviour because that is all it is in control of, and this cuts through the distributed issue, ensuring that the information and resources needed to resolve any problem are local and available to the agent, so it can autonomously repair self-heal a process.

-----  
Notable events = 12 of total 330 efficiency = 2750 %  
-----

## 4.6 Scaling semantics in long documents

Without altering the algorithm, it's interesting to see how this method scales to larger texts. Remember there is no pre-training so everything is learned in real time. Every new document starts from zero. A longer document allows a greater stabilization of conceptual learning, in principle. On the other hand, few texts sustain a single focus for a long time. If story is longer there are more things to know. This presumes, of course, that the text is not merely bland repetition.

If we apply the result to a fairly focused thesis like Darwin's *Origin of Species* at 80 percent, we get a one is a million reduction efficiency with a reasonable insight into what it might be about:

```
*****
** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 80 / 100
*****
>> (Rank leg untrustworthiness (anomalous interest) 0 = 0.01625008590389067 )
>> (Rank leg untrustworthiness (anomalous interest) 1 = 0.04102958383850909 )
>> (Rank leg untrustworthiness (anomalous interest) 2 = 0.0761350552762661 )
>> (Rank leg untrustworthiness (anomalous interest) 3 = 0.0894321514921367 )
>> (Rank leg untrustworthiness (anomalous interest) 4 = 0.0999159013771662 )
>> (Rank leg untrustworthiness (anomalous interest) 5 = 0.1469979197274085 )
>> (Rank leg untrustworthiness (anomalous interest) 6 = 0.18391345077193502 )
>> (Rank leg untrustworthiness (anomalous interest) 7 = 0.23565925773396243 )
>> (Rank leg untrustworthiness (anomalous interest) 8 = 0.3391415600620024 )
>> (Rank leg untrustworthiness (anomalous interest) 9 = 0.3001325670172733 )
>> (Rank leg untrustworthiness (anomalous interest) 10 = 0.22296784836568725 )
>> (Rank leg untrustworthiness (anomalous interest) 11 = 0.2849819095330087 )
>> (Rank leg untrustworthiness (anomalous interest) 12 = 0.27774163646812117 )
>> (Rank leg untrustworthiness (anomalous interest) 13 = 0.2733550839525187 )
>> (Rank leg untrustworthiness (anomalous interest) 14 = 0.2944394231979654 )
>> (Rank leg untrustworthiness (anomalous interest) 15 = 0.39403257990629303 )
>> (Rank leg untrustworthiness (anomalous interest) 16 = 0.4459624669455781 )
>> (Rank leg untrustworthiness (anomalous interest) 17 = 0.5155541801401003 )
>> (Rank leg untrustworthiness (anomalous interest) 18 = 0.434657045745307 )
>> (Rank leg untrustworthiness (anomalous interest) 19 = 0.5172752987391738 )
>> (Rank leg untrustworthiness (anomalous interest) 20 = 0.3647533978992006 )
>> (Rank leg untrustworthiness (anomalous interest) 21 = 0.3618648928037644 )
>> (Rank leg untrustworthiness (anomalous interest) 22 = 0.4791636796396733 )
>> (Rank leg untrustworthiness (anomalous interest) 23 = 0.6526750644184638 )
>> (Rank leg untrustworthiness (anomalous interest) 24 = 0.42712679250536584 )
>> (Rank leg untrustworthiness (anomalous interest) 25 = 0.5797215516734137 )
>> (Rank leg untrustworthiness (anomalous interest) 26 = 0.4091508147889891 )
>> (Rank leg untrustworthiness (anomalous interest) 27 = 0.39062856540824314 )
>> (Rank leg untrustworthiness (anomalous interest) 28 = 0.4546556400200886 )
>> (Rank leg untrustworthiness (anomalous interest) 29 = 0.468382288691135 )
>> (Rank leg untrustworthiness (anomalous interest) 30 = 0.654585304392856 )
>> (Rank leg untrustworthiness (anomalous interest) 31 = 0.6028582879565252 )
>> (Rank leg untrustworthiness (anomalous interest) 32 = 0.4989665465822806 )
```

>> (Rank leg untrustworthiness (anomalous interest) 33 = 0.46050199825244387 )  
 >> (Rank leg untrustworthiness (anomalous interest) 34 = 0.38391906562672523 )  
 >> (Rank leg untrustworthiness (anomalous interest) 35 = 0.3111848708493786 )  
 >> (Rank leg untrustworthiness (anomalous interest) 36 = 0.5129289635712659 )  
 >> (Rank leg untrustworthiness (anomalous interest) 37 = 0.740931702456893 )  
 >> (Rank leg untrustworthiness (anomalous interest) 38 = 0.4626522665668683 )  
 >> (Rank leg untrustworthiness (anomalous interest) 39 = 0.47367338431761097 )  
 >> (Rank leg untrustworthiness (anomalous interest) 40 = 0.304520844538779 )  
 >> (Rank leg untrustworthiness (anomalous interest) 41 = 0.3570760007363147 )  
 >> (Rank leg untrustworthiness (anomalous interest) 42 = 0.5756736075194397 )  
 >> (Rank leg untrustworthiness (anomalous interest) 43 = 0.6223250663035115 )  
 >> (Rank leg untrustworthiness (anomalous interest) 44 = 0.6066842929482157 )  
 >> (Rank leg untrustworthiness (anomalous interest) 45 = 0.7936207626130036 )  
 >> (Rank leg untrustworthiness (anomalous interest) 46 = 1.041858313815048 )

EVENT[Leg 46 selects 4685]: But he who will take the trouble to reflect on the steps by which this first degree of sterility could be increased through natural selection to that high degree which is common with so many species, and which is universal with species which have been differentiated to a generic or family rank, will find the subject extraordinarily complex.

EVENT[Leg 46 selects 4690]: With sterile neuter insects we have reason to believe that modifications in their structure and fertility have been slowly accumulated by natural selection, from an advantage having been thus indirectly given to the community to which they belonged over other communities of the same species.

EVENT[Leg 46 selects 4694]: Both Gartner and Kolreuter have proved that in genera including numerous species, a series can be formed from species which when crossed yield fewer and fewer seeds, to species which never produce a single seed, but yet are affected by the pollen of certain other species, for the germen swells. >> (Rank leg untrustworthiness (anomalous interest) 47 = 0.9775540697855885 )

EVENT[Leg 47 selects 4762]: Hence it seems that, on the one hand, slight changes in the conditions of life benefit all organic beings, and on the other hand, that slight crosses, that is, crosses between the males and females of the same species, which have been subjected to slightly different conditions, or which have slightly varied, give vigour and fertility to the offspring.

EVENT[Leg 47 selects 4767]: He will at the same time be able to explain how it is that the races of some of our domesticated animals, which have often been subjected to new and not uniform conditions, are quite fertile together, although they are descended from distinct species, which would probably have been sterile if aboriginally crossed.

EVENT[Leg 47 selects 4845]: With plants, so far is cultivation from giving a tendency towards sterility between distinct species, that in several well-authenticated cases already alluded to, certain plants have been affected in an opposite manner, for they have become self-impotent, while still retaining the capacity of fertilising, and being fertilised by, other species. >> (Rank leg untrustworthiness (anomalous interest) 48 = 0.9975484919475648 )

EVENT[Leg 48 selects 4857]: Domesticated productions, on the other hand, which, as shown by the mere fact of their domestication, were not originally highly sensitive to changes in their conditions of life, and which can now generally resist with undiminished fertility repeated changes of conditions, might be expected to produce varieties, which would be little liable to have their reproductive

powers injuriously affected by the act of crossing with other varieties which had originated in a like manner.

EVENT[Leg 48 selects 4876]: Moreover, he asserts that, when yellow and white varieties of one species are crossed with yellow and white varieties of a DISTINCT species, more seed is produced by the crosses between the similarly coloured flowers, than between those which are differently coloured.

EVENT[Leg 48 selects 4939]: A tendency to sudden reversions to the perfect character of either parent would, also, be much more likely to occur with mongrels, which are descended from varieties often suddenly produced and semi-monstrous in character, than with hybrids, which are descended from species slowly and naturally produced. >> (Rank leg untrustworthiness (anomalous interest) 49 = 0.8822034489491993 )

EVENT[Leg 49 selects 4952]: In the same manner as in grafting trees, the capacity in one species or variety to take on another, is incidental on differences, generally of an unknown nature, in their vegetative systems, so in crossing, the greater or less facility of one species to unite with another is incidental on unknown differences in their reproductive systems.

EVENT[Leg 49 selects 4976]: Finally, then, although we are as ignorant of the precise cause of the sterility of first crosses and of hybrids as we are why animals and plants removed from their natural conditions become sterile, yet the facts given in this chapter do not seem to me opposed to the belief that species aboriginally existed as varieties.

EVENT[Leg 49 selects 5016]: By the theory of natural selection all living species have been connected with the parent-species of each genus, by differences not greater than we see between the natural and domestic varieties of the same species at the present day.

>> (Rank leg untrustworthiness (anomalous interest) 50 = 0.5426629915654225 )  
>> (Rank leg untrustworthiness (anomalous interest) 51 = 0.8282113611605225 )

EVENT[Leg 51 selects 5177]: In many regions the metamorphic and granite rocks would be found much more widely extended than they appear to be, if all the sedimentary beds were removed which rest unconformably on them, and which could not have formed part of the original mantle under which they were crystallised.

EVENT[Leg 51 selects 5243]: so that here, unless we believe that these eminent naturalists have been misled by their imaginations, and that these late tertiary species really present no difference whatever from their living representatives, or unless we admit, in opposition to the judgment of most naturalists, that these tertiary species are all truly distinct from the recent, we have evidence of the frequent occurrence of slight modifications of the kind required.

EVENT[Leg 51 selects 5251]: and we have seen that with plants it is those which have the widest range, that oftenest present varieties, so that, with shells and other marine animals, it is probable that those which had the widest range, far exceeding the limits of the known geological formations in Europe, have oftenest given rise, first to local varieties and ultimately to new species.

>> (Rank leg untrustworthiness (anomalous interest) 52 = 0.9267600630049048 )

EVENT[Leg 52 selects 5258]: or, again, whether certain sea-shells

inhabiting the shores of North America, which are ranked by some conchologists as distinct species from their European representatives, and by other conchologists as only varieties, are really varieties, or are, as it is called, specifically distinct.

EVENT[Leg 52 selects 5295]: When such varieties returned to their ancient homes, as they would differ from their former state in a nearly uniform, though perhaps extremely slight degree, and as they would be found embedded in slightly different sub-stages of the same formation, they would, according to the principles followed by many palaeontologists, be ranked as new and distinct species.

EVENT[Leg 52 selects 5315]: but that, when this adaptation had once been effected, and a few species had thus acquired a great advantage over other organisms, a comparatively short time would be necessary to produce many divergent forms, which would spread rapidly and widely throughout the world.

>> (Rank leg untrustworthiness (anomalous interest) 53 = 0.7610044382506418 )  
>> (Rank leg untrustworthiness (anomalous interest) 54 = 1.0297446246146578 )

EVENT[Leg 54 selects 5473]: Whether such variations or individual differences as may arise will be accumulated through natural selection in a greater or less degree, thus causing a greater or less amount of permanent modification, will depend on many complex contingencies--on the variations being of a beneficial nature, on the freedom of intercrossing, on the slowly changing physical conditions of the country, on the immigration of new colonists, and on the nature of the other inhabitants with which the varying species come into competition.

EVENT[Leg 54 selects 5492]: but if the parent rock-pigeon were likewise destroyed, and under nature we have every reason to believe that parent forms are generally supplanted and exterminated by their improved offspring, it is incredible that a fantail, identical with the existing breed, could be raised from any other species of pigeon, or even from any other well established race of the domestic pigeon, for the successive variations would almost certainly be in some degree different, and the newly-formed variety would probably inherit from its progenitor some characteristic differences.

EVENT[Leg 54 selects 5509]: the process of modification and the production of a number of allied forms necessarily being a slow and gradual process, one species first giving rise to two or three varieties, these being slowly converted into species, which in their turn produce by equally slow steps other varieties and species, and so on, like the branching of a great tree from a single stem, till the group becomes large.

>> (Rank leg untrustworthiness (anomalous interest) 55 = 1.185440932154776 )

EVENT[Leg 55 selects 5568]: But whether it be species belonging to the same or to a distinct class, which have yielded their places to other modified and improved species, a few of the sufferers may often be preserved for a long time, from being fitted to some peculiar line of life, or from inhabiting some distant and isolated station, where they will have escaped severe competition.

EVENT[Leg 55 selects 5576]: Thus, as it seems to me, the manner in which single species and whole groups of species become extinct accords well with the theory of natural selection.

EVENT[Leg 55 selects 5616]: It is also natural that the dominant,



varying and far-spreading species, which have already invaded, to a certain extent, the territories of other species, should be those which would have the best chance of spreading still further, and of giving rise in new countries to other new varieties and species.

>> (Rank leg untrustworthiness (anomalous interest) 56 = 1.1466761779178543 )

EVENT[Leg 56 selects 5671]: Some writers have objected to any extinct species, or group of species, being considered as intermediate between any two living species, or groups of species.

EVENT[Leg 56 selects 5719]: Thus the species which lived at the sixth great stage of descent in the diagram are the modified offspring of those which lived at the fifth stage, and are the parents of those which became still more modified at the seventh stage.

EVENT[Leg 56 selects 5744]: As the accumulation of each formation has often been interrupted, and as long blank intervals have intervened between successive formations, we ought not to expect to find, as I attempted to show in the last chapter, in any one or in any two formations, all the intermediate varieties between the species which appeared at the commencement and close of these periods.

>> (Rank leg untrustworthiness (anomalous interest) 57 = 0.9523322723219692 )

EVENT[Leg 57 selects 5804]: Seeing, for instance, that the oldest known mammals, reptiles, and fishes strictly belong to their proper classes, though some of these old forms are in a slight degree less distinct from each other than are the typical members of the same groups at the present day, it would be vain to look for animals having the common embryological character of the Vertebrata, until beds rich in fossils are discovered far beneath the lowest Cambrian strata--a discovery of which the chance is small.

EVENT[Leg 57 selects 5841]: so that, if six genera, each having eight species, be found in one geological formation, and in a succeeding formation there be six other allied or representative genera, each with the same number of species, then we may conclude that generally only one species of each of the older genera has left modified descendants, which constitute the new genera containing the several species.

EVENT[Leg 57 selects 5858]: and lastly, although each species must have passed through numerous transitional stages, it is probable that the periods, during which each underwent modification, though many and long as measured by years, have been short in comparison with the periods during which each remained in an unchanged condition. >>  
(Rank leg untrustworthiness (anomalous interest) 58 = 0.9769063264453055 )

EVENT[Leg 58 selects 5860]: It should also be constantly borne in mind that any linking variety between two forms, which might be found, would be ranked, unless the whole chain could be perfectly restored, as a new and distinct species.

EVENT[Leg 58 selects 5872]: Passing from these difficulties, the other great leading facts in palaeontology agree admirably with the theory of descent with modification through variation and natural selection.

EVENT[Leg 58 selects 5959]: The dissimilarity of the inhabitants of different regions may be attributed to modification through variation and natural selection, and probably in a subordinate degree to the

definite influence of different physical conditions. >> (Rank leg untrustworthiness (anomalous interest) 59 = 1.310760571314556 )

EVENT[Leg 59 selects 5969]: As the variability of each species is an independent property, and will be taken advantage of by natural selection, only so far as it profits each individual in its complex struggle for life, so the amount of modification in different species will be no uniform quantity.

EVENT[Leg 59 selects 5996]: and it has been observed by several naturalists that the most natural genera, or those genera in which the species are most closely related to each other, are generally confined to the same country, or if they have a wide range that their range is continuous.

EVENT[Leg 59 selects 6018]: With organic beings which never intercross, if such exist, each species, must be descended from a succession of modified varieties, that have supplanted each other, but have never blended with other individuals or varieties of the same species, so that, at each successive stage of modification, all the individuals of the same form will be descended from a single parent.

>> (Rank leg untrustworthiness (anomalous interest) 60 = 0.21945550402227612 )  
>> (Rank leg untrustworthiness (anomalous interest) 61 = 0.40935893541262697 )  
>> (Rank leg untrustworthiness (anomalous interest) 62 = 0.2605457348241095 )  
>> (Rank leg untrustworthiness (anomalous interest) 63 = 0.36020643812935094 )  
>> (Rank leg untrustworthiness (anomalous interest) 64 = 0.3205167367453876 )  
>> (Rank leg untrustworthiness (anomalous interest) 65 = 0.39846330748329456 )  
>> (Rank leg untrustworthiness (anomalous interest) 66 = 0.6329390252216519 )  
>> (Rank leg untrustworthiness (anomalous interest) 67 = 0.5272555920831814 )  
>> (Rank leg untrustworthiness (anomalous interest) 68 = 0.46085287973420586 )  
>> (Rank leg untrustworthiness (anomalous interest) 69 = 0.5225768259246171 )  
>> (Rank leg untrustworthiness (anomalous interest) 70 = 0.5544687004811175 )  
>> (Rank leg untrustworthiness (anomalous interest) 71 = 0.3929184077051727 )  
>> (Rank leg untrustworthiness (anomalous interest) 72 = 0.47110473236591704 )  
>> (Rank leg untrustworthiness (anomalous interest) 73 = 0.5950024275484372 )  
>> (Rank leg untrustworthiness (anomalous interest) 74 = 0.67677132540424 )  
>> (Rank leg untrustworthiness (anomalous interest) 75 = 0.8948623747265352 )

EVENT[Leg 75 selects 7601]: Hence when we find that hybrids produced by a cross between two distinct species are few in number, owing to their perishing soon after conception or at a very early age, or if surviving that they are rendered more or less sterile, it seems highly probable that this result is due to their having been in fact subjected to a great change in their conditions of life, from being compounded of two distinct organisations.

EVENT[Leg 75 selects 7602]: He who will explain in a definite manner why, for instance, an elephant or a fox will not breed under confinement in its native country, whilst the domestic pig or dog will breed freely under the most diversified conditions, will at the same time be able to give a definite answer to the question why two distinct species, when crossed, as well as their hybrid offspring, are generally rendered more or less sterile, while two domesticated varieties when crossed and their mongrel offspring are perfectly fertile.

EVENT[Leg 75 selects 7619]: Even on a wide area, which has during a long period remained continuous, and of which the climatic and other conditions of life change insensibly in proceeding from a district occupied by one species into another district occupied by a closely allied species, we have no just right to expect often to find

intermediate varieties in the intermediate zones.

>> (Rank leg untrustworthiness (anomalous interest) 76 = 0.8791332486836764 )

EVENT[Leg 76 selects 7710]: On separate continents, and on different parts of the same continent, when divided by barriers of any kind, and on outlying islands, what a multitude of forms exist, which some experienced naturalists rank as varieties, others as geographical races or sub species, and others as distinct, though closely allied species!

EVENT[Leg 76 selects 7718]: On the view that species are only strongly marked and permanent varieties, and that each species first existed as a variety, we can see why it is that no line of demarcation can be drawn between species, commonly supposed to have been produced by special acts of creation, and varieties which are acknowledged to have been produced by secondary laws.

EVENT[Leg 76 selects 7727]: and as the modified descendants of each species will be enabled to increase by as much as they become more diversified in habits and structure, so as to be able to seize on many and widely different places in the economy of nature, there will be a constant tendency in natural selection to preserve the most divergent offspring of any one species.

>> (Rank leg untrustworthiness (anomalous interest) 77 = 1 )

EVENT[Leg 77 selects 7779]: On the ordinary view of each species having been independently created, why should specific characters, or those by which the species of the same genus differ from each other, be more variable than the generic characters in which they all agree?

EVENT[Leg 77 selects 7793]: On the view of all the species of the same genus having descended from a common parent, and having inherited much in common, we can understand how it is that allied species, when placed under widely different conditions of life, yet follow nearly the same instincts.

EVENT[Leg 77 selects 7796]: If species be only well-marked and permanent varieties, we can at once see why their crossed offspring should follow the same complex laws in their degrees and kinds of resemblance to their parents--in being absorbed into each other by successive crosses, and in other such points--as do the crossed offspring of acknowledged varieties.

>> (Rank leg untrustworthiness (anomalous interest) 78 = 0.6312738365147673 )

>> (Rank leg untrustworthiness (anomalous interest) 79 = 0.8383567754957678 )

EVENT[Leg 79 selects 7985]: Species and groups of species which are called aberrant, and which may fancifully be called living fossils, will aid us in forming a picture of the ancient forms of life.

EVENT[Leg 79 selects 7987]: When we can feel assured that all the individuals of the same species, and all the closely allied species of most genera, have, within a not very remote period descended from one parent, and have migrated from some one birth-place.

EVENT[Leg 79 selects 8009]: for the manner in which all organic beings are grouped, shows that the greater number of species in each genus, and all the species in many genera, have left no descendants, but have become utterly extinct.

-----

Notable events = 48 of total 8022 efficiency = 16712.5 %

----- Sumarize ngram Intentionality threshold selection -----

1 consumed 4 4 ----- 0.32  
1 membrane 10 10 ----- 0.8  
1 disappearing 3 3 ----- 0.36  
1 short-beaked 3 3 ----- 0.36  
1 turning 13 13 ----- 0.91  
1 propounded 4 4 ----- 0.4  
1 mechanical 3 3 ----- 0.3  
1 rivers 5 5 ----- 0.3000000000000004  
1 materials 13 13 ----- 1.17  
1 upraised 8 8 ----- 0.64  
1 subject 111 111 ----- 7.7700000000000005  
1 specially 22 22 ----- 1.98  
1 appropriated 3 3 ----- 0.36  
1 place 69 69 ----- 3.4499999999999997  
1 palaeontology 5 5 ----- 0.65  
1 accurate 5 5 ----- 0.4  
1 comparative 3 3 ----- 0.32999999999999996  
  
...  
3 by inheritance from 4 4 ----- 0.76  
3 may perhaps be 5 5 ----- 0.7000000000000001  
3 will not be 11 11 ----- 1.21  
3 insisted on by 9 9 ----- 1.26  
3 well fitted for 7 7 ----- 1.05  
3 to live on 3 3 ----- 0.3  
3 let us suppose 5 5 ----- 0.7000000000000001  
3 affinities of extinct 4 4 ----- 0.84  
3 extremely cautious in 6 6 ----- 1.26  
3 within each great 3 3 ----- 0.51  
3 genus have been 7 7 ----- 1.05  
3 great work on 3 3 ----- 0.39  
3 distinction between species 5 5 ----- 1.35  
3 europe and america 3 3 ----- 0.54  
3 have been accumulated 7 7 ----- 1.4700000000000002  
3 structure would be 3 3 ----- 0.54  
3 may be urged 4 4 ----- 0.48  
3 quite distinct species 3 3 ----- 0.6599999999999999  
3 to become extinct 3 3 ----- 0.51  
3 well as from 4 4 ----- 0.48  
3 to be discussed 4 4 ----- 0.6  
3 which never cut 3 3 ----- 0.4499999999999996  
3 to the upper 3 3 ----- 0.36  
3 an extraordinary manner 4 4 ----- 0.92  
3 inhabitants of these 4 4 ----- 0.8  
3 for the first 3 3 ----- 0.39  
3 as natural selection 7 7 ----- 1.4000000000000001  
3 other highly competent 3 3 ----- 0.6599999999999999  
3 northern and southern 7 7 ----- 1.4700000000000002  
3 principle of natural 8 8 ----- 1.6  
3 from several aboriginal 3 3 ----- 0.69  
3 to mans power 4 4 ----- 0.52  
3 if any one 3 3 ----- 0.3  
3 to the definite 4 4 ----- 0.6  
3 element of success 3 3 ----- 0.54  
3 between the basins 3 3 ----- 0.54  
3 surrounding physical conditions 3 3 ----- 0.9299999999999999  
3 our chapter on 6 6 ----- 0.84  
3 species and by 4 4 ----- 0.56  
3 may well be 5 5 ----- 0.55

3 tierra del fuego 5 5 ----- 0.8  
3 which might be 4 4 ----- 0.56  
3 this could not 3 3 ----- 0.42  
3 having been in 3 3 ----- 0.42  
3 on this subject 15 15 ----- 2.25  
3 due to inheritance 4 4 ----- 0.72  
3 north and south 5 5 ----- 0.75  
3 differing from each 3 3 ----- 0.57  
3 than the average 4 4 ----- 0.64  
3 not as far 3 3 ----- 0.3  
3 flowers of orchids 3 3 ----- 0.54  
3 to the offspring 6 6 ----- 0.96  
3 period of life 14 14 ----- 1.9600000000000002  
3 tree to tree 5 5 ----- 0.6000000000000001  
3 have been surprised 3 3 ----- 0.57  
3 on geographical distribution 5 5 ----- 1.4000000000000001  
3 as i could 3 3 ----- 0.3  
3 should be observed 3 3 ----- 0.54  
3 any two forms 6 6 ----- 0.78  
3 same principle which 3 3 ----- 0.6  
3 any one species 20 20 ----- 3  
3 which have ever 5 5 ----- 0.75  
3 believe that species 3 3 ----- 0.6  
3 at each successive 5 5 ----- 0.9  
3 do not find 5 5 ----- 0.55  
3 for the common 3 3 ----- 0.42  
3 to act on 4 4 ----- 0.36  
3 examined by me 3 3 ----- 0.42  
3 been but little 7 7 ----- 1.05  
3 all their parts 3 3 ----- 0.44999999999999996  
3 on this view 11 11 ----- 1.32  
3 at corresponding ages 7 7 ----- 1.4700000000000002  
3 if found in 4 4 ----- 0.44  
3 habits and constitution 3 3 ----- 0.69  
3 may safely conclude 5 5 ----- 0.9500000000000001  
3 very far from 3 3 ----- 0.39  
3 would often be 4 4 ----- 0.56  
3 labour and wax 4 4 ----- 0.56  
3 to be improved 3 3 ----- 0.42  
3 formations rich in 5 5 ----- 0.9  
3 descended from one 7 7 ----- 1.2600000000000002  
3 which they have 5 5 ----- 0.75  
3 we find in 6 6 ----- 0.6  
3 consequently they will 4 4 ----- 0.88  
3 for the good 12 12 ----- 1.44  
3 as formerly explained 3 3 ----- 0.63  
3 have been expected 12 12 ----- 2.16  
3 to the members 3 3 ----- 0.42  
3 give another instance 4 4 ----- 0.84  
3 let it be 10 10 ----- 0.9  
3 now if we 4 4 ----- 0.36  
3 stigma of another 3 3 ----- 0.51  
3 why should not 3 3 ----- 0.42  
3 element of descent 4 4 ----- 0.72  
3 curious and complex 3 3 ----- 0.57  
3 course of time 12 12 ----- 1.68  
3 common to all 5 5 ----- 0.65  
3 must be some 4 4 ----- 0.48  
3 have to be 13 13 ----- 1.3  
3 by several authors 3 3 ----- 0.54  
3 each formation has 3 3 ----- 0.54  
3 pollen taken from 3 3 ----- 0.51  
3 appear to be 7 7 ----- 0.8400000000000001

3 periods of subsidence 8 8 ----- 1.68  
3 process of extermination 3 3 ----- 0.72  
3 as they may 5 5 ----- 0.55  
3 cross between two 6 6 ----- 1.02  
3 each species will 3 3 ----- 0.51  
3 been gained through 3 3 ----- 0.57  
3 cannot here give 3 3 ----- 0.48  
3 will often have 5 5 ----- 0.75  
3 to other organic 3 3 ----- 0.48  
3 to the size 3 3 ----- 0.3299999999999996  
3 they may have 4 4 ----- 0.52  
3 species which now 3 3 ----- 0.51  
3 let them be 4 4 ----- 0.44  
3 we need not 7 7 ----- 0.77  
3 shall presently see 4 4 ----- 0.76  
3 would at first 3 3 ----- 0.42  
3 organs may be 4 4 ----- 0.52  
3 to long-lost characters 3 3 ----- 0.69  
3 as i know 4 4 ----- 0.36  
3 some unknown plan 3 3 ----- 0.51  
3 same species on 3 3 ----- 0.4499999999999996  
3 supply of sediment 5 5 ----- 0.9  
3 have become naturalised 4 4 ----- 0.92  
3 for many generations 4 4 ----- 0.8  
3 stages of development 6 6 ----- 1.26  
3 we bear in 5 5 ----- 0.5  
3 same part in 4 4 ----- 0.48  
3 varieties have not 3 3 ----- 0.54  
3 what i mean 3 3 ----- 0.3299999999999996  
3 been modified in 5 5 ----- 0.8  
3 be called species 4 4 ----- 0.68  
3 their eggs in 7 7 ----- 0.9100000000000001  
3 if not destroyed 3 3 ----- 0.48  
3 with the same 13 13 ----- 1.69  
3 species which inhabit 4 4 ----- 0.84  
3 let us see 3 3 ----- 0.3  
3 to which it 7 7 ----- 0.77  
3 have been thought 4 4 ----- 0.68  
3 we have also 7 7 ----- 0.8400000000000001  
3 we can perhaps 5 5 ----- 0.7000000000000001  
3 land and water 3 3 ----- 0.42  
3 greater or less 8 8 ----- 1.2  
3 to the northern 3 3 ----- 0.4499999999999996  
3 from a common 44 44 ----- 5.72  
3 as is known 3 3 ----- 0.3299999999999996  
3 we have only 5 5 ----- 0.6000000000000001  
3 advance in organisation 3 3 ----- 0.69  
3 amount of food 3 3 ----- 0.42  
3 we see this 14 14 ----- 1.54  
3 to the south 3 3 ----- 0.36  
3 has been asserted 5 5 ----- 0.8500000000000001  
3 as a general 12 12 ----- 1.44  
3 works on natural 4 4 ----- 0.64  
3 do not believe 6 6 ----- 0.84  
3 on the head 5 5 ----- 0.55  
3 differ from each 22 22 ----- 3.52  
3 from a few 3 3 ----- 0.3  
3 on natural history 4 4 ----- 0.72  
3 group of beings 4 4 ----- 0.6  
3 even the most 3 3 ----- 0.39  
3 centres of creation 3 3 ----- 0.57  
3 natural selection through 4 4 ----- 1  
3 other such facts 3 3 ----- 0.48

3 bearing in mind 5 5 ----- 0.75  
3 only a few 15 15 ----- 1.5  
3 endowed with this 3 3 ----- 0.51  
3 by the accumulation 5 5 ----- 0.9500000000000001  
3 been produced through 4 4 ----- 0.84  
3 to its possessor 5 5 ----- 0.8  
3 to inheritance from 5 5 ----- 0.9500000000000001  
3 with our domestic 4 4 ----- 0.68  
3 for their migration 3 3 ----- 0.57  
3 on the shores 8 8 ----- 1.04  
3 gradations can be 3 3 ----- 0.51  
3 should be so 5 5 ----- 0.6000000000000001  
3 closely allied forms 8 8 ----- 1.6  
3 liable to vary 6 6 ----- 0.84  
3 come to differ 10 10 ----- 1.4000000000000001  
3 for their existence 4 4 ----- 0.76  
3 would be easy 3 3 ----- 0.39  
3 number of individuals 10 10 ----- 2.1  
3 same species for 4 4 ----- 0.64  
3 one or several 3 3 ----- 0.42  
3 can clearly see 5 5 ----- 0.75  
3 body and in 3 3 ----- 0.32999999999999996  
3 have been called 3 3 ----- 0.48  
3 intervals between existing 3 3 ----- 0.78  
3 descended from several 3 3 ----- 0.6599999999999999  
3 analogical or adaptive 4 4 ----- 0.88  
3 to their offspring 3 3 ----- 0.54  
3 ranked as species 7 7 ----- 1.1900000000000002  
3 exceptions to this 3 3 ----- 0.54  
3 years there would 3 3 ----- 0.51  
3 power of flight 3 3 ----- 0.44999999999999996  
3 from their enemies 3 3 ----- 0.54  
3 to conjecture by 3 3 ----- 0.48  
3 preservation of all 4 4 ----- 0.76  
3 to the laws 3 3 ----- 0.32999999999999996  
3 every living creature 3 3 ----- 0.63  
3 will have become 3 3 ----- 0.48  
3 remarked that it 3 3 ----- 0.48  
3 has to be 4 4 ----- 0.36  
3 acts of creation 8 8 ----- 1.28  
3 tend to produce 4 4 ----- 0.6  
3 should be extremely 3 3 ----- 0.57  
4 placed on the same 3 3 ----- 0.54  
4 improbable in the highest 4 4 ----- 1  
4 live on the land 4 4 ----- 0.64  
4 incipient stages of useful 3 3 ----- 0.78  
4 species will have been 3 3 ----- 0.6599999999999999  
4 which have been advanced 3 3 ----- 0.72  
4 production of new forms 3 3 ----- 0.69  
4 generic characters or those 3 3 ----- 0.8099999999999999  
4 be in any way 3 3 ----- 0.39  
4 when we bear in 3 3 ----- 0.44999999999999996  
4 come to this conclusion 3 3 ----- 0.69  
4 natura non facit saltum 4 4 ----- 0.92  
4 best chance of surviving 4 4 ----- 0.96  
4 have played an important 3 3 ----- 0.72  
4 now let us turn 6 6 ----- 0.8999999999999999  
4 good and distinct species 5 5 ----- 1.25  
4 animals and plants have 3 3 ----- 0.69  
4 exist in lesser numbers 3 3 ----- 0.69  
4 males for the possession 3 3 ----- 0.72  
4 they differ from each 3 3 ----- 0.63  
4 organic beings have been 5 5 ----- 1.2000000000000002

4 to have been created 3 3 ----- 0.6  
4 have not as yet 3 3 ----- 0.4499999999999996  
4 on the whole organisation 3 3 ----- 0.75  
4 have been ranked by 4 4 ----- 0.76  
4 more ancient a form 4 4 ----- 0.76  
4 on the higher branches 3 3 ----- 0.6599999999999999  
4 which are the most 3 3 ----- 0.54  
4 species to each other 3 3 ----- 0.63  
4 been effected through natural 3 3 ----- 0.87  
4 species inhabiting the same 5 5 ----- 1.35  
4 analogical or adaptive characters 3 3 ----- 0.99  
4 be extremely cautious in 6 6 ----- 1.44  
4 whole group of species 4 4 ----- 0.88  
4 through the natural selection 4 4 ----- 1.16  
4 this is represented in 3 3 ----- 0.6599999999999999  
4 why do we not 5 5 ----- 0.65  
4 groups within each class 4 4 ----- 0.96  
4 only a small portion 4 4 ----- 0.8  
4 to the most complex 3 3 ----- 0.57  
4 we should be extremely 3 3 ----- 0.6599999999999999  
4 within a few great 4 4 ----- 0.72  
4 species having been independently 3 3 ----- 0.99  
4 into the closest competition 3 3 ----- 0.84  
4 else in the world 3 3 ----- 0.51  
4 modified in the same 6 6 ----- 1.2  
4 than in the case 3 3 ----- 0.48  
4 as i have seen 5 5 ----- 0.7000000000000001  
4 mouth of a whale 3 3 ----- 0.48  
4 have been formed on 3 3 ----- 0.57  
4 from their natural conditions 3 3 ----- 0.87  
4 cases could be given 8 8 ----- 1.6  
4 each species has been 8 8 ----- 1.68  
4 parts or organs in 3 3 ----- 0.54  
4 having been independently created 3 3 ----- 0.99  
4 as if they had 4 4 ----- 0.56  
4 nor do we know 3 3 ----- 0.42  
4 other highly competent judges 3 3 ----- 0.87  
4 nearly the same physical 3 3 ----- 0.72  
4 as it has been 4 4 ----- 0.56  
4 migrated from some one 3 3 ----- 0.6599999999999999  
4 chapter on geographical distribution 3 3 ----- 1.08  
4 modification through natural selection 4 4 ----- 1.52  
4 production of new species 6 6 ----- 1.5  
4 account for the incipient 3 3 ----- 0.75  
4 no reason to suppose 3 3 ----- 0.6  
4 have very wide ranges 5 5 ----- 1.05  
4 changed conditions of life 8 8 ----- 2.08  
4 thus as it seems 3 3 ----- 0.48  
4 go on increasing in 5 5 ----- 0.9500000000000001  
4 there is no difficulty 3 3 ----- 0.6599999999999999  
4 forms which have been 5 5 ----- 1.05  
4 may be worth while 5 5 ----- 0.9  
4 to each other than 6 6 ----- 1.08  
4 no one would ever 3 3 ----- 0.51  
4 why it may be 3 3 ----- 0.39  
4 have been but little 5 5 ----- 1  
4 two kinds of flowers 3 3 ----- 0.6  
4 as is the case 4 4 ----- 0.56  
4 organisation on the whole 4 4 ----- 1  
4 commencement of the glacial 5 5 ----- 1.35  
4 there can hardly be 4 4 ----- 0.76  
4 this case natural selection 3 3 ----- 0.8099999999999999  
4 natural selection will have 3 3 ----- 0.8099999999999999



4 have come to differ 4 4 ----- 0.76  
4 universal law of nature 3 3 ----- 0.69  
4 change in the conditions 3 3 ----- 0.72  
4 from a single progenitor 4 4 ----- 0.96  
4 how important a part 3 3 ----- 0.6  
4 action of the conditions 3 3 ----- 0.72  
4 modified through natural selection 5 5 ----- 1.7000000000000002  
4 formations rich in fossils 5 5 ----- 1.3  
4 to the most different 4 4 ----- 0.84  
4 be borne in mind 9 9 ----- 1.44  
4 places in the polity 5 5 ----- 1  
4 make due allowance for 4 4 ----- 0.88  
4 for in this case 7 7 ----- 1.12  
4 offspring at a corresponding 3 3 ----- 0.84  
4 we can thus understand 4 4 ----- 0.88  
4 on the same branch 3 3 ----- 0.54  
4 species of the same 61 61 ----- 11.59  
4 been slowly acquired through 4 4 ----- 1.12  
4 possession of the females 3 3 ----- 0.75  
4 productions of the land 3 3 ----- 0.69  
4 two or even three 3 3 ----- 0.51  
4 attempted to show how 4 4 ----- 0.84  
4 animal and vegetable kingdoms 5 5 ----- 1.4500000000000002  
4 view that each species 4 4 ----- 0.88  
4 off from a common 5 5 ----- 0.8500000000000001  
4 which never cut through 3 3 ----- 0.69  
4 together in the same 4 4 ----- 0.8  
4 has been remarked by 3 3 ----- 0.6  
4 which have long been 6 6 ----- 1.2  
4 geometrical ratio of increase 3 3 ----- 0.87  
4 as we have seen 17 17 ----- 2.5500000000000003  
4 allied or representative species 6 6 ----- 1.92  
4 with which it comes 5 5 ----- 0.9500000000000001  
4 very closely allied species 3 3 ----- 0.8099999999999999  
4 extremely cautious in concluding 3 3 ----- 0.96  
4 if it could be 4 4 ----- 0.56  
4 seems to have been 5 5 ----- 0.9  
4 gained through natural selection 3 3 ----- 0.96  
4 stages of the same 5 5 ----- 0.9  
4 during the glacial period 4 4 ----- 1  
4 to a large extent 13 13 ----- 2.21  
4 we do not find 4 4 ----- 0.56  
4 become more or less 3 3 ----- 0.57  
4 as they have been 4 4 ----- 0.68  
4 chance of seizing on 3 3 ----- 0.6  
4 unknown plan of creation 3 3 ----- 0.72  
4 occasional means of transport 8 8 ----- 2.32  
4 there is no necessity 3 3 ----- 0.63  
4 length of time which 3 3 ----- 0.6  
4 side of the head 5 5 ----- 0.8  
4 perish at an early 3 3 ----- 0.54  
4 to the manner in 4 4 ----- 0.64  
4 we have every reason 6 6 ----- 1.2  
4 to be filled up 3 3 ----- 0.44999999999999996  
4 part of the structure 4 4 ----- 0.84  
4 distant from each other 5 5 ----- 1.1500000000000001  
4 cells of the hive-bee 4 4 ----- 0.84  
4 belonging to distinct families 3 3 ----- 0.8999999999999999  
4 descended from the rock-pigeon 4 4 ----- 1.2  
4 sterility of species when 6 6 ----- 1.5  
4 sterility of crossed species 3 3 ----- 0.84  
4 dissimilarity of the inhabitants 3 3 ----- 0.96  
4 their conditions of life 7 7 ----- 1.6800000000000002

4 on the opposite side 4 4 ----- 0.8  
4 from existing in greater 3 3 ----- 0.72  
4 succession of the forms 3 3 ----- 0.69  
4 pollen of a distinct 3 3 ----- 0.6  
4 instances could be given 14 14 ----- 3.3600000000000003  
4 one of the two 4 4 ----- 0.56  
4 editions of this work 3 3 ----- 0.63  
4 will have been less 3 3 ----- 0.57  
4 favourable for the production 5 5 ----- 1.4500000000000002  
4 all are descended from 3 3 ----- 0.6599999999999999  
4 inhabitants of that continent 4 4 ----- 1.16  
4 from a common progenitor 22 22 ----- 5.28  
4 extend the same view 3 3 ----- 0.6  
4 to the larger genera 4 4 ----- 0.8  
4 from my own observations 3 3 ----- 0.72  
4 to the males alone 4 4 ----- 0.72  
4 specific characters are more 4 4 ----- 1.12  
4 they may be called 4 4 ----- 0.72  
4 parts of the same 8 8 ----- 1.36  
4 duration of specific forms 3 3 ----- 0.78  
4 descended from the same 5 5 ----- 1.1500000000000001  
4 some of the species 8 8 ----- 1.52  
4 places in the natural 4 4 ----- 0.84  
4 difficulties of the theory 3 3 ----- 0.78  
4 having nearly the same 3 3 ----- 0.6599999999999999  
4 we need not marvel 3 3 ----- 0.54  
4 than in the other 3 3 ----- 0.51  
4 new conditions of life 6 6 ----- 1.3199999999999998  
4 at each successive period 3 3 ----- 0.75  
4 to be the case 14 14 ----- 1.9600000000000002  
4 exposed to the same 4 4 ----- 0.76  
4 her eggs in other 3 3 ----- 0.51  
4 on the same continent 3 3 ----- 0.63  
4 to the same conclusion 3 3 ----- 0.6599999999999999  
4 only one or two 4 4 ----- 0.6  
4 for the exclusive good 4 4 ----- 0.88  
4 at some former period 4 4 ----- 0.84  
4 greatest number of new 3 3 ----- 0.6599999999999999  
4 at a quicker rate 4 4 ----- 0.68  
4 new and improved forms 4 4 ----- 0.88  
4 there is a tendency 3 3 ----- 0.57  
4 from the large number 4 4 ----- 0.84  
4 inhabitants of each country 3 3 ----- 0.8099999999999999  
4 we may infer from 4 4 ----- 0.68  
4 we shall see in 3 3 ----- 0.4499999999999996  
4 we can i think 4 4 ----- 0.56  
4 number of its enemies 3 3 ----- 0.63  
4 part of the organisation 7 7 ----- 1.6800000000000002  
4 has remarked in regard 3 3 ----- 0.6599999999999999  
4 been acquired through natural 3 3 ----- 0.87  
4 this view we can 3 3 ----- 0.48  
4 gain an advantage over 3 3 ----- 0.6599999999999999  
4 would be eminently liable 3 3 ----- 0.75  
4 far as i have 3 3 ----- 0.39  
4 we bear in mind 5 5 ----- 0.75  
4 members of the same 26 26 ----- 4.94  
4 on the uppermost line 3 3 ----- 0.63  
4 we do not know 13 13 ----- 1.82  
4 ancient and extinct forms 3 3 ----- 0.75  
4 considerable amount of modification 4 4 ----- 1.4000000000000001  
4 groups of species have 3 3 ----- 0.6599999999999999  
4 inhabiting the most distant 3 3 ----- 0.8099999999999999  
4 have not been found 3 3 ----- 0.57

4 from their common parent 4 4 ----- 0.96  
4 allied to other species 3 3 ----- 0.69  
4 more highly developed than 5 5 ----- 1.3  
4 distance from each other 6 6 ----- 1.44  
4 on the same principle 4 4 ----- 0.84  
4 to seize on many 3 3 ----- 0.48  
4 under the same latitude 4 4 ----- 0.92  
4 we can see how 3 3 ----- 0.42  
4 higher in the scale 7 7 ----- 1.33  
4 will generally have been 4 4 ----- 0.96  
4 them be ever so 4 4 ----- 0.6  
4 for the same purpose 5 5 ----- 1  
4 ought not to expect 3 3 ----- 0.57  
4 inheritance from a common 10 10 ----- 2.5  
4 most important of all 6 6 ----- 1.26  
4 dimorphic and trimorphic plants 8 8 ----- 2.48  
4 means of natural selection 3 3 ----- 0.78  
4 so that here we 3 3 ----- 0.44999999999999996  
4 sterility of first crosses 8 8 ----- 2.08  
4 different habits of life 7 7 ----- 1.6800000000000002  
4 separated from each other 12 12 ----- 3  
4 inherited from a common 8 8 ----- 1.84  
4 at the same period 3 3 ----- 0.54  
4 no one will dispute 5 5 ----- 0.9500000000000001  
4 good reason to believe 4 4 ----- 0.88  
4 as well as from 4 4 ----- 0.6  
4 on the ordinary view 10 10 ----- 2  
4 on the same tree 6 6 ----- 0.96  
4 this point of view 3 3 ----- 0.54  
4 have been converted into 3 3 ----- 0.72  
4 differs in the different 3 3 ----- 0.72  
4 we can see why 11 11 ----- 1.54  
4 important of all relations 3 3 ----- 0.78  
4 graduate into each other 4 4 ----- 0.96  
4 having been exposed for 3 3 ----- 0.69  
4 rendered more or less 3 3 ----- 0.63  
4 large number of individuals 6 6 ----- 1.6199999999999999  
4 conditions of life have 3 3 ----- 0.69  
4 say a few words 6 6 ----- 0.8999999999999999  
4 on increasing in size 4 4 ----- 0.84  
4 hence we can understand 4 4 ----- 0.92  
4 as long as it 4 4 ----- 0.52  
4 proceeded from a single 3 3 ----- 0.69  
4 as may be seen 3 3 ----- 0.42  
4 as natural selection acts 6 6 ----- 1.5  
4 organs in this condition 3 3 ----- 0.72  
4 with respect to this 3 3 ----- 0.6  
4 we have seen in 8 8 ----- 1.2  
4 canon in natural history 3 3 ----- 0.72  
4 within each class which 3 3 ----- 0.69  
4 descended from a common 6 6 ----- 1.38  
4 there has been much 3 3 ----- 0.57  
4 should not have been 3 3 ----- 0.6  
4 varieties of the same 23 23 ----- 4.83  
4 side at the bottom 3 3 ----- 0.54  
4 see in the case 3 3 ----- 0.44999999999999996  
4 corresponding not early period 3 3 ----- 0.8999999999999999  
4 exceptions to the rule 3 3 ----- 0.6599999999999999  
4 case it would be 4 4 ----- 0.64  
4 members of each class 3 3 ----- 0.63  
4 have attempted to show 13 13 ----- 2.8600000000000003  
4 position of the ovules 3 3 ----- 0.6599999999999999  
4 according to this view 4 4 ----- 0.88

4 descendants of any one 3 3 ----- 0.6599999999999999  
4 adapted to each other 3 3 ----- 0.63  
4 characters or those which 3 3 ----- 0.75  
4 each other and from 6 6 ----- 1.14  
4 amount of difference in 8 8 ----- 1.84  
4 have been produced by 7 7 ----- 1.4700000000000002  
4 from these several considerations 4 4 ----- 1.32  
4 some of the inhabitants 3 3 ----- 0.69  
4 on the one hand 12 12 ----- 1.7999999999999998  
4 amount of modification in 3 3 ----- 0.75  
4 links between the species 3 3 ----- 0.75  
4 genealogical in its arrangement 3 3 ----- 0.9299999999999999  
4 have been formed in 3 3 ----- 0.57  
4 as it may be 5 5 ----- 0.6000000000000001  
4 we have good reason 3 3 ----- 0.57  
4 pollen from the same 5 5 ----- 1  
4 case they would have 4 4 ----- 0.8  
4 species in any country 3 3 ----- 0.6599999999999999  
4 extraordinary amount of modification 3 3 ----- 1.08  
4 liable to vary in 3 3 ----- 0.51  
4 there is the closest 3 3 ----- 0.6  
4 level of the land 5 5 ----- 0.8500000000000001  
4 have a better chance 6 6 ----- 1.2  
4 been more or less 4 4 ----- 0.68  
4 has been independently created 3 3 ----- 0.8999999999999999  
4 which we do not 3 3 ----- 0.4499999999999996  
4 more variable than generic 7 7 ----- 1.8200000000000003  
4 confined to some one 3 3 ----- 0.6  
4 to show that this 3 3 ----- 0.51  
4 unconscious selection by man 3 3 ----- 0.84  
4 varieties or incipient species 8 8 ----- 2.4  
4 than in the common 3 3 ----- 0.54  
4 accumulated by natural selection 5 5 ----- 1.6  
4 we can clearly see 5 5 ----- 0.9  
4 part of the world 3 3 ----- 0.51  
4 species in the same 5 5 ----- 0.9500000000000001  
4 can understand this fact 3 3 ----- 0.72  
4 differing from each other 3 3 ----- 0.75  
4 intermediate in character between 8 8 ----- 2.64  
4 struggle will generally be 3 3 ----- 0.78  
4 lead us to believe 3 3 ----- 0.54  
4 relations of all organic 3 3 ----- 0.72  
4 to divergence of character 4 4 ----- 1.04  
4 during many successive generations 3 3 ----- 1.02  
4 so as to be 4 4 ----- 0.44  
4 from the same seed-capsule 3 3 ----- 0.78  
4 more from each other 3 3 ----- 0.6  
4 our oceans now extend 3 3 ----- 0.63  
4 have a good chance 3 3 ----- 0.54  
4 this case it would 3 3 ----- 0.54  
4 uniform conditions of life 3 3 ----- 0.78  
4 than do the species 6 6 ----- 1.14  
4 unequally related to each 3 3 ----- 0.75  
4 on this same principle 3 3 ----- 0.6599999999999999  
4 struggle with each other 3 3 ----- 0.72  
4 with our domestic productions 3 3 ----- 0.87  
4 to me by mr 3 3 ----- 0.3299999999999996  
4 flowers on the same 3 3 ----- 0.57  
4 probably come into play 3 3 ----- 0.69  
4 animals which unite for 5 5 ----- 1.1500000000000001  
4 to show that there 3 3 ----- 0.54  
4 them as distinct species 3 3 ----- 0.72  
4 some of the characters 4 4 ----- 0.88

4 independently of the question 3 3 ----- 0.87  
4 have come into play 3 3 ----- 0.57  
4 on the same pattern 3 3 ----- 0.57  
4 to the present day 15 15 ----- 2.699999999999997  
4 thus as i believe 6 6 ----- 1.02  
4 as well as in 4 4 ----- 0.52  
4 checked by natural selection 4 4 ----- 1.12  
4 have been produced under 3 3 ----- 0.72  
4 supposed to have been 10 10 ----- 2.1  
4 hand of a man 3 3 ----- 0.39  
4 have only to suppose 3 3 ----- 0.6  
4 on these same principles 3 3 ----- 0.72  
4 for a long time 5 5 ----- 0.75  
4 face of the earth 5 5 ----- 0.8500000000000001  
4 have been inherited from 7 7 ----- 1.6800000000000002  
4 some degree intermediate between 4 4 ----- 1.28  
4 whatever the cause may 3 3 ----- 0.6599999999999999  
4 plates of baleen in 4 4 ----- 0.76  
4 appear to have been 3 3 ----- 0.57  
4 direct action of external 3 3 ----- 0.75  
4 we can perhaps understand 3 3 ----- 0.75  
4 on unknown differences in 4 4 ----- 1  
4 one after the other 3 3 ----- 0.57  
4 nearly the same condition 3 3 ----- 0.75  
4 independent acts of creation 3 3 ----- 0.84  
4 genera in each country 3 3 ----- 0.6599999999999999  
4 lay their eggs in 7 7 ----- 1.1900000000000002  
4 to the same genus 4 4 ----- 0.68  
4 facts could be given 8 8 ----- 1.6  
4 place in the economy 3 3 ----- 0.6  
4 at these distant points 3 3 ----- 0.69  
4 to suppose that they 3 3 ----- 0.6  
4 to bear in mind 3 3 ----- 0.44999999999999996  
4 changes in their conditions 3 3 ----- 0.80999999999999999  
4 will have a better 3 3 ----- 0.54  
4 forms of life in 5 5 ----- 0.8  
4 belonging to the same 20 20 ----- 4.2  
4 only at long intervals 3 3 ----- 0.65999999999999999  
4 directly intermediate between them 3 3 ----- 1.02  
4 simple conditions of life 5 5 ----- 1.25  
4 animals of the same 5 5 ----- 0.9500000000000001  
4 some of the lower 3 3 ----- 0.51  
4 adapted to their conditions 3 3 ----- 0.80999999999999999  
4 at the present day 18 18 ----- 3.2399999999999998  
4 from any one species 3 3 ----- 0.6  
4 they may differ from 4 4 ----- 0.8  
4 under the most different 5 5 ----- 1.2000000000000002  
4 said to have been 4 4 ----- 0.68  
4 genera of the same 3 3 ----- 0.54  
4 difference in the result 4 4 ----- 0.96  
4 origin of our domestic 3 3 ----- 0.65999999999999999  
4 useful to the possessor 3 3 ----- 0.69  
4 not have been much 3 3 ----- 0.54  
4 one species of grass 3 3 ----- 0.6  
4 which some naturalists rank 3 3 ----- 0.80999999999999999  
4 on the opposite sides 5 5 ----- 1.05  
4 during a long period 3 3 ----- 0.6  
4 belong to the same 3 3 ----- 0.54  
4 will not have been 4 4 ----- 0.72  
4 species and well-marked varieties 3 3 ----- 0.99  
4 been shown to be 3 3 ----- 0.48  
4 parts of south america 4 4 ----- 0.88  
4 at the same rate 3 3 ----- 0.48

4 developed through natural selection 4 4 ----- 1.4000000000000001  
4 during periods of subsidence 4 4 ----- 1.12  
4 crosses and of hybrids 9 9 ----- 1.98  
4 can clearly see why 3 3 ----- 0.57  
4 species of the smaller 4 4 ----- 0.88  
4 born than can possibly 3 3 ----- 0.6599999999999999  
4 which have ever lived 3 3 ----- 0.63  
4 deviations in their structure 3 3 ----- 0.87  
4 quarter of the world 6 6 ----- 1.2  
4 we may safely infer 5 5 ----- 0.9500000000000001  
4 presume that no one 3 3 ----- 0.57  
4 browsing on the higher 3 3 ----- 0.6599999999999999  
4 organic beings which have 4 4 ----- 1  
4 exposed to somewhat different 3 3 ----- 0.87  
4 fertility of varieties when 5 5 ----- 1.35  
4 changing conditions of life 8 8 ----- 2.16  
4 eminently liable to vary 3 3 ----- 0.72  
4 history of the world 6 6 ----- 1.2  
4 extinction of the less 3 3 ----- 0.6599999999999999  
4 on this view we 3 3 ----- 0.44999999999999996  
4 differences in their reproductive 3 3 ----- 0.99  
4 modified and improved in 3 3 ----- 0.72  
4 which we see in 3 3 ----- 0.44999999999999996  
4 distinct species when crossed 3 3 ----- 0.87  
4 modification we can understand 3 3 ----- 0.8999999999999999  
4 descended from distinct species 3 3 ----- 0.9299999999999999  
4 mountains in the united 3 3 ----- 0.69  
4 where our oceans now 3 3 ----- 0.6  
4 hardly be a doubt 4 4 ----- 0.68  
4 beings in a state 4 4 ----- 0.68  
4 some degree intermediate in 4 4 ----- 1.08  
4 analogy would lead us 3 3 ----- 0.63  
4 we know that this 3 3 ----- 0.51  
4 through variation and natural 8 8 ----- 2.32  
4 may differ from each 4 4 ----- 0.8  
4 new and distinct species 4 4 ----- 0.96  
4 only in a slight 3 3 ----- 0.48  
4 have inherited something in 3 3 ----- 0.8099999999999999  
4 at the present time 11 11 ----- 2.09  
4 have been adapted for 4 4 ----- 0.84  
4 to the definite action 3 3 ----- 0.6599999999999999  
4 any two or more 4 4 ----- 0.6  
4 mans power of selection 5 5 ----- 1.1500000000000001  
4 to assign any reason 3 3 ----- 0.6  
4 which have been exterminated 3 3 ----- 0.84  
4 place in the natural 5 5 ----- 1  
4 de candolle has shown 3 3 ----- 0.63  
4 hence we may conclude 3 3 ----- 0.63  
4 number of species in 4 4 ----- 0.8  
4 each species having been 4 4 ----- 0.96  
4 long course of time 3 3 ----- 0.57  
4 separation of the sexes 4 4 ----- 0.92  
4 life throughout the world 3 3 ----- 0.75  
4 than can possibly survive 4 4 ----- 1  
4 descended from common parents 3 3 ----- 0.87  
4 teeth which never cut 3 3 ----- 0.63  
4 from a single parent 3 3 ----- 0.6  
4 eastern and western shores 3 3 ----- 0.78  
4 from a common ancestor 5 5 ----- 1.1  
4 to increase in number 4 4 ----- 0.84  
4 within each great class 3 3 ----- 0.69  
4 parts of the structure 3 3 ----- 0.6599999999999999  
4 far as we can 11 11 ----- 1.43

4 accumulated through natural selection 4 4 ----- 1.48  
4 crust of the earth 4 4 ----- 0.72  
4 cases are on record 3 3 ----- 0.57  
4 shores of north america 3 3 ----- 0.69  
4 each other and in 4 4 ----- 0.68  
4 if this had been 4 4 ----- 0.64  
4 differ in no respect 3 3 ----- 0.6  
4 due allowance for our 3 3 ----- 0.63  
4 principle of natural selection 8 8 ----- 2.4  
4 remote in the scale 4 4 ----- 0.76  
4 shores of south america 3 3 ----- 0.69  
4 at which i have 3 3 ----- 0.44999999999999996  
4 has been geologically explored 3 3 ----- 0.8999999999999999  
4 by far the most 3 3 ----- 0.44999999999999996  
4 for sifting the water 3 3 ----- 0.63  
4 as in the case 18 18 ----- 2.52  
4 rank them as distinct 3 3 ----- 0.63  
4 process of natural selection 8 8 ----- 2.24  
4 one to the other 3 3 ----- 0.48  
4 would not have been 9 9 ----- 1.71  
4 only a few species 3 3 ----- 0.54  
4 represented in the diagram 9 9 ----- 2.34  
4 be ranked as species 4 4 ----- 0.8  
4 incidental on unknown differences 3 3 ----- 0.99  
4 formed by natural selection 4 4 ----- 1.08  
4 eminently liable to variation 3 3 ----- 0.87  
4 part of the flower 3 3 ----- 0.54  
4 other and to living 3 3 ----- 0.57  
4 their appearance and disappearance 3 3 ----- 1.02  
4 to crawl out through 3 3 ----- 0.6  
4 greater differences between species 3 3 ----- 1.05  
4 taken advantage of by 4 4 ----- 0.84  
4 most of the other 3 3 ----- 0.51  
4 competition with each other 6 6 ----- 1.6199999999999999  
4 at any one time 3 3 ----- 0.44999999999999996  
4 space here to enter 3 3 ----- 0.57  
4 only two or three 3 3 ----- 0.51  
4 shape of the body 6 6 ----- 1.02  
4 we can clearly understand 5 5 ----- 1.25  
4 some of the most 4 4 ----- 0.64  
4 eggs in other birds 6 6 ----- 1.14  
4 all living and extinct 3 3 ----- 0.6599999999999999  
4 inexplicable on the theory 7 7 ----- 1.8200000000000003  
4 each other than do 3 3 ----- 0.54  
4 inhabitants of the world 10 10 ----- 2.4000000000000004  
4 supposed to be descended 3 3 ----- 0.72  
4 through natural selection in 4 4 ----- 1.12  
4 plains of la plata 4 4 ----- 0.72  
4 part or organ in 3 3 ----- 0.48  
4 each other than they 6 6 ----- 1.2  
4 greater amount of difference 3 3 ----- 0.84  
4 conditions to which it 3 3 ----- 0.6599999999999999  
4 be ranked as distinct 3 3 ----- 0.63  
4 limits of the same 6 6 ----- 1.08  
4 nature of the affinities 3 3 ----- 0.72  
4 as we shall hereafter 9 9 ----- 1.89  
4 at any one period 3 3 ----- 0.51  
4 new and old worlds 4 4 ----- 0.72  
4 different from each other 3 3 ----- 0.75  
4 forms of life which 5 5 ----- 0.9500000000000001  
4 northern and southern temperate 4 4 ----- 1.24  
4 during the glacial epoch 3 3 ----- 0.72  
4 character of the species 4 4 ----- 0.96

4 could be given among 3 3 ----- 0.6  
4 what is meant by 4 4 ----- 0.64  
4 for a very long 4 4 ----- 0.6  
4 can clearly understand why 3 3 ----- 0.78  
4 groups of species which 3 3 ----- 0.69  
4 species have been modified 3 3 ----- 0.78  
4 as i have attempted 4 4 ----- 0.76  
4 to be descended from 5 5 ----- 1  
4 have been modified in 4 4 ----- 0.84  
4 would in all probability 3 3 ----- 0.72  
4 here to enter on 5 5 ----- 0.8  
4 more variable than those 5 5 ----- 1.2000000000000002  
4 crosses between the same 5 5 ----- 1.2000000000000002  
4 inhabitants of the same 6 6 ----- 1.38  
4 vary in the same 3 3 ----- 0.48  
4 he who believes in 3 3 ----- 0.54  
4 natural selection we can 3 3 ----- 0.72  
4 two or three days 3 3 ----- 0.51  
4 power of natural selection 4 4 ----- 1.04  
4 at this early age 4 4 ----- 0.68  
4 between the species which 5 5 ----- 1.25  
4 be able to explain 3 3 ----- 0.54  
4 breeds of the pigeon 6 6 ----- 1.2  
4 we do not see 3 3 ----- 0.39  
4 as measured by years 8 8 ----- 1.6  
4 natural selection acts by 3 3 ----- 0.75  
4 plants of the same 3 3 ----- 0.54  
4 climatical and geographical changes 3 3 ----- 1.05  
4 depth of the sea 3 3 ----- 0.48  
4 at a corresponding age 7 7 ----- 1.54  
4 been produced under domestication 4 4 ----- 1.32  
4 selection acts only by 3 3 ----- 0.6599999999999999  
4 number of new varieties 3 3 ----- 0.69  
4 some of the lowest 3 3 ----- 0.54  
4 forms ought to be 3 3 ----- 0.51  
4 beings of the same 3 3 ----- 0.54  
4 survival of the fittest 15 15 ----- 3.4499999999999997  
4 importance of the principle 3 3 ----- 0.8099999999999999  
4 definite action of changed 3 3 ----- 0.78  
4 would have the best 5 5 ----- 0.9500000000000001  
4 numerous instances could be 3 3 ----- 0.8099999999999999  
4 thus we can understand 3 3 ----- 0.6599999999999999  
4 than the forms which 4 4 ----- 0.8  
4 increased through natural selection 3 3 ----- 1.05  
4 difficulty in understanding how 3 3 ----- 0.9299999999999999  
4 for the incipient stages 3 3 ----- 0.72  
4 as we see in 7 7 ----- 0.8400000000000001  
4 be in some degree 4 4 ----- 0.68  
4 me that he has 4 4 ----- 0.56  
4 from flower to flower 7 7 ----- 1.4700000000000002  
4 with each other in 3 3 ----- 0.54  
4 would have been better 3 3 ----- 0.6599999999999999  
4 be most severe between 4 4 ----- 0.88  
4 forms of life throughout 5 5 ----- 1.2000000000000002  
4 might even have been 4 4 ----- 0.8  
4 as it is difficult 3 3 ----- 0.54  
4 whole groups of species 9 9 ----- 2.07  
4 number of specific forms 3 3 ----- 0.72  
4 over the whole country 3 3 ----- 0.6599999999999999  
4 connected by intermediate varieties 3 3 ----- 1.05  
4 within the same areas 6 6 ----- 1.26  
4 species of the genus 4 4 ----- 0.8  
4 for the same general 4 4 ----- 0.8



4 with the same part 4 4 ----- 0.72  
4 descendants from any one 3 3 ----- 0.72  
4 leading facts in embryology 3 3 ----- 0.8099999999999999  
4 forms which they connect 4 4 ----- 0.96  
4 breeds of cattle sheep 3 3 ----- 0.6599999999999999  
4 relation to the size 3 3 ----- 0.6  
4 action of natural selection 12 12 ----- 3.2399999999999998  
4 sting of the bee 3 3 ----- 0.48  
4 we see this in 6 6 ----- 0.84  
4 individuals of the same 55 55 ----- 12.65  
4 inhabitants of the sea 4 4 ----- 0.88  
4 resemble in some degree 4 4 ----- 0.92  
4 ancient forms of life 3 3 ----- 0.63  
4 changes in the conditions 5 5 ----- 1.25  
4 strongly marked and permanent 3 3 ----- 0.87  
4 during the early stages 3 3 ----- 0.69  
4 at an early age 4 4 ----- 0.6  
4 facts which i have 5 5 ----- 0.9  
4 larger genera in each 4 4 ----- 0.84  
4 shall have to recur 3 3 ----- 0.57  
4 might have been expected 8 8 ----- 1.92  
4 have reason to believe 13 13 ----- 2.8600000000000003  
4 males and fertile females 4 4 ----- 1  
4 from the same parents 3 3 ----- 0.63  
4 selection of successive slight 3 3 ----- 0.8999999999999999  
4 we can understand why 7 7 ----- 1.4700000000000002  
4 which may be called 3 3 ----- 0.57  
4 on our theory have 3 3 ----- 0.54  
4 europe and the united 4 4 ----- 0.84  
4 their habits of life 7 7 ----- 1.4000000000000001  
4 genus have been formed 5 5 ----- 1.1  
4 at a corresponding not 3 3 ----- 0.6599999999999999  
4 to struggle with each 3 3 ----- 0.63  
4 parts of the united 3 3 ----- 0.57  
4 from each other in 21 21 ----- 3.78  
4 complex conditions of life 3 3 ----- 0.78  
4 characters are more variable 4 4 ----- 1.12  
4 let it be remembered 3 3 ----- 0.6  
4 inorganic conditions of life 5 5 ----- 1.4000000000000001  
4 may infer that this 3 3 ----- 0.57  
4 to the same genera 3 3 ----- 0.54  
4 species are only strongly 3 3 ----- 0.75  
4 ordinary view of each 3 3 ----- 0.63  
4 natural selection acts solely 4 4 ----- 1.16  
4 have become extinct in 3 3 ----- 0.6599999999999999  
4 between varieties and species 4 4 ----- 1.16  
4 species of the horse 4 4 ----- 0.8  
4 as they may be 5 5 ----- 0.7000000000000001  
4 be said to have 8 8 ----- 1.2  
4 greater number of varieties 4 4 ----- 1.08  
4 beds of the same 3 3 ----- 0.48  
4 view of each species 6 6 ----- 1.2  
4 sub-stages of the same 3 3 ----- 0.6599999999999999  
4 important element of success 3 3 ----- 0.84  
4 which may be observed 3 3 ----- 0.63  
4 groups of modified descendants 3 3 ----- 0.8999999999999999  
4 this seems to me 3 3 ----- 0.48  
4 parts of the organisation 11 11 ----- 2.75  
4 species of a genus 14 14 ----- 2.5200000000000005  
4 do we not find 3 3 ----- 0.42  
4 there is no reason 5 5 ----- 0.9  
4 various forms of life 3 3 ----- 0.63  
4 we may safely conclude 5 5 ----- 1.1

4 natural selection of successive 3 3 ----- 0.9299999999999999  
4 at an early period 5 5 ----- 0.9  
4 no respect except in 3 3 ----- 0.6  
4 all the species in 4 4 ----- 0.72  
4 variation and natural selection 8 8 ----- 2.48  
4 our chapter on geographical 3 3 ----- 0.8099999999999999  
4 we can understand how 14 14 ----- 2.9400000000000004  
4 as soon as it 4 4 ----- 0.52  
4 action of external conditions 4 4 ----- 1.16  
4 played an important part 7 7 ----- 1.6800000000000002  
4 they will have been 3 3 ----- 0.57  
4 forms of the same 4 4 ----- 0.68  
4 places in the economy 5 5 ----- 1.05  
4 from tree to tree 5 5 ----- 0.8500000000000001  
4 cause of the sterility 3 3 ----- 0.6599999999999999  
4 classes of facts which 4 4 ----- 0.88  
4 what may be called 6 6 ----- 1.08  
4 to return to our 3 3 ----- 0.48  
4 inherited something in common 3 3 ----- 0.87  
4 with respect to plants 3 3 ----- 0.6599999999999999  
4 we can understand this 3 3 ----- 0.6599999999999999  
4 we shall hereafter see 10 10 ----- 2.2  
4 be said to struggle 4 4 ----- 0.76  
4 from island to island 3 3 ----- 0.63  
4 length of the ears 3 3 ----- 0.54  
4 there must be some 4 4 ----- 0.72  
4 have been specially endowed 4 4 ----- 1.08  
4 much diffused and common 3 3 ----- 0.72  
4 from north to south 3 3 ----- 0.57  
4 become modified and improved 4 4 ----- 1.12  
4 wing of a bat 5 5 ----- 0.65  
4 selection acts solely by 3 3 ----- 0.72  
4 resemble each other in 6 6 ----- 1.3199999999999998  
4 hereafter to be discussed 3 3 ----- 0.75  
4 evidence of the existence 3 3 ----- 0.75  
4 first dawn of life 3 3 ----- 0.54  
4 sexes of the same 5 5 ----- 0.8500000000000001  
4 intelligible on the view 4 4 ----- 0.96  
4 all or nearly all 3 3 ----- 0.51  
4 early period of life 6 6 ----- 1.2  
4 as it is possible 3 3 ----- 0.51  
4 other in the same 5 5 ----- 0.8500000000000001  
4 for a short time 3 3 ----- 0.48  
4 be descended from some 3 3 ----- 0.6599999999999999  
4 to the right degree 3 3 ----- 0.57  
4 increased use or disuse 5 5 ----- 1.1500000000000001  
4 from a common parent 10 10 ----- 2  
4 to resemble each other 3 3 ----- 0.6599999999999999  
4 so as to have 5 5 ----- 0.65  
4 new habits of life 3 3 ----- 0.54  
4 more or less sterile 5 5 ----- 1  
4 far as we know 4 4 ----- 0.56  
4 have been acquired by 3 3 ----- 0.63  
4 only here and there 3 3 ----- 0.57  
4 how the same species 3 3 ----- 0.6  
4 better chance of surviving 4 4 ----- 1.04  
4 be accounted for by 9 9 ----- 1.71  
4 earlier or later in 4 4 ----- 0.76  
4 if they had been 4 4 ----- 0.64  
4 what can be more 5 5 ----- 0.8  
4 nearly the same state 3 3 ----- 0.63  
4 which unite for each 6 6 ----- 1.2  
4 within the same country 5 5 ----- 1.1500000000000001

4 to a certain extent 24 24 ----- 4.56  
4 believe that natural selection 3 3 ----- 0.8999999999999999  
4 comparison with the same 4 4 ----- 0.96  
4 to breed freely under 4 4 ----- 0.84  
4 long before the cambrian 4 4 ----- 0.96  
4 males and females have 3 3 ----- 0.6599999999999999  
4 surface of the land 4 4 ----- 0.76  
4 they are descended from 10 10 ----- 2.3000000000000003  
4 species of the larger 8 8 ----- 1.68  
4 less distinct from each 3 3 ----- 0.69  
4 cape of good hope 7 7 ----- 1.1900000000000002  
4 even have been anticipated 3 3 ----- 0.78  
4 we can understand on 5 5 ----- 1  
4 have long been inherited 3 3 ----- 0.72  
4 species must have been 3 3 ----- 0.6599999999999999  
4 wing of the bat 4 4 ----- 0.6  
4 seem to have produced 3 3 ----- 0.63  
4 follows from the high 3 3 ----- 0.63  
4 good of another species 4 4 ----- 0.92  
4 at the same time 37 37 ----- 5.92  
4 increased use and disuse 3 3 ----- 0.72  
4 for very long periods 4 4 ----- 0.84  
4 closely allied or representative 6 6 ----- 1.92  
4 view we can understand 3 3 ----- 0.6599999999999999  
4 which it comes into 5 5 ----- 0.9500000000000001  
4 conditions of life will 4 4 ----- 0.92  
4 generally be most severe 3 3 ----- 0.72  
4 groups subordinate to groups 8 8 ----- 2.24  
4 existed in lesser numbers 3 3 ----- 0.75  
4 have been the case 3 3 ----- 0.54  
4 am informed by mr 4 4 ----- 0.68  
4 fully stocked with inhabitants 3 3 ----- 0.8999999999999999  
4 closely related to each 10 10 ----- 2.3000000000000003  
4 their eggs in other 3 3 ----- 0.57  
4 action of changed conditions 5 5 ----- 1.4000000000000001  
4 favour of this view 3 3 ----- 0.57  
4 much they may differ 5 5 ----- 1  
4 to go on increasing 3 3 ----- 0.57  
4 average duration of specific 3 3 ----- 0.84  
4 its conditions of life 5 5 ----- 1.1  
4 bed of the sea 6 6 ----- 0.84  
4 to expect to find 4 4 ----- 0.68  
4 some of the very 3 3 ----- 0.48  
4 as the same species 3 3 ----- 0.57  
4 at an earlier age 5 5 ----- 0.8500000000000001  
4 ranked as distinct species 5 5 ----- 1.3  
4 form is the more 5 5 ----- 0.8  
4 many closely allied species 3 3 ----- 0.8099999999999999  
4 natural selection has been 3 3 ----- 0.78  
4 argue in a circle 3 3 ----- 0.51  
4 first crosses and in 3 3 ----- 0.6  
4 as far as we 15 15 ----- 1.7999999999999998  
4 we might have expected 3 3 ----- 0.6599999999999999  
4 as has been remarked 3 3 ----- 0.6  
4 will have the best 3 3 ----- 0.54  
4 species are descended from 3 3 ----- 0.78  
4 can see no difficulty 3 3 ----- 0.63  
4 same conditions of life 4 4 ----- 0.92  
4 to say a few 3 3 ----- 0.36  
4 there is no apparent 3 3 ----- 0.6  
4 every reason to believe 5 5 ----- 1.1500000000000001  
4 ought not to be 6 6 ----- 0.8999999999999999  
4 former state of things 3 3 ----- 0.6599999999999999

4 species when first crossed 5 5 ----- 1.3  
4 would be very difficult 3 3 ----- 0.69  
4 fossils beneath the cambrian 3 3 ----- 0.84  
4 now let us suppose 3 3 ----- 0.54  
4 as a general rule 12 12 ----- 2.04  
4 see the same fact 3 3 ----- 0.51  
4 will not here enter 3 3 ----- 0.57  
4 period of its life 4 4 ----- 0.72  
4 within the recent period 7 7 ----- 1.6800000000000002  
4 according to our theory 3 3 ----- 0.69  
4 no apparent reason why 3 3 ----- 0.6599999999999999  
4 natural selection will be 4 4 ----- 1  
4 as owen has remarked 4 4 ----- 0.8  
4 have been produced through 3 3 ----- 0.78  
4 members of the great 4 4 ----- 0.8  
4 having some advantage over 3 3 ----- 0.78  
4 inheritance at corresponding ages 4 4 ----- 1.32  
4 belonging to the larger 6 6 ----- 1.38  
4 something of the same 3 3 ----- 0.63  
4 to embed and preserve 3 3 ----- 0.63  
4 we have no right 5 5 ----- 0.8  
4 succession of the same 6 6 ----- 1.3199999999999998  
4 any part or organ 3 3 ----- 0.51  
4 may be seen in 3 3 ----- 0.42  
4 species and by another 3 3 ----- 0.6599999999999999  
4 we have also seen 4 4 ----- 0.68  
4 differ from each other 22 22 ----- 4.84  
4 under the same conditions 5 5 ----- 1.25  
4 between the same two 6 6 ----- 1.2  
4 simultaneously throughout the world 5 5 ----- 1.75  
4 whole groups of animals 3 3 ----- 0.69  
4 might have been anticipated 4 4 ----- 1.08  
4 will here give only 4 4 ----- 0.76  
4 quarters of the world 11 11 ----- 2.31  
4 whether or not these 3 3 ----- 0.6  
4 used as the father 3 3 ----- 0.54  
4 would have to be 6 6 ----- 0.96  
4 gliding through the air 4 4 ----- 0.92  
4 for natural selection acts 3 3 ----- 0.78  
4 have migrated from some 3 3 ----- 0.69  
4 for a long period 7 7 ----- 1.1900000000000002  
4 at an earlier period 3 3 ----- 0.6  
4 geographical races or sub-species 3 3 ----- 0.99  
4 evidence on this head 4 4 ----- 0.84  
4 we have no reason 5 5 ----- 0.8500000000000001  
4 for an enormous period 3 3 ----- 0.6599999999999999  
4 have been slowly accumulated 3 3 ----- 0.84  
4 we see the same 9 9 ----- 1.3499999999999999  
4 natural selection acts only 3 3 ----- 0.8099999999999999  
4 no reason to doubt 3 3 ----- 0.54  
4 greater or less degree 3 3 ----- 0.6599999999999999  
4 any slight deviations in 3 3 ----- 0.72  
4 same part or organ 5 5 ----- 0.9  
4 communicated to me by 3 3 ----- 0.63  
4 duration of each formation 3 3 ----- 0.78  
4 produced by secondary laws 3 3 ----- 0.78  
4 within any given period 4 4 ----- 0.92  
4 some degree of sterility 3 3 ----- 0.72  
4 species are the most 3 3 ----- 0.6  
4 time which has elapsed 3 3 ----- 0.6599999999999999  
4 amount of organic change 6 6 ----- 1.44  
4 species in a state 8 8 ----- 1.44  
4 parts or organs which 3 3 ----- 0.63

4 this is a very 3 3 ----- 0.42  
4 rich in fossils beneath 3 3 ----- 0.69  
4 fertility of first crosses 3 3 ----- 0.78  
4 nature of the conditions 7 7 ----- 1.6800000000000002  
4 very process of natural 3 3 ----- 0.69  
4 works on natural history 4 4 ----- 0.96  
4 variable than generic characters 3 3 ----- 0.96  
4 from each other than 7 7 ----- 1.4000000000000001  
4 to each other in 9 9 ----- 1.44  
4 if this be so 3 3 ----- 0.39  
4 have been developed from 3 3 ----- 0.72  
4 all animals and plants 4 4 ----- 0.88  
4 cannot be accounted for 3 3 ----- 0.69  
4 groups of allied species 3 3 ----- 0.72  
4 to be called species 3 3 ----- 0.6  
4 to the same conditions 4 4 ----- 0.88  
4 independently of natural selection 4 4 ----- 1.36  
4 we shall presently see 4 4 ----- 0.88  
4 an extraordinary manner in 3 3 ----- 0.78  
4 succession of organic beings 3 3 ----- 0.84  
4 distinct from each other 13 13 ----- 3.12  
4 more or less completely 4 4 ----- 0.92  
4 cause were to act 3 3 ----- 0.51  
4 to supplant and exterminate 4 4 ----- 1.08  
4 which are in any 4 4 ----- 0.64  
4 other by a less 3 3 ----- 0.44999999999999996  
4 two or three varieties 3 3 ----- 0.65999999999999999  
4 destruction at some period 3 3 ----- 0.78  
4 good of each being 3 3 ----- 0.54  
4 both of first crosses 3 3 ----- 0.63  
4 will generally be most 3 3 ----- 0.65999999999999999  
4 at a very early 11 11 ----- 1.65  
4 been formed by natural 3 3 ----- 0.65999999999999999  
4 on the same stigma 3 3 ----- 0.54  
4 as soon as they 4 4 ----- 0.6  
4 let them be ever 4 4 ----- 0.64  
4 cut through the gums 3 3 ----- 0.6  
4 distribution of organic beings 4 4 ----- 1.2  
4 descended from some one 5 5 ----- 1.1500000000000001  
4 slight modifications of structure 4 4 ----- 1.32  
4 petals stamens and pistils 4 4 ----- 1.04  
4 hardly fail to be 3 3 ----- 0.51  
4 large number of eggs 3 3 ----- 0.6  
4 number of the species 5 5 ----- 1.05  
4 seen in the last 3 3 ----- 0.48  
4 related to each other 22 22 ----- 4.62  
4 right and left sides 3 3 ----- 0.6  
4 on the other hand 79 79 ----- 13.43  
4 from the opposite sides 3 3 ----- 0.69  
4 reason to believe from 3 3 ----- 0.65999999999999999  
4 species through natural selection 3 3 ----- 0.99  
4 varieties of any one 3 3 ----- 0.6  
4 one of the most 12 12 ----- 1.79999999999999998  
4 between any two forms 4 4 ----- 0.84  
4 constructed on the same 3 3 ----- 0.69  
4 with animals and plants 6 6 ----- 1.38  
4 as we can judge 9 9 ----- 1.34999999999999999  
4 we should bear in 4 4 ----- 0.68  
4 there will have been 5 5 ----- 1  
4 not here enter on 3 3 ----- 0.51  
4 degree intermediate in character 6 6 ----- 1.92  
4 differed from each other 4 4 ----- 0.96  
4 have been of any 3 3 ----- 0.48

4 between species and varieties 5 5 ----- 1.4500000000000002  
4 into competition with each 3 3 ----- 0.78  
4 long intervals of time 12 12 ----- 2.6399999999999997  
4 physical conditions of life 7 7 ----- 1.8900000000000001  
4 imperfection of the geological 7 7 ----- 2.1  
4 species branched off from 3 3 ----- 0.75  
4 exceptions to this rule 3 3 ----- 0.69  
4 variations or individual differences 6 6 ----- 2.16  
4 best of my judgment 3 3 ----- 0.57  
4 which are descended from 4 4 ----- 0.96  
4 species in each genus 3 3 ----- 0.63  
4 become more and more 4 4 ----- 0.8  
4 during the later tertiary 4 4 ----- 1  
4 old and new worlds 9 9 ----- 1.6199999999999999  
4 closely allied to other 3 3 ----- 0.69  
4 organic and inorganic conditions 6 6 ----- 1.92  
4 we shall see how 3 3 ----- 0.48  
4 welfare of the species 4 4 ----- 0.88  
4 fertility to the offspring 3 3 ----- 0.78  
4 an important part in 6 6 ----- 1.2  
4 for it is not 5 5 ----- 0.65  
4 to conjecture by what 3 3 ----- 0.63  
4 which i have collected 5 5 ----- 1.1  
4 had some advantage over 3 3 ----- 0.69  
4 so it is in 3 3 ----- 0.32999999999999996  
4 can understand how it 13 13 ----- 2.73  
4 cambrian system was deposited 3 3 ----- 0.87  
4 attempted to show in 3 3 ----- 0.6  
4 crosses and in hybrids 3 3 ----- 0.6599999999999999  
4 divisions of the animal 3 3 ----- 0.69  
4 which have certainly occurred 3 3 ----- 0.87  
4 structure constitution and habits 3 3 ----- 0.99  
4 as we now see 4 4 ----- 0.52  
4 theory of natural selection 29 29 ----- 7.8299999999999999  
4 tendency to vary in 3 3 ----- 0.57  
4 ought to be called 3 3 ----- 0.54  
4 may be doubted whether 4 4 ----- 0.88  
4 they could not have 3 3 ----- 0.57  
4 marked and permanent varieties 3 3 ----- 0.8999999999999999  
4 within the same area 3 3 ----- 0.6  
4 eggs in the nests 3 3 ----- 0.51  
4 hereafter to be explained 3 3 ----- 0.75  
4 has been observed by 3 3 ----- 0.6  
4 yellow and white varieties 3 3 ----- 0.78  
4 sufficiently distinct to be 4 4 ----- 1.08  
4 inhabitants of oceanic islands 5 5 ----- 1.5  
4 given rise to new 3 3 ----- 0.51  
4 they come into competition 3 3 ----- 0.78  
4 however much they may 5 5 ----- 1.05  
4 fitted for simple conditions 3 3 ----- 0.84  
4 an early embryonic period 3 3 ----- 0.75  
4 long as measured by 5 5 ----- 0.9500000000000001  
4 as i hear from 10 10 ----- 1.4000000000000001  
4 have been in some 4 4 ----- 0.68  
4 to a whole group 3 3 ----- 0.48  
4 many of the lower 3 3 ----- 0.51  
4 to struggle with other 3 3 ----- 0.6599999999999999  
4 on the whole has 3 3 ----- 0.48  
4 north america and europe 4 4 ----- 0.96  
4 on the same plant 11 11 ----- 1.87  
4 been slowly accumulated by 3 3 ----- 0.78  
4 informs me that he 7 7 ----- 1.2600000000000002  
4 commencement of the last 3 3 ----- 0.72

4 changed habits of life 3 3 ----- 0.6599999999999999  
4 could not have been 14 14 ----- 2.66  
4 has played an important 3 3 ----- 0.69  
4 new varieties and species 4 4 ----- 1  
4 have the best chance 10 10 ----- 2  
4 found in the intermediate 3 3 ----- 0.75  
4 to have been produced 5 5 ----- 1.05  
4 objections to the theory 4 4 ----- 0.96  
4 far as i can 4 4 ----- 0.48  
4 effected through natural selection 4 4 ----- 1.36  
4 can see that if 3 3 ----- 0.44999999999999996  
4 this is the case 8 8 ----- 1.28  
4 come to the conclusion 3 3 ----- 0.6599999999999999  
4 low in the scale 8 8 ----- 1.28  
4 be said to be 9 9 ----- 1.17  
4 have been the same 3 3 ----- 0.54  
4 inherited at a corresponding 10 10 ----- 2.8000000000000003  
4 for it is impossible 3 3 ----- 0.6  
4 within the same ovarium 3 3 ----- 0.69  
4 its organic and inorganic 3 3 ----- 0.75  
4 should bear in mind 4 4 ----- 0.76  
4 improved forms of life 3 3 ----- 0.6599999999999999  
4 two or more species 7 7 ----- 1.33  
4 natural selection will tend 3 3 ----- 0.8099999999999999  
4 have been formed by 7 7 ----- 1.33  
4 to increase in numbers 4 4 ----- 0.88  
4 each stage of descent 3 3 ----- 0.63  
4 may be asked how 4 4 ----- 0.64  
4 geological succession of organic 3 3 ----- 0.96  
4 what i have called 5 5 ----- 0.9  
4 could hardly have been 4 4 ----- 0.88  
4 unite for each birth 8 8 ----- 1.6  
4 might have been thought 4 4 ----- 0.92  
4 expect often to find 3 3 ----- 0.6  
4 more or less modified 3 3 ----- 0.63  
4 opposed to the theory 3 3 ----- 0.63  
4 no right to expect 5 5 ----- 0.9  
4 placed on the stigma 3 3 ----- 0.6  
4 have not space here 4 4 ----- 0.76  
4 selection or the survival 6 6 ----- 1.5  
4 points of the world 4 4 ----- 0.76  
4 be a great advantage 3 3 ----- 0.6  
4 case of neuter insects 3 3 ----- 0.6599999999999999  
4 which on our theory 3 3 ----- 0.57  
4 discussed in our chapter 3 3 ----- 0.72  
4 many of the species 5 5 ----- 0.9500000000000001  
4 enabled to seize on 4 4 ----- 0.76  
4 we ought to find 6 6 ----- 0.96  
4 amount of variation in 3 3 ----- 0.6599999999999999  
4 should be extremely cautious 3 3 ----- 0.84  
4 descended from a single 11 11 ----- 2.53  
4 parts of the world 22 22 ----- 3.96  
4 have been developed in 3 3 ----- 0.6599999999999999  
4 nearly the same manner 10 10 ----- 2.2  
4 all that we can 4 4 ----- 0.6  
4 as i have called 3 3 ----- 0.48  
4 acquired through natural selection 8 8 ----- 2.72  
4 external conditions of life 4 4 ----- 1.08  
4 species has been independently 4 4 ----- 1.2  
4 on the other side 4 4 ----- 0.68  
4 an innate tendency towards 3 3 ----- 0.78  
4 to resemble in some 3 3 ----- 0.57  
4 existing in greater numbers 3 3 ----- 0.8099999999999999

4 types within the same 4 4 ----- 0.84  
4 be more variable than 4 4 ----- 0.84  
4 supposed to have produced 3 3 ----- 0.75  
4 long course of descent 4 4 ----- 0.88  
4 europe and north america 5 5 ----- 1.2000000000000002  
4 islands are inhabited by 3 3 ----- 0.72  
4 difficulty on this head 3 3 ----- 0.69  
4 long periods of time 5 5 ----- 1  
4 between our consecutive formations 3 3 ----- 1.02  
4 want of space prevents 3 3 ----- 0.6599999999999999  
4 fertilised by the pollen 3 3 ----- 0.72  
4 could have been formed 3 3 ----- 0.6599999999999999  
4 during a long course 5 5 ----- 1  
4 unimportant for the welfare 4 4 ----- 1.08  
4 effects of the increased 7 7 ----- 1.6800000000000002  
4 from each other by 15 15 ----- 2.6999999999999997  
4 as i am informed 6 6 ----- 0.96  
4 varieties in a state 4 4 ----- 0.8  
4 amount of difference between 11 11 ----- 3.08  
4 larger genera resemble varieties 3 3 ----- 0.96  
4 analogous facts could be 6 6 ----- 1.44  
4 which case they would 4 4 ----- 0.84  
4 from the same plant 3 3 ----- 0.57  
4 which i have arrived 3 3 ----- 0.6  
4 be filled up by 3 3 ----- 0.4499999999999996  
4 for all that we 3 3 ----- 0.4499999999999996  
4 conditions of life in 4 4 ----- 0.84  
4 from one or more 3 3 ----- 0.48  
4 have their reproductive organs 3 3 ----- 0.8999999999999999  
4 different conditions of life 5 5 ----- 1.4000000000000001  
4 nature of the organism 9 9 ----- 1.98  
5 have every reason to believe 5 5 ----- 1.4000000000000001  
5 for all that we can 3 3 ----- 0.57  
5 between the same two species 6 6 ----- 1.68  
5 as i hear from mr 3 3 ----- 0.51  
5 has played an important part 3 3 ----- 0.84  
5 me to say a few 3 3 ----- 0.4499999999999996  
5 be extremely cautious in concluding 3 3 ----- 1.05  
5 represented in the diagram by 4 4 ----- 1.16  
5 imperfection of the geological record 7 7 ----- 2.5900000000000003  
5 from each other than they 3 3 ----- 0.75  
5 have played an important part 3 3 ----- 0.87  
5 organisation on the whole has 3 3 ----- 0.87  
5 distant parts of the world 3 3 ----- 0.78  
5 there is no apparent reason 3 3 ----- 0.8099999999999999  
5 informs me that he has 3 3 ----- 0.6599999999999999  
5 two sexes of the same 5 5 ----- 1.05  
5 related to each other in 5 5 ----- 1.2000000000000002  
5 their physical conditions of life 3 3 ----- 0.99  
5 have good reason to believe 3 3 ----- 0.8099999999999999  
5 have been slowly accumulated by 3 3 ----- 0.9299999999999999  
5 inheritance from a common progenitor 7 7 ----- 2.5200000000000005  
5 commencement of the last glacial 3 3 ----- 0.96  
5 extinction and divergence of character 5 5 ----- 1.9000000000000001  
5 within the period of existing 3 3 ----- 0.87  
5 nearly the same physical conditions 3 3 ----- 1.05  
5 whatever the cause may be 3 3 ----- 0.75  
5 related to each other than 5 5 ----- 1.3  
5 less distinct from each other 3 3 ----- 0.87  
5 each other and to living 3 3 ----- 0.72  
5 species of the same genus 46 46 ----- 11.5  
5 to the manner in which 4 4 ----- 0.88  
5 theory of natural selection we 3 3 ----- 0.8999999999999999



5 to resemble each other in 3 3 ----- 0.75  
5 which it comes into competition 5 5 ----- 1.55  
5 northern and southern temperate zones 3 3 ----- 1.1099999999999999  
5 members of the same class 10 10 ----- 2.5  
5 descended from a common parent 3 3 ----- 0.8999999999999999  
5 said to struggle with each 3 3 ----- 0.78  
5 might even have been anticipated 3 3 ----- 0.96  
5 inherited from a common progenitor 3 3 ----- 1.02  
5 why it may be asked 3 3 ----- 0.57  
5 at a very early period 7 7 ----- 1.54  
5 we see in the case 3 3 ----- 0.54  
5 come into competition with each 3 3 ----- 0.9299999999999999  
5 been inherited at a corresponding 3 3 ----- 0.99  
5 eggs in other birds nests 6 6 ----- 1.5  
5 have attempted to show how 4 4 ----- 1.04  
5 differ from each other in 11 11 ----- 2.75  
5 never cut through the gums 3 3 ----- 0.78  
5 improbable in the highest degree 4 4 ----- 1.28  
5 between species of the same 3 3 ----- 0.8099999999999999  
5 unequally related to each other 3 3 ----- 0.9299999999999999  
5 by the theory of natural 3 3 ----- 0.72  
5 we can understand this fact 3 3 ----- 0.8099999999999999  
5 on the principle of inheritance 6 6 ----- 1.8599999999999999  
5 being inherited at a corresponding 3 3 ----- 1.02  
5 use and disuse of parts 4 4 ----- 0.92  
5 at long intervals of time 4 4 ----- 1  
5 all the forms of life 3 3 ----- 0.63  
5 natural selection acts solely by 3 3 ----- 0.96  
5 species of the smaller genera 3 3 ----- 0.87  
5 within a few great classes 4 4 ----- 1.04  
5 almost simultaneously throughout the world 3 3 ----- 1.26  
5 commencement of the glacial period 3 3 ----- 1.02  
5 than the forms which they 4 4 ----- 1  
5 view of each species having 5 5 ----- 1.35  
5 as far as i have 3 3 ----- 0.48  
5 ordinary view of each species 3 3 ----- 0.87  
5 we can understand how it 13 13 ----- 3.12  
5 distinct individuals of the same 3 3 ----- 0.96  
5 inhabitants of the same country 3 3 ----- 0.9299999999999999  
5 to their habits of life 3 3 ----- 0.69  
5 descended from a common progenitor 3 3 ----- 1.02  
5 some degree intermediate in character 4 4 ----- 1.48  
5 to their conditions of life 3 3 ----- 0.8099999999999999  
5 varieties of any one species 3 3 ----- 0.84  
5 played an important part in 5 5 ----- 1.35  
5 we can see that if 3 3 ----- 0.54  
5 belonging to the larger genera 4 4 ----- 1.2  
5 for the production of new 6 6 ----- 1.5  
5 our chapter on geographical distribution 3 3 ----- 1.2  
5 relations of all organic beings 3 3 ----- 0.9299999999999999  
5 an extraordinary amount of modification 3 3 ----- 1.17  
5 incidental on unknown differences in 3 3 ----- 1.08  
5 known or believed to be 3 3 ----- 0.69  
5 under the most different climates 5 5 ----- 1.6500000000000001  
5 crossed and of their hybrid 3 3 ----- 0.8099999999999999  
5 when we bear in mind 3 3 ----- 0.6  
5 we can clearly see why 3 3 ----- 0.6599999999999999  
5 parts of the united states 3 3 ----- 0.78  
5 be modified in the same 3 3 ----- 0.69  
5 species and groups of species 4 4 ----- 1.16  
5 rank them as distinct species 3 3 ----- 0.87  
5 closely allied to other species 3 3 ----- 0.9299999999999999  
5 to its organic and inorganic 3 3 ----- 0.84

5 characters are more variable than 4 4 ----- 1.32  
5 off from a common progenitor 4 4 ----- 1.12  
5 very different habits of life 3 3 ----- 0.87  
5 been formed by natural selection 3 3 ----- 0.96  
5 we should be extremely cautious 3 3 ----- 0.9299999999999999  
5 natural selection or the survival 6 6 ----- 1.98  
5 teeth which never cut through 3 3 ----- 0.87  
5 this is a very important 3 3 ----- 0.72  
5 as we shall hereafter see 9 9 ----- 2.25  
5 between individuals of the same 3 3 ----- 0.9299999999999999  
5 use or disuse of parts 6 6 ----- 1.3199999999999998  
5 organic beings in a state 3 3 ----- 0.75  
5 closely allied or representative species 5 5 ----- 2  
5 closely related to each other 10 10 ----- 2.9000000000000004  
5 individuals of the same variety 6 6 ----- 1.8599999999999999  
5 each species has been independently 4 4 ----- 1.4000000000000001  
5 only in a slight degree 3 3 ----- 0.69  
5 types within the same areas 3 3 ----- 0.8099999999999999  
5 so that here we have 3 3 ----- 0.6  
5 same species inhabiting the same 3 3 ----- 0.96  
5 for browsing on the higher 3 3 ----- 0.78  
5 exposed to the same conditions 3 3 ----- 0.8999999999999999  
5 during the later tertiary periods 3 3 ----- 0.99  
5 on the other hand it 3 3 ----- 0.6  
5 divisions of the animal kingdom 3 3 ----- 0.9299999999999999  
5 more variable than generic characters 3 3 ----- 1.1099999999999999  
5 under new conditions of life 5 5 ----- 1.4000000000000001  
5 lay their eggs in other 3 3 ----- 0.69  
5 been effected through natural selection 3 3 ----- 1.17  
5 browsing on the higher branches 3 3 ----- 0.9299999999999999  
5 with which it comes into 5 5 ----- 1.2000000000000002  
5 born than can possibly survive 3 3 ----- 0.8999999999999999  
5 at a corresponding not early 3 3 ----- 0.84  
5 we should bear in mind 4 4 ----- 0.88  
5 their eggs in other birds 3 3 ----- 0.75  
5 this case it would be 3 3 ----- 0.63  
5 would lead us to believe 3 3 ----- 0.72  
5 varieties of the same species 22 22 ----- 6.38  
5 should be extremely cautious in 3 3 ----- 0.9299999999999999  
5 species belonging to the same 11 11 ----- 3.19  
5 which unite for each birth 6 6 ----- 1.56  
5 however much they may differ 5 5 ----- 1.4000000000000001  
5 her eggs in other birds 3 3 ----- 0.69  
5 may be said to have 3 3 ----- 0.57  
5 sepals petals stamens and pistils 3 3 ----- 0.99  
5 descended from a single progenitor 4 4 ----- 1.36  
5 view of descent with modification 3 3 ----- 0.99  
5 different individuals of the same 3 3 ----- 0.99  
5 on the theory of descent 9 9 ----- 2.16  
5 as i hear from dr 4 4 ----- 0.68  
5 species has been independently created 3 3 ----- 1.14  
5 we see the same fact 3 3 ----- 0.6  
5 for the same general purpose 4 4 ----- 1.12  
5 to vary in the same 3 3 ----- 0.57  
5 go on increasing in size 4 4 ----- 0.96  
5 on the theory of creation 7 7 ----- 1.7500000000000002  
5 long as measured by years 5 5 ----- 1.25  
5 account for the incipient stages 3 3 ----- 0.96  
5 presume that no one will 3 3 ----- 0.72  
5 greatest number of new varieties 3 3 ----- 0.96  
5 much they may differ from 4 4 ----- 1  
5 numerous instances could be given 3 3 ----- 0.99  
5 on the origin of species 3 3 ----- 0.72

5 differ from each other by 4 4 ----- 1  
5 other parts of the organisation 3 3 ----- 0.9299999999999999  
5 shown to be the case 3 3 ----- 0.6  
5 some period of its life 4 4 ----- 0.92  
5 forms of the same species 3 3 ----- 0.75  
5 been inherited from a common 5 5 ----- 1.4000000000000001  
5 to each other than they 3 3 ----- 0.69  
5 cannot be accounted for by 3 3 ----- 0.78  
5 say a few words on 6 6 ----- 1.08  
5 as it seems to me 11 11 ----- 1.87  
5 belonging to the same genera 3 3 ----- 0.84  
5 strongly marked and permanent varieties 3 3 ----- 1.17  
5 species in the same manner 3 3 ----- 0.78  
5 each species having been independently 3 3 ----- 1.14  
5 species having been independently created 3 3 ----- 1.23  
5 view that species are only 3 3 ----- 0.78  
5 any two or more species 4 4 ----- 0.92  
5 to resemble in some degree 3 3 ----- 0.78  
5 how the same species could 3 3 ----- 0.78  
5 rarer and rarer and finally 3 3 ----- 0.8099999999999999  
5 members of the same group 3 3 ----- 0.75  
5 distinction between species and varieties 4 4 ----- 1.6400000000000001  
5 there is reason to believe 8 8 ----- 2.08  
5 many species of a genus 5 5 ----- 1.1500000000000001  
5 under this point of view 3 3 ----- 0.72  
5 let them be ever so 4 4 ----- 0.76  
5 all that we can see 3 3 ----- 0.57  
5 there is no difficulty in 3 3 ----- 0.75  
5 branched off from a common 5 5 ----- 1.3  
5 more closely related to each 7 7 ----- 1.9600000000000002  
5 which have long been inherited 3 3 ----- 0.8999999999999999  
5 they may differ from each 4 4 ----- 1  
5 as they may be called 4 4 ----- 0.84  
5 belonging to the same genus 4 4 ----- 1.08  
5 mountains in the united states 3 3 ----- 0.8999999999999999  
5 seen in the last chapter 3 3 ----- 0.72  
5 through variation and natural selection 8 8 ----- 3.12  
5 other species of the same 7 7 ----- 1.7500000000000002  
5 on the other hand we 4 4 ----- 0.8  
5 unknown differences in their reproductive 3 3 ----- 1.23  
5 may differ from each other 4 4 ----- 1.04  
5 descendants of any one species 3 3 ----- 0.8999999999999999  
5 conditions of life to which 3 3 ----- 0.8099999999999999  
5 effects of the increased use 6 6 ----- 1.68  
5 average duration of specific forms 3 3 ----- 1.02  
5 slight changes in the conditions 4 4 ----- 1.28  
5 several species of the same 4 4 ----- 1.08  
5 principle of inheritance at corresponding 3 3 ----- 1.23  
5 under changing conditions of life 7 7 ----- 2.31  
5 inherited from a common ancestor 3 3 ----- 0.96  
5 natural selection acts only by 3 3 ----- 0.8999999999999999  
5 each other by a less 3 3 ----- 0.6  
5 modified in the same manner 5 5 ----- 1.35  
5 members of the same groups 3 3 ----- 0.78  
5 not space here to enter 3 3 ----- 0.69  
5 many parts of the world 5 5 ----- 1.1500000000000001  
5 very early period of life 5 5 ----- 1.25  
5 on the view of each 3 3 ----- 0.57  
5 to say a few words 3 3 ----- 0.54  
5 have inherited something in common 3 3 ----- 1.02  
5 by occasional means of transport 3 3 ----- 0.96  
5 some unknown plan of creation 3 3 ----- 0.87  
5 something of the same kind 3 3 ----- 0.78

5 as far as i can 4 4 ----- 0.6  
5 to the sterility of hybrids 3 3 ----- 0.8099999999999999  
5 make due allowance for our 3 3 ----- 0.78  
5 rendered more or less sterile 3 3 ----- 0.87  
5 vary in the same manner 3 3 ----- 0.69  
5 sexes of the same species 5 5 ----- 1.25  
5 every part of the flower 3 3 ----- 0.72  
5 will not here enter on 3 3 ----- 0.6599999999999999  
5 very process of natural selection 3 3 ----- 0.99  
5 we have only to suppose 3 3 ----- 0.69  
5 geological succession of organic beings 3 3 ----- 1.17  
5 they could not have been 3 3 ----- 0.72  
5 may be said to be 5 5 ----- 0.8500000000000001  
5 species of a genus have 5 5 ----- 1.1500000000000001  
5 why do we not find 3 3 ----- 0.54  
5 species of the horse genus 4 4 ----- 1.04  
5 on the theory of independent 3 3 ----- 0.84  
5 where our oceans now extend 3 3 ----- 0.8099999999999999  
5 can hardly be a doubt 4 4 ----- 0.84  
5 to the theory of natural 8 8 ----- 1.92  
5 as far as we know 3 3 ----- 0.51  
5 all parts of the world 5 5 ----- 1.1  
5 links between the species which 3 3 ----- 0.9299999999999999  
5 have no right to expect 5 5 ----- 1.1500000000000001  
5 will have the best chance 3 3 ----- 0.75  
5 at a very early age 4 4 ----- 0.76  
5 species of the same class 3 3 ----- 0.75  
5 most important of all relations 3 3 ----- 0.9299999999999999  
5 to live on the land 3 3 ----- 0.57  
5 new places in the polity 3 3 ----- 0.72  
5 analogous facts could be given 6 6 ----- 1.7999999999999998  
5 on the other hand have 3 3 ----- 0.6599999999999999  
5 differences in their reproductive systems 3 3 ----- 1.23  
5 to struggle with each other 3 3 ----- 0.8099999999999999  
5 individuals of the same species 42 42 ----- 13.02  
5 as has been remarked by 3 3 ----- 0.69  
5 be ranked as distinct species 3 3 ----- 0.87  
5 relation of organism to organism 4 4 ----- 1.28  
5 reason to suppose that they 3 3 ----- 0.8099999999999999  
5 we can clearly understand why 3 3 ----- 0.87  
5 to those of the nearest 5 5 ----- 1.1500000000000001  
5 other parts of the world 4 4 ----- 0.96  
5 have migrated from some one 3 3 ----- 0.8099999999999999  
5 we have reason to believe 11 11 ----- 2.75  
5 from existing in greater numbers 3 3 ----- 0.96  
5 for the sake of protection 3 3 ----- 0.78  
5 placed on the same stigma 3 3 ----- 0.75  
5 extinction of the less improved 3 3 ----- 0.9299999999999999  
5 each other in the same 5 5 ----- 1.1  
5 reciprocal crosses between the same 5 5 ----- 1.75  
5 at which i have arrived 3 3 ----- 0.69  
5 first crosses and in hybrids 3 3 ----- 0.84  
5 as it may be called 3 3 ----- 0.57  
5 for the good of each 4 4 ----- 0.8  
5 will generally be most severe 3 3 ----- 0.87  
5 definite action of changed conditions 3 3 ----- 1.1099999999999999  
5 differs in the different species 3 3 ----- 0.96  
5 members of the same great 4 4 ----- 1  
5 supposed to have been produced 3 3 ----- 0.8999999999999999  
5 larger genera in each country 3 3 ----- 0.87  
5 been acquired through natural selection 3 3 ----- 1.17  
5 to inheritance from a common 5 5 ----- 1.4000000000000001  
5 animals which unite for each 5 5 ----- 1.4000000000000001

5 during the periods of elevation 3 3 ----- 0.9299999999999999  
5 could have been formed by 3 3 ----- 0.75  
5 both with animals and plants 3 3 ----- 0.84  
5 theory of descent with modification 10 10 ----- 3.5  
5 as we have seen in 4 4 ----- 0.72  
5 nowhere else in the world 3 3 ----- 0.75  
5 europe and the united states 4 4 ----- 1.12  
5 have been formed by natural 3 3 ----- 0.8099999999999999  
5 will have a better chance 3 3 ----- 0.75  
5 comparison with the same part 4 4 ----- 1.16  
5 species belonging to the larger 6 6 ----- 1.8599999999999999  
5 discussed in our chapter on 3 3 ----- 0.8099999999999999  
5 much extinction of the less 3 3 ----- 0.8099999999999999  
5 earlier or later in life 4 4 ----- 0.96  
5 degree intermediate in character between 4 4 ----- 1.6  
5 species are only strongly marked 3 3 ----- 0.96  
5 they differ from each other 3 3 ----- 0.8099999999999999  
5 separated from each other by 8 8 ----- 2.24  
5 for a very long period 4 4 ----- 0.88  
5 succession of the same types 5 5 ----- 1.4000000000000001  
5 would have the best chance 5 5 ----- 1.3  
5 have been produced under domestication 3 3 ----- 1.14  
5 to account for the incipient 3 3 ----- 0.84  
5 which are in any way 3 3 ----- 0.6  
5 species of the same group 9 9 ----- 2.25  
5 at a quicker rate than 4 4 ----- 0.88  
5 other species of the genus 4 4 ----- 1.04  
5 inevitably follows from the high 3 3 ----- 0.96  
5 for simple conditions of life 3 3 ----- 0.87  
5 inherited at a corresponding not 3 3 ----- 0.96  
5 crosses between the same two 5 5 ----- 1.4000000000000001  
5 to the conditions of life 5 5 ----- 1.25  
5 supposed to be descended from 3 3 ----- 0.87  
5 to go on increasing in 3 3 ----- 0.6599999999999999  
5 by inheritance from a common 3 3 ----- 0.84  
5 we ought not to expect 3 3 ----- 0.6599999999999999  
5 amount of difference between them 3 3 ----- 0.99  
5 into competition with each other 3 3 ----- 0.96  
5 from each other than do 3 3 ----- 0.69  
5 other in the same manner 3 3 ----- 0.72  
5 its organic and inorganic conditions 3 3 ----- 1.08  
5 at the cape of good 4 4 ----- 0.76  
5 on the theory of natural 9 9 ----- 2.16  
5 specific characters are more variable 4 4 ----- 1.48  
5 number of species in any 3 3 ----- 0.72  
5 from each other and from 6 6 ----- 1.44  
5 we may infer that this 3 3 ----- 0.6599999999999999  
5 direct action of external conditions 3 3 ----- 1.08  
5 on the view that species 3 3 ----- 0.72  
5 same parts of the organisation 3 3 ----- 0.8999999999999999  
5 climate and of the level 3 3 ----- 0.72  
5 space here to enter on 3 3 ----- 0.6599999999999999  
5 after long intervals of time 4 4 ----- 1.12  
5 first crosses and of hybrids 9 9 ----- 2.52  
5 this to be the case 3 3 ----- 0.57  
5 modification through variation and natural 5 5 ----- 2.1  
5 species of the larger genera 8 8 ----- 2.24  
5 as i am informed by 6 6 ----- 1.14  
5 on the other hand in 3 3 ----- 0.6  
5 same types within the same 4 4 ----- 1.04  
5 which case they would have 3 3 ----- 0.78  
5 sterility of species when first 4 4 ----- 1.24  
5 with the same part in 3 3 ----- 0.63

5 to be filled up by 3 3 ----- 0.54  
5 to mans power of selection 4 4 ----- 1.04  
5 by pollen from the same 3 3 ----- 0.69  
5 far as we can judge 9 9 ----- 1.71  
5 as far as we can 11 11 ----- 1.76  
6 than the species of the smaller 3 3 ----- 0.9299999999999999  
6 has played an important part in 3 3 ----- 0.9299999999999999  
6 ordinary view of each species having 3 3 ----- 1.08  
6 me to say a few words 3 3 ----- 0.63  
6 having been inherited at a corresponding 3 3 ----- 1.2  
6 remote in the scale of nature 4 4 ----- 1.16  
6 which never cut through the gums 3 3 ----- 0.96  
6 commencement of the last glacial period 3 3 ----- 1.17  
6 places in the polity of nature 4 4 ----- 1.2  
6 beings in a state of nature 4 4 ----- 1.08  
6 animals which unite for each birth 5 5 ----- 1.7000000000000002  
6 before the commencement of the glacial 3 3 ----- 1.14  
6 to its organic and inorganic conditions 3 3 ----- 1.17  
6 each species having been independently created 3 3 ----- 1.38  
6 than the forms which they connect 3 3 ----- 0.99  
6 to say a few words on 3 3 ----- 0.63  
6 between the species of the same 3 3 ----- 0.9299999999999999  
6 to the best of my judgment 3 3 ----- 0.78  
6 for the incipient stages of useful 3 3 ----- 1.02  
6 we have good reason to believe 3 3 ----- 0.8999999999999999  
6 organic and inorganic conditions of life 5 5 ----- 2  
6 rich in fossils beneath the cambrian 3 3 ----- 1.08  
6 individuals of the same species inhabiting 3 3 ----- 1.26  
6 all the individuals of the same 11 11 ----- 3.41  
6 there can hardly be a doubt 4 4 ----- 1.08  
6 by the theory of natural selection 3 3 ----- 1.02  
6 for the production of new species 3 3 ----- 0.99  
6 have the best chance of surviving 3 3 ----- 0.99  
6 place in the economy of nature 3 3 ----- 0.8999999999999999  
6 we should be extremely cautious in 3 3 ----- 1.02  
6 lay their eggs in other birds 3 3 ----- 0.87  
6 for the possession of the females 3 3 ----- 0.99  
6 their eggs in other birds nests 3 3 ----- 0.9299999999999999  
6 all the species of the same 9 9 ----- 2.4299999999999997  
6 at the cape of good hope 4 4 ----- 0.96  
6 be modified in the same manner 3 3 ----- 0.8999999999999999  
6 two sexes of the same species 5 5 ----- 1.4500000000000002  
6 islands to those of the nearest 3 3 ----- 0.9299999999999999  
6 distinct species belonging to the same 4 4 ----- 1.52  
6 to each other in the same 3 3 ----- 0.75  
6 species of the same genus have 3 3 ----- 0.8999999999999999  
6 as far as we can judge 9 9 ----- 1.98  
6 to inheritance from a common progenitor 4 4 ----- 1.56  
6 this is represented in the diagram 3 3 ----- 1.02  
6 number of species in any country 3 3 ----- 0.96  
6 crosses between the same two species 5 5 ----- 1.8  
6 at some period of its life 3 3 ----- 0.78  
6 during a long course of descent 3 3 ----- 0.9299999999999999  
6 specific characters are more variable than 4 4 ----- 1.68  
6 thus as it seems to me 3 3 ----- 0.6599999999999999  
6 all the species of a genus 3 3 ----- 0.78  
6 they may differ from each other 4 4 ----- 1.24  
6 succession of the forms of life 3 3 ----- 0.9299999999999999  
6 principle of inheritance at corresponding ages 3 3 ----- 1.38  
6 to the theory of natural selection 6 6 ----- 2.04  
6 modification through variation and natural selection 5 5 ----- 2.6  
6 have a better chance of surviving 3 3 ----- 0.99  
6 much they may differ from each 4 4 ----- 1.2

6 changes in the conditions of life 5 5 ----- 1.650000000000001  
6 more closely related to each other 7 7 ----- 2.380000000000003  
6 as i have attempted to show 4 4 ----- 1.08  
6 have been formed by natural selection 3 3 ----- 1.109999999999999  
6 species of the same genus inhabiting 3 3 ----- 1.08  
6 inherited at a corresponding not early 3 3 ----- 1.14  
6 have not space here to enter 3 3 ----- 0.84  
6 sterility of species when first crossed 4 4 ----- 1.56  
6 we have no right to expect 5 5 ----- 1.3  
6 low in the scale of nature 4 4 ----- 1.04  
6 inexplicable on the theory of independent 3 3 ----- 1.23  
6 objections to the theory of natural 4 4 ----- 1.400000000000001  
6 for the welfare of the species 3 3 ----- 0.899999999999999  
6 independently of the question of fertility 3 3 ----- 1.26  
6 species belonging to the same genera 3 3 ----- 1.08  
6 have been inherited from a common 5 5 ----- 1.650000000000001  
6 dominant species belonging to the larger 3 3 ----- 1.2  
6 to go on increasing in size 3 3 ----- 0.809999999999999  
6 several species of the same genus 4 4 ----- 1.32  
6 other species of the same genus 7 7 ----- 2.170000000000004  
6 some degree intermediate in character between 3 3 ----- 1.349999999999999  
6 said to struggle with each other 3 3 ----- 0.96  
6 ancient a form is the more 3 3 ----- 0.78  
6 inexplicable on the theory of creation 4 4 ----- 1.52  
6 there is no apparent reason why 3 3 ----- 0.929999999999999  
6 vigour and fertility to the offspring 3 3 ----- 1.109999999999999  
6 as we see in the case 3 3 ----- 0.63  
6 opposed to the theory of natural 3 3 ----- 0.96  
6 only at long intervals of time 3 3 ----- 0.899999999999999  
6 action of the conditions of life 3 3 ----- 0.96  
6 species belonging to the larger genera 4 4 ----- 1.52  
6 varieties in a state of nature 4 4 ----- 1.2  
6 favourable for the production of new 4 4 ----- 1.44  
6 to vary in the same manner 3 3 ----- 0.78  
6 view of each species having been 4 4 ----- 1.28  
6 within the limits of the same 6 6 ----- 1.74  
6 on unknown differences in their reproductive 3 3 ----- 1.319999999999998  
6 theory of natural selection we can 3 3 ----- 1.02  
6 from each other by a less 3 3 ----- 0.75  
6 species in a state of nature 8 8 ----- 2.24  
6 her eggs in other birds nests 3 3 ----- 0.87  
6 same types within the same areas 3 3 ----- 0.96  
6 for all that we can see 3 3 ----- 0.69  
6 places in the economy of nature 5 5 ----- 1.55  
6 reciprocal crosses between the same two 5 5 ----- 1.950000000000002  
6 forms of life throughout the world 3 3 ----- 1.02  
6 view that species are only strongly 3 3 ----- 1.05  
6 at a corresponding not early period 3 3 ----- 1.05  
6 where many species of a genus 4 4 ----- 1.16  
6 to account for the incipient stages 3 3 ----- 1.05  
6 each other in the same manner 3 3 ----- 0.87  
6 succession of the same types within 4 4 ----- 1.400000000000001  
6 on the theory of natural selection 9 9 ----- 3.06  
6 many species of a genus have 4 4 ----- 1.12  
6 as i am informed by mr 3 3 ----- 0.659999999999999  
6 may differ from each other in 3 3 ----- 0.87  
6 increased use or disuse of parts 5 5 ----- 1.6  
6 fitted for simple conditions of life 3 3 ----- 1.08  
6 comparison with the same part in 3 3 ----- 0.96  
6 manner in comparison with the same 3 3 ----- 1.02  
6 for browsing on the higher branches 3 3 ----- 1.05  
6 characters are more variable than generic 4 4 ----- 1.640000000000001  
6 closely related to each other than 5 5 ----- 1.700000000000002

6 for the good of each being 3 3 ----- 0.78  
 6 however much they may differ from 4 4 ----- 1.32  
 6 each species has been independently created 3 3 ----- 1.29  
 6 with which it comes into competition 5 5 ----- 1.8  
 6 not space here to enter on 3 3 ----- 0.78  
 6 under the same conditions of life 3 3 ----- 0.99  
 6 to each other and to living 3 3 ----- 0.8099999999999999  
 6 all the members of the same 3 3 ----- 0.8099999999999999  
 6 unknown differences in their reproductive systems 3 3 ----- 1.47  
 6 on the face of the earth 4 4 ----- 0.96  
 6 species belonging to the same genus 4 4 ----- 1.4000000000000001  
 6 we have every reason to believe 5 5 ----- 1.55  
 6 branched off from a common progenitor 4 4 ----- 1.48  
 6 increased use and disuse of parts 3 3 ----- 0.99  
 6 much extinction of the less improved 3 3 ----- 1.08  
 6 species of a genus have been 5 5 ----- 1.4000000000000001  
 6 come into competition with each other 3 3 ----- 1.1099999999999999

----- Emergent Longitudinally Stable Concept Fragments -----

Particular theme/topic "assistance = 0.300000"  
 Particular theme/topic "scotch fir = 0.300000"  
 Particular theme/topic "tarsi = 0.300000"  
 Particular theme/topic "best known = 0.300000"  
 Particular theme/topic "marked for = 0.300000"  
 Particular theme/topic "references = 0.300000"  
 Particular theme/topic "ensure = 0.300000"  
 Particular theme/topic "improved by = 0.330000"  
 Particular theme/topic "years there = 0.330000"  
 Particular theme/topic "theoretical = 0.330000"  
 Particular theme/topic "fancier = 0.350000"  
 Particular theme/topic "to rank them = 0.360000"  
 Particular theme/topic "valued = 0.360000"  
 Particular theme/topic "published on = 0.360000"  
 Particular theme/topic "mistletoe = 0.360000"  
 Particular theme/topic "tables = 0.360000"  
 Particular theme/topic "anciently = 0.360000"  
 Particular theme/topic "term variety = 0.360000"  
 Particular theme/topic "valued by = 0.360000"  
 Particular theme/topic "been enclosed = 0.390000"  
 Particular theme/topic "among animals = 0.390000"  
 Particular theme/topic "ranked by one = 0.390000"  
 Particular theme/topic "breeders have = 0.390000"  
 Particular theme/topic "which present = 0.390000"  
 Particular theme/topic "this abstract = 0.390000"  
 Particular theme/topic "marked for me = 0.390000"  
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 Particular theme/topic "wild state = 0.400000"  
 Particular theme/topic "parasite = 0.400000"  
 Particular theme/topic "bloodhound = 0.400000"  
 Particular theme/topic "amount of food = 0.420000"  
 Particular theme/topic "seven or eight = 0.420000"  
 Particular theme/topic "variable forms = 0.420000"  
 Particular theme/topic "some competent = 0.420000"  
 Particular theme/topic "many treatises = 0.420000"  
 Particular theme/topic "when we travel = 0.420000"  
 Particular theme/topic "rock-pigeon in = 0.420000"  
 Particular theme/topic "cannot here = 0.440000"  
 Particular theme/topic "monstrosity = 0.440000"  
 Particular theme/topic "allied to other = 0.450000"  
 Particular theme/topic "to be explained = 0.450000"  
 Particular theme/topic "genera resemble = 0.450000"  
 Particular theme/topic "to the domestic = 0.450000"



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 Particular theme/topic "carried from = 0.480000"  
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 Particular theme/topic "applies = 0.490000"  
 Particular theme/topic "to mans = 0.490000"  
 Particular theme/topic "heartsease = 0.500000"  
 Particular theme/topic "be allowed = 0.500000"  
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 Particular theme/topic "years there would = 0.510000"  
 Particular theme/topic "species but which = 0.510000"  
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 Particular theme/topic "striving = 0.560000"  
 Particular theme/topic "species and by = 0.560000"  
 Particular theme/topic "shoulder = 0.560000"  
 Particular theme/topic "called species = 0.560000"  
 Particular theme/topic "varieties but which = 0.570000"  
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 Particular theme/topic "to struggle with each = 0.630000"  
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 Particular theme/topic "some period = 0.770000"  
 Particular theme/topic "from flower = 0.770000"  
 Particular theme/topic "said to struggle with each = 0.780000"  
 Particular theme/topic "destruction at some period = 0.780000"  
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Particular theme/topic "for we = 1.260000"  
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Particular theme/topic "tends = 1.300000"  
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Particular theme/topic "had not = 1.400000"  
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Particular theme/topic "nests = 1.400000"  
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Particular theme/topic "gained = 1.440000"  
Particular theme/topic "for in = 1.440000"  
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Particular theme/topic "madeira = 1.470000"  
Particular theme/topic "at this = 1.470000"  
Particular theme/topic "at once = 1.470000"  
Particular theme/topic "see how = 1.470000"  
Particular theme/topic "only by = 1.470000"  
Particular theme/topic "arrived = 1.470000"  
Particular theme/topic "from flower to flower = 1.470000"  
Particular theme/topic "answer = 1.500000"  
Particular theme/topic "struck = 1.500000"  
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Particular theme/topic "purposes = 1.520000"  
Particular theme/topic "vary in = 1.540000"  
Particular theme/topic "absence = 1.540000"  
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Particular theme/topic "britain = 1.540000"  
Particular theme/topic "to them = 1.540000"  
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 Particular theme/topic "making = 1.620000"  
 Particular theme/topic "mivart = 1.620000"  
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 Particular theme/topic "by this = 1.680000"  
 Particular theme/topic "migrated = 1.680000"  
 Particular theme/topic "doctrine = 1.680000"  
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 Particular theme/topic "insisted = 1.680000"  
 Particular theme/topic "for this = 1.680000"  
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 Particular theme/topic "candolle = 1.680000"  
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 Particular theme/topic "be able = 1.750000"  
 Particular theme/topic "economy = 1.750000"  
 Particular theme/topic "as soon = 1.750000"  
 Particular theme/topic "deposits = 1.760000"  
 Particular theme/topic "hence we = 1.760000"  
 Particular theme/topic "to struggle = 1.760000"  
 Particular theme/topic "be shown = 1.760000"  
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 Particular theme/topic "this will = 1.800000"

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 Particular theme/topic "perfected = 1.890000"  
 Particular theme/topic "be ranked = 1.890000"  
 Particular theme/topic "with each = 1.890000"  
 Particular theme/topic "to vary = 1.890000"  
 Particular theme/topic "results = 1.890000"  
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 Particular theme/topic "physical conditions of life = 1.890000"  
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 Particular theme/topic "presence = 1.920000"  
 Particular theme/topic "other plants = 1.920000"  
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 Particular theme/topic "believes = 1.920000"  
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 Particular theme/topic "produced from = 1.950000"  
 Particular theme/topic "so it = 1.950000"  
 Particular theme/topic "brought = 1.960000"  
 Particular theme/topic "indeed = 1.980000"  
 Particular theme/topic "ranked by = 1.980000"  
 Particular theme/topic "districts = 1.980000"  
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 Particular theme/topic "collected = 1.980000"  
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 Particular theme/topic "we do = 2.000000"  
 Particular theme/topic "space = 2.000000"  
 Particular theme/topic "an early = 2.000000"  
 Particular theme/topic "cultivated = 2.000000"  
 Particular theme/topic "quadrupeds = 2.000000"  
 Particular theme/topic "follows = 2.030000"  
 Particular theme/topic "exactly = 2.030000"  
 Particular theme/topic "carried = 2.030000"  
 Particular theme/topic "only in = 2.030000"  
 Particular theme/topic "capable = 2.030000"  
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 Particular theme/topic "steps = 2.050000"  
 Particular theme/topic "direction = 2.070000"  
 Particular theme/topic "undergone = 2.070000"  
 Particular theme/topic "subjected = 2.070000"

Particular theme/topic "into play = 2.070000"  
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Particular theme/topic "have had = 2.080000"  
Particular theme/topic "selected = 2.080000"  
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Particular theme/topic "number of individuals = 2.100000"  
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Particular theme/topic "to make = 2.100000"  
Particular theme/topic "to produce = 2.100000"  
Particular theme/topic "from these = 2.100000"  
Particular theme/topic "than those = 2.100000"  
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Particular theme/topic "well-marked = 2.640000"



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The fragments and longitudinal invariants give some idea of the content, only if one is associated with the terminology. If we sample at a lower threshold of mistrust, we get a much richer selection of the meaning. Darwin at 40 percent

```
*****
** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 40 / 100
*****
>> (Rank leg untrustworthiness (anomalous interest) 0 = 0.01625008590389067 )
>> (Rank leg untrustworthiness (anomalous interest) 1 = 0.04102958383850909 )
>> (Rank leg untrustworthiness (anomalous interest) 2 = 0.0761350552762661 )
>> (Rank leg untrustworthiness (anomalous interest) 3 = 0.0894321514921367 )
>> (Rank leg untrustworthiness (anomalous interest) 4 = 0.0999159013771662 )
>> (Rank leg untrustworthiness (anomalous interest) 5 = 0.1469979197274085 )
>> (Rank leg untrustworthiness (anomalous interest) 6 = 0.18391345077193502 )
>> (Rank leg untrustworthiness (anomalous interest) 7 = 0.23565925773396243 )
>> (Rank leg untrustworthiness (anomalous interest) 8 = 0.3391415600620024 )
>> (Rank leg untrustworthiness (anomalous interest) 9 = 0.3001325670172733 )
>> (Rank leg untrustworthiness (anomalous interest) 10 = 0.22296784836568725 )
>> (Rank leg untrustworthiness (anomalous interest) 11 = 0.2849819095330087 )
>> (Rank leg untrustworthiness (anomalous interest) 12 = 0.27774163646812117 )
>> (Rank leg untrustworthiness (anomalous interest) 13 = 0.2733550839525187 )
>> (Rank leg untrustworthiness (anomalous interest) 14 = 0.2944394231979654 )
>> (Rank leg untrustworthiness (anomalous interest) 15 = 0.39403257990629303 )
>> (Rank leg untrustworthiness (anomalous interest) 16 = 0.4459624669455781 )
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EVENT[Leg 16 selects 1638]: Slow though the process of selection may be, if feeble man can do much by artificial selection, I can see no limit to the amount of change, to the beauty and complexity of the coadaptations between all organic beings, one with another and with their physical conditions of life, which may have been effected in

the long course of time through nature's power of selection, that is by the survival of the fittest.

EVENT[Leg 16 selects 1695]: Hence, if any one species of grass were to go on varying, and the varieties were continually selected which differed from each other in the same manner, though in a very slight degree, as do the distinct species and genera of grasses, a greater number of individual plants of this species, including its modified descendants, would succeed in living on the same piece of ground.

EVENT[Leg 16 selects 1702]: For instance, I found that a piece of turf, three feet by four in size, which had been exposed for many years to exactly the same conditions, supported twenty species of plants, and these belonged to eighteen genera and to eight orders, which shows how much these plants differed from each other. >> (Rank leg untrustworthiness (anomalous interest) 17 = 0.5155541801401003 )

EVENT[Leg 17 selects 1790]: hence in the diagram I have chosen the extreme species A, and the nearly extreme species I, as those which have largely varied, and have given rise to new varieties and species.

EVENT[Leg 17 selects 1794]: As in each fully stocked country natural selection necessarily acts by the selected form having some advantage in the struggle for life over other forms, there will be a constant tendency in the improved descendants of any one species to supplant and exterminate in each stage of descent their predecessors and their original progenitor.

EVENT[Leg 17 selects 1812]: Owing to the divergent tendency of natural selection, the extreme amount of difference in character between species a and z will be much greater than that between the most distinct of the original eleven species.

>> (Rank leg untrustworthiness (anomalous interest) 18 = 0.434657045745307 )

EVENT[Leg 18 selects 1841]: We have seen that in each country it is the species belonging to the larger genera which oftenest present varieties or incipient species.

EVENT[Leg 18 selects 1874]: On the other hand, we can see, bearing in mind that all organic beings are striving to increase at a high ratio and to seize on every unoccupied or less well occupied place in the economy of nature, that it is quite possible for natural selection gradually to fit a being to a situation in which several organs would be superfluous or useless.

EVENT[Leg 18 selects 1918]: If two species belonging to two distinct though allied genera, had both produced a large number of new and divergent forms, it is conceivable that these might approach each other so closely that they would have all to be classed under the same genus.

>> (Rank leg untrustworthiness (anomalous interest) 19 = 0.5172752987391738 )

EVENT[Leg 19 selects 1922]: but with organic beings we should bear in mind that the form of each depends on an infinitude of complex relations, namely on the variations which have arisen, these being due to causes far too intricate to be followed out--on the nature of the variations which have been preserved or selected, and this depends on the surrounding physical conditions, and in a still higher degree on the surrounding organisms with which each being has come into competition--and lastly, on inheritance in itself a fluctuating

element from innumerable progenitors, all of which have had their forms determined through equally complex relations.

EVENT[Leg 19 selects 1977]: It is a truly wonderful fact--the wonder of which we are apt to overlook from familiarity--that all animals and all plants throughout all time and space should be related to each other in groups, subordinate to groups, in the manner which we everywhere behold--namely, varieties of the same species most closely related, species of the same genus less closely and unequally related, forming sections and sub-genera, species of distinct genera much less closely related, and genera related in different degrees, forming sub-families, families, orders, sub-classes, and classes.

EVENT[Leg 19 selects 2003]: But the fact of variations and monstrosities occurring much more frequently under domestication than under nature, and the greater variability of species having wide ranges than of those with restricted ranges, lead to the conclusion that variability is generally related to the conditions of life to which each species has been exposed during several successive generations.

>> (Rank leg untrustworthiness (anomalous interest) 20 = 0.3647533978992006 )  
>> (Rank leg untrustworthiness (anomalous interest) 21 = 0.3618648928037644 )  
>> (Rank leg untrustworthiness (anomalous interest) 22 = 0.4791636796396733 )

EVENT[Leg 22 selects 2278]: and the amount of variation in the individuals of the same species is so great that it is no exaggeration to state that the varieties of the same species differ more from each other in the characters derived from these important organs, than do the species belonging to other distinct genera.

EVENT[Leg 22 selects 2301]: When a part has been developed in an extraordinary manner in any one species, compared with the other species of the same genus, we may conclude that this part has undergone an extraordinary amount of modification since the period when the several species branched off from the common progenitor of the genus.

EVENT[Leg 22 selects 2322]: but with respect to important characters, I have repeatedly noticed in works on natural history, that when an author remarks with surprise that some important organ or part, which is generally very constant throughout a large group of species, DIFFERS considerably in closely-allied species, it is often VARIABLE in the individuals of the same species.

>> (Rank leg untrustworthiness (anomalous interest) 23 = 0.6526750644184638 )

EVENT[Leg 23 selects 2328]: On the ordinary view of each species having been independently created, why should that part of the structure, which differs from the same part in other independently created species of the same genus, be more variable than those parts which are closely alike in the several species?

EVENT[Leg 23 selects 2363]: All being mainly due to the species of the same group being the descendants of a common progenitor, from whom they have inherited much in common, to parts which have recently and largely varied being more likely still to go on varying than parts which have long been inherited and have not varied, to natural selection having more or less completely, according to the lapse of time, overmastered the tendency to reversion and to further variability, to sexual selection being less rigid than ordinary selection, and to variations in the same parts having been accumulated by natural and sexual selection, and thus having been



adapted for secondary sexual, and for ordinary purposes.

EVENT[Leg 23 selects 2391]: so that the varieties of two or more species would resemble each other, or that a variety of one species would resemble in certain characters another and distinct species, this other species being, according to our view, only a well-marked and permanent variety.

>> (Rank leg untrustworthiness (anomalous interest) 24 = 0.42712679250536584 )

EVENT[Leg 24 selects 2480]: He who believes that each equine species was independently created, will, I presume, assert that each species has been created with a tendency to vary, both under nature and under domestication, in this particular manner, so as often to become striped like the other species of the genus.

EVENT[Leg 24 selects 2488]: But whenever we have the means of instituting a comparison, the same laws appear to have acted in producing the lesser differences between varieties of the same species, and the greater differences between species of the same genus.

EVENT[Leg 24 selects 2501]: Specific characters--that is, the characters which have come to differ since the several species of the same genus branched off from a common parent--are more variable than generic characters, or those which have long been inherited, and have not differed within this same period.

>> (Rank leg untrustworthiness (anomalous interest) 25 = 0.5797215516734137 )

EVENT[Leg 25 selects 2568]: in short, that each organic being is either directly or indirectly related in the most important manner to other organic beings--we see that the range of the inhabitants of any country by no means exclusively depends on insensibly changing physical conditions, but in large part on the presence of other species, on which it lives, or by which it is destroyed, or with which it comes into competition.

EVENT[Leg 25 selects 2586]: But it is a far more important consideration, that during the process of further modification, by which two varieties are supposed to be converted and perfected into two distinct species, the two which exist in larger numbers, from inhabiting larger areas, will have a great advantage over the intermediate variety, which exists in smaller numbers in a narrow and intermediate zone.

EVENT[Leg 25 selects 2603]: In this case, intermediate varieties between the several representative species and their common parent, must formerly have existed within each isolated portion of the land, but these links during the process of natural selection will have been supplanted and exterminated, so that they will no longer be found in a living state.

>> (Rank leg untrustworthiness (anomalous interest) 26 = 0.4091508147889891 )

EVENT[Leg 26 selects 2631]: Therefore, I can see no difficulty, more especially under changing conditions of life, in the continued preservation of individuals with fuller and fuller flank-membranes, each modification being useful, each being propagated, until, by the accumulated effects of this process of natural selection, a perfect so-called flying squirrel was produced.

EVENT[Leg 26 selects 2651]: When we see any structure highly

perfected for any particular habit, as the wings of a bird for flight, we should bear in mind that animals displaying early transitional grades of the structure will seldom have survived to the present day, for they will have been supplanted by their successors, which were gradually rendered more perfect through natural selection.

EVENT[Leg 26 selects 2667]: As we sometimes see individuals following habits different from those proper to their species and to the other species of the same genus, we might expect that such individuals would occasionally give rise to new species, having anomalous habits, and with their structure either slightly or considerably modified from that of their type.

>> (Rank leg untrustworthiness (anomalous interest) 27 = 0.39062856540824314 )  
>> (Rank leg untrustworthiness (anomalous interest) 28 = 0.4546556400200886 )

EVENT[Leg 28 selects 2864]: As two men have sometimes independently hit on the same invention, so in the several foregoing cases it appears that natural selection, working for the good of each being, and taking advantage of all favourable variations, has produced similar organs, as far as function is concerned, in distinct organic beings, which owe none of their structure in common to inheritance from a common progenitor.

EVENT[Leg 28 selects 2867]: In two of these families, which were more especially examined by Muller, and which are nearly related to each other, the species agree most closely in all important characters.

EVENT[Leg 28 selects 2928]: The answer no doubt is, as already remarked, that when two forms vary, which already differ from each other in some slight degree, the variability will not be of the same exact nature, and consequently the results obtained through natural selection for the same general purpose will not be the same.

>> (Rank leg untrustworthiness (anomalous interest) 29 = 0.468382288691135 )

EVENT[Leg 29 selects 2966]: but as we see nearly similar hooks on many trees which are not climbers, and which, as there is reason to believe from the distribution of the thorn-bearing species in Africa and South America, serve as a defence against browsing quadrupeds, so the spikes on the palm may at first have been developed for this object, and subsequently have been improved and taken advantage of by the plant, as it underwent further modification and became a climber.

EVENT[Leg 29 selects 2974]: Animals kept by savages in different countries often have to struggle for their own subsistence, and are exposed to a certain extent to natural selection, and individuals with slightly different constitutions would succeed best under different climates.

EVENT[Leg 29 selects 2987]: and I have made these remarks only to show that, if we are unable to account for the characteristic differences of our several domestic breeds, which nevertheless are generally admitted to have arisen through ordinary generation from one or a few parent-stocks, we ought not to lay too much stress on our ignorance of the precise cause of the slight analogous differences between true species.

>> (Rank leg untrustworthiness (anomalous interest) 30 = 0.654585304392856 )

EVENT[Leg 30 selects 3037]: If it could be proved that any part of the structure of any one species had been formed for the exclusive good of another species, it would annihilate my theory, for such

could not have been produced through natural selection.

EVENT[Leg 30 selects 3094]: In many cases we are far too ignorant to be enabled to assert that a part or organ is so unimportant for the welfare of a species, that modifications in its structure could not have been slowly accumulated by means of natural selection.

EVENT[Leg 30 selects 3119]: Longevity--Modifications not necessarily simultaneous--Modifications apparently of no direct service--Progressive development--Characters of small functional importance, the most constant--Supposed incompetence of natural selection to account for the incipient stages of useful structures--Causes which interfere with the acquisition through natural selection of useful structures--Gradations of structure with changed functions--Widely different organs in members of the same class, developed from one and the same source--Reasons for disbelieving in great and abrupt modifications.

>> (Rank leg untrustworthiness (anomalous interest) 31 = 0.6028582879565252 )

EVENT[Leg 31 selects 3142]: The fact of little or no modification having been effected since the glacial period, would have been of some avail against those who believe in an innate and necessary law of development, but is powerless against the doctrine of natural selection or the survival of the fittest, which implies that when variations or individual differences of a beneficial nature happen to arise, these will be preserved.

EVENT[Leg 31 selects 3163]: He admits that natural selection has effected much, but he insists that the families of plants differ chiefly from each other in morphological characters, which appear to be quite unimportant for the welfare of the species.

EVENT[Leg 31 selects 3228]: In numerous other cases we find modifications of structure, which are considered by botanists to be generally of a highly important nature, affecting only some of the flowers on the same plant, or occurring on distinct plants, which grow close together under the same conditions.

>> (Rank leg untrustworthiness (anomalous interest) 32 = 0.4989665465822806 )

EVENT[Leg 32 selects 3259]: From the fact of the above characters being unimportant for the welfare of the species, any slight variations which occurred in them would not have been accumulated and augmented through natural selection.

EVENT[Leg 32 selects 3262]: But when, from the nature of the organism and of the conditions, modifications have been induced which are unimportant for the welfare of the species, they may be, and apparently often have been, transmitted in nearly the same state to numerous, otherwise modified, descendants.

EVENT[Leg 32 selects 3267]: , first appeared in many cases as fluctuating variations, which sooner or later became constant through the nature of the organism and of the surrounding conditions, as well as through the intercrossing of distinct individuals, but not through natural selection.

>> (Rank leg untrustworthiness (anomalous interest) 33 = 0.46050199825244387 )

EVENT[Leg 33 selects 3346]: Even if the fitting variations did arise, it does not follow that natural selection would be able to act on them and produce a structure which apparently would be beneficial to

the species.

EVENT[Leg 33 selects 3352]: In each case various causes, besides the general ones just indicated, have probably interfered with the acquisition through natural selection of structures, which it is thought would be beneficial to certain species.

EVENT[Leg 33 selects 3404]: for in every group the characters which differ in the several species are the most apt to vary, while the generic characters, or those common to all the species, are the most constant.

>> (Rank leg untrustworthiness (anomalous interest) 34 = 0.38391906562672523 )  
>> (Rank leg untrustworthiness (anomalous interest) 35 = 0.3111848708493786 )  
>> (Rank leg untrustworthiness (anomalous interest) 36 = 0.5129289635712659 )

EVENT[Leg 36 selects 3680]: From this simple condition, which differs but little from that of a multitude of common flowers, there are endless gradations--to species in which the pollen-mass terminates in a very short, free caudicle--to others in which the caudicle becomes firmly attached to the viscid matter, with the sterile stigma itself much modified.

EVENT[Leg 36 selects 3707]: Nevertheless we can see that if the stems of these plants had been flexible, and if under the conditions to which they are exposed it had profited them to ascend to a height, then the habit of slightly and irregularly revolving might have been increased and utilised through natural selection, until they had become converted into well-developed twining species.

EVENT[Leg 36 selects 3736]: With the many insects which imitate various objects, there is no improbability in the belief that an accidental resemblance to some common object was in each case the foundation for the work of natural selection, since perfected through the occasional preservation of slight variations which made the resemblance at all closer.

>> (Rank leg untrustworthiness (anomalous interest) 37 = 0.740931702456893 )

EVENT[Leg 37 selects 3755]: Many species must have been prevented from increasing in numbers through destructive agencies, which stood in no relation to certain structures, which we imagine would have been gained through natural selection from appearing to us advantageous to the species.

EVENT[Leg 37 selects 3759]: The belief that any given structure, which we think, often erroneously, would have been beneficial to a species, would have been gained under all circumstances through natural selection, is opposed to what we can understand of its manner of action.

EVENT[Leg 37 selects 3770]: but there is no need, as it seems to me, to invoke any internal force beyond the tendency to ordinary variability, which through the aid of selection, by man has given rise to many well-adapted domestic races, and which, through the aid of natural selection, would equally well give rise by graduated steps to natural races or species. >> (Rank leg untrustworthiness (anomalous interest) 38 = 0.4626522665668683 )

EVENT[Leg 38 selects 3894]: Although there is no evidence that any animal performs an action for the exclusive good of another species, yet each tries to take advantage of the instincts of others, as each takes advantage of the weaker bodily structure of other species.

EVENT[Leg 38 selects 3897]: As some degree of variation in instincts under a state of nature, and the inheritance of such variations, are indispensable for the action of natural selection, as many instances as possible ought to be given.

EVENT[Leg 38 selects 3915]: Several cases could also be adduced of occasional and strange habits in wild animals, which, if advantageous to the species, might have given rise, through natural selection, to new instincts.

>> (Rank leg untrustworthiness (anomalous interest) 39 = 0.47367338431761097 )

EVENT[Leg 39 selects 3971]: Hence, we may conclude that under domestication instincts have been acquired and natural instincts have been lost, partly by habit and partly by man selecting and accumulating, during successive generations, peculiar mental habits and actions, which at first appeared from what we must in our ignorance call an accident.

EVENT[Leg 39 selects 3995]: And analogy would lead us to believe that the young thus reared would be apt to follow by inheritance the occasional and aberrant habit of their mother, and in their turn would be apt to lay their eggs in other birds nests, and thus be more successful in rearing their young.

EVENT[Leg 39 selects 4013]: Now, if it had been of an advantage to this species to have laid eggs even smaller than those now laid, so as to have deceived certain foster-parents, or, as is more probable, to have been hatched within a shorter period for it is asserted that there is a relation between the size of eggs and the period of their incubation, then there is no difficulty in believing that a race or species might have been formed which would have laid smaller and smaller eggs.

>> (Rank leg untrustworthiness (anomalous interest) 40 = 0.304520844538779 )  
>> (Rank leg untrustworthiness (anomalous interest) 41 = 0.3570760007363147 )  
>> (Rank leg untrustworthiness (anomalous interest) 42 = 0.5756736075194397 )

EVENT[Leg 42 selects 4313]: Now what special difficulty would there be in natural selection preserving all the slight individual variations in the shape of the beak, which were better and better adapted to break open the seeds, until a beak was formed, as well constructed for this purpose as that of the nuthatch, at the same time that habit, or compulsion, or spontaneous variations of taste, led the bird to become more and more of a seed-eater?

EVENT[Leg 42 selects 4321]: Is it then very improbable that the natural selection of individual swifts, which secreted more and more saliva, should at last produce a species with instincts leading it to neglect other materials and to make its nest exclusively of inspissated saliva?

EVENT[Leg 42 selects 4327]: cases of instincts almost identically the same in animals so remote in the scale of nature that we cannot account for their similarity by inheritance from a common progenitor, and consequently must believe that they were independently acquired through natural selection.

>> (Rank leg untrustworthiness (anomalous interest) 43 = 0.6223250663035115 )

EVENT[Leg 43 selects 4372]: In the simpler case of neuter insects all of one caste, which, as I believe, have been rendered different from

the fertile males and females through natural selection, we may conclude from the analogy of ordinary variations, that the successive, slight, profitable modifications did not first arise in all the neuters in the same nest, but in some few alone.

EVENT[Leg 43 selects 4406]: With these facts before me, I believe that natural selection, by acting on the fertile ants or parents, could form a species which should regularly produce neuters, all of large size with one form of jaw, or all of small size with widely different jaws.

EVENT[Leg 43 selects 4425]: Therefore, there is no real difficulty, under changing conditions of life, in natural selection accumulating to any extent slight modifications of instinct which are in any way useful.

>> (Rank leg untrustworthiness (anomalous interest) 44 = 0.6066842929482157 )

EVENT[Leg 44 selects 4469]: for Gartner gives in his table about a score of cases of plants which he castrated, and artificially fertilised with their own pollen, and excluding all cases such as the Leguminosae, in which there is an acknowledged difficulty in the manipulation half of these twenty plants had their fertility in some degree impaired.

EVENT[Leg 44 selects 4501]: This case of the *Crinum* leads me to refer to a singular fact, namely, that individual plants of certain species of *Lobelia*, *Verbascum* and *Passiflora*, can easily be fertilised by the pollen from a distinct species, but not by pollen from the same plant, though this pollen can be proved to be perfectly sound by fertilising other plants or species.

EVENT[Leg 44 selects 4504]: So that with some species, certain abnormal individuals, and in other species all the individuals, can actually be hybridised much more readily than they can be fertilised by pollen from the same individual plant! >> (Rank leg untrustworthiness (anomalous interest) 45 = 0.7936207626130036 )

EVENT[Leg 45 selects 4598]: *acuminata*, which is not a particularly distinct species, obstinately failed to fertilise, or to be fertilised, by no less than eight other species of *Nicotiana*.

EVENT[Leg 45 selects 4628]: Considering the several rules now given, which govern the fertility of first crosses and of hybrids, we see that when forms, which must be considered as good and distinct species, are united, their fertility graduates from zero to perfect fertility, or even to fertility under certain conditions in excess.

EVENT[Leg 45 selects 4633]: This latter statement is clearly proved by the difference in the result of reciprocal crosses between the same two species, for, according as the one species or the other is used as the father or the mother, there is generally some difference, and occasionally the widest possible difference, in the facility of effecting an union. >> (Rank leg untrustworthiness (anomalous interest) 46 = 1.041858313815048 )

EVENT[Leg 46 selects 4685]: But he who will take the trouble to reflect on the steps by which this first degree of sterility could be increased through natural selection to that high degree which is common with so many species, and which is universal with species which have been differentiated to a generic or family rank, will find the subject extraordinarily complex.

EVENT[Leg 46 selects 4690]: With sterile neuter insects we have reason to believe that modifications in their structure and fertility have been slowly accumulated by natural selection, from an advantage having been thus indirectly given to the community to which they belonged over other communities of the same species.

EVENT[Leg 46 selects 4694]: Both Gartner and Kolreuter have proved that in genera including numerous species, a series can be formed from species which when crossed yield fewer and fewer seeds, to species which never produce a single seed, but yet are affected by the pollen of certain other species, for the germen swells.

>> (Rank leg untrustworthiness (anomalous interest) 47 = 0.9775540697855885 )

EVENT[Leg 47 selects 4762]: Hence it seems that, on the one hand, slight changes in the conditions of life benefit all organic beings, and on the other hand, that slight crosses, that is, crosses between the males and females of the same species, which have been subjected to slightly different conditions, or which have slightly varied, give vigour and fertility to the offspring.

EVENT[Leg 47 selects 4767]: He will at the same time be able to explain how it is that the races of some of our domesticated animals, which have often been subjected to new and not uniform conditions, are quite fertile together, although they are descended from distinct species, which would probably have been sterile if aboriginally crossed.

EVENT[Leg 47 selects 4845]: With plants, so far is cultivation from giving a tendency towards sterility between distinct species, that in several well-authenticated cases already alluded to, certain plants have been affected in an opposite manner, for they have become self-impotent, while still retaining the capacity of fertilising, and being fertilised by, other species.

>> (Rank leg untrustworthiness (anomalous interest) 48 = 0.9975484919475648 )

EVENT[Leg 48 selects 4857]: Domesticated productions, on the other hand, which, as shown by the mere fact of their domestication, were not originally highly sensitive to changes in their conditions of life, and which can now generally resist with undiminished fertility repeated changes of conditions, might be expected to produce varieties, which would be little liable to have their reproductive powers injuriously affected by the act of crossing with other varieties which had originated in a like manner.

EVENT[Leg 48 selects 4876]: Moreover, he asserts that, when yellow and white varieties of one species are crossed with yellow and white varieties of a DISTINCT species, more seed is produced by the crosses between the similarly coloured flowers, than between those which are differently coloured.

EVENT[Leg 48 selects 4939]: A tendency to sudden reversions to the perfect character of either parent would, also, be much more likely to occur with mongrels, which are descended from varieties often suddenly produced and semi-monstrous in character, than with hybrids, which are descended from species slowly and naturally produced.

>> (Rank leg untrustworthiness (anomalous interest) 49 = 0.8822034489491993 )

EVENT[Leg 49 selects 4952]: In the same manner as in grafting trees, the capacity in one species or variety to take on another, is incidental on differences, generally of an unknown nature, in their

vegetative systems, so in crossing, the greater or less facility of one species to unite with another is incidental on unknown differences in their reproductive systems.

EVENT[Leg 49 selects 4976]: Finally, then, although we are as ignorant of the precise cause of the sterility of first crosses and of hybrids as we are why animals and plants removed from their natural conditions become sterile, yet the facts given in this chapter do not seem to me opposed to the belief that species aboriginally existed as varieties.

EVENT[Leg 49 selects 5016]: By the theory of natural selection all living species have been connected with the parent-species of each genus, by differences not greater than we see between the natural and domestic varieties of the same species at the present day. >> (Rank leg untrustworthiness (anomalous interest) 50 = 0.5426629915654225 )

EVENT[Leg 50 selects 5087]: It is not to be supposed that species in a state of nature ever change so quickly as domestic animals under the guidance of methodical selection.

EVENT[Leg 50 selects 5092]: Moreover, variations or individual differences of the right nature, by which some of the inhabitants might be better fitted to their new places under the altered circumstance, would not always occur at once.

EVENT[Leg 50 selects 5108]: they are all strictly littoral, with the exception of a single Mediterranean species, which inhabits deep water and this has been found fossil in Sicily, whereas not one other species has hitherto been found in any tertiary formation. >> (Rank leg untrustworthiness (anomalous interest) 51 = 0.8282113611605225 )

EVENT[Leg 51 selects 5177]: In many regions the metamorphic and granite rocks would be found much more widely extended than they appear to be, if all the sedimentary beds were removed which rest unconformably on them, and which could not have formed part of the original mantle under which they were crystallised.

EVENT[Leg 51 selects 5243]: so that here, unless we believe that these eminent naturalists have been misled by their imaginations, and that these late tertiary species really present no difference whatever from their living representatives, or unless we admit, in opposition to the judgment of most naturalists, that these tertiary species are all truly distinct from the recent, we have evidence of the frequent occurrence of slight modifications of the kind required.

EVENT[Leg 51 selects 5251]: and we have seen that with plants it is those which have the widest range, that oftenest present varieties, so that, with shells and other marine animals, it is probable that those which had the widest range, far exceeding the limits of the known geological formations in Europe, have oftenest given rise, first to local varieties and ultimately to new species.

>> (Rank leg untrustworthiness (anomalous interest) 52 = 0.9267600630049048 )

EVENT[Leg 52 selects 5258]: or, again, whether certain sea-shells inhabiting the shores of North America, which are ranked by some conchologists as distinct species from their European representatives, and by other conchologists as only varieties, are really varieties, or are, as it is called, specifically distinct.

EVENT[Leg 52 selects 5295]: When such varieties returned to their ancient homes, as they would differ from their former state in a



nearly uniform, though perhaps extremely slight degree, and as they would be found embedded in slightly different sub-stages of the same formation, they would, according to the principles followed by many palaeontologists, be ranked as new and distinct species.

EVENT[Leg 52 selects 5315]: but that, when this adaptation had once been effected, and a few species had thus acquired a great advantage over other organisms, a comparatively short time would be necessary to produce many divergent forms, which would spread rapidly and widely throughout the world.

>> (Rank leg untrustworthiness (anomalous interest) 53 = 0.7610044382506418 )

EVENT[Leg 53 selects 5433]: The several difficulties here discussed, namely, that, though we find in our geological formations many links between the species which now exist and which formerly existed, we do not find infinitely numerous fine transitional forms closely joining them all together.

EVENT[Leg 53 selects 5448]: On the slow and successive appearance of new species--On their different rates of change--Species once lost do not reappear--Groups of species follow the same general rules in their appearance and disappearance as do single species--On extinction--On simultaneous changes in the forms of life throughout the world--On the affinities of extinct species to each other and to living species--On the state of development of ancient forms--On the succession of the same types within the same areas--Summary of preceding and present chapters.

EVENT[Leg 53 selects 5449]: Let us now see whether the several facts and laws relating to the geological succession of organic beings accord best with the common view of the immutability of species, or with that of their slow and gradual modification, through variation and natural selection.

>> (Rank leg untrustworthiness (anomalous interest) 54 = 1.0297446246146578 )

EVENT[Leg 54 selects 5473]: Whether such variations or individual differences as may arise will be accumulated through natural selection in a greater or less degree, thus causing a greater or less amount of permanent modification, will depend on many complex contingencies--on the variations being of a beneficial nature, on the freedom of intercrossing, on the slowly changing physical conditions of the country, on the immigration of new colonists, and on the nature of the other inhabitants with which the varying species come into competition.

EVENT[Leg 54 selects 5492]: but if the parent rock-pigeon were likewise destroyed, and under nature we have every reason to believe that parent forms are generally supplanted and exterminated by their improved offspring, it is incredible that a fantail, identical with the existing breed, could be raised from any other species of pigeon, or even from any other well established race of the domestic pigeon, for the successive variations would almost certainly be in some degree different, and the newly-formed variety would probably inherit from its progenitor some characteristic differences.

EVENT[Leg 54 selects 5509]: the process of modification and the production of a number of allied forms necessarily being a slow and gradual process, one species first giving rise to two or three varieties, these being slowly converted into species, which in their turn produce by equally slow steps other varieties and species, and so on, like the branching of a great tree from a single stem, till

the group becomes large.

>> (Rank leg untrustworthiness (anomalous interest) 55 = 1.185440932154776 )

EVENT[Leg 55 selects 5568]: But whether it be species belonging to the same or to a distinct class, which have yielded their places to other modified and improved species, a few of the sufferers may often be preserved for a long time, from being fitted to some peculiar line of life, or from inhabiting some distant and isolated station, where they will have escaped severe competition.

EVENT[Leg 55 selects 5576]: Thus, as it seems to me, the manner in which single species and whole groups of species become extinct accords well with the theory of natural selection.

EVENT[Leg 55 selects 5616]: It is also natural that the dominant, varying and far-spreading species, which have already invaded, to a certain extent, the territories of other species, should be those which would have the best chance of spreading still further, and of giving rise in new countries to other new varieties and species. >> (Rank leg untrustworthiness (anomalous interest) 56 = 1.1466761779178543 )

EVENT[Leg 56 selects 5671]: Some writers have objected to any extinct species, or group of species, being considered as intermediate between any two living species, or groups of species.

EVENT[Leg 56 selects 5719]: Thus the species which lived at the sixth great stage of descent in the diagram are the modified offspring of those which lived at the fifth stage, and are the parents of those which became still more modified at the seventh stage.

EVENT[Leg 56 selects 5744]: As the accumulation of each formation has often been interrupted, and as long blank intervals have intervened between successive formations, we ought not to expect to find, as I attempted to show in the last chapter, in any one or in any two formations, all the intermediate varieties between the species which appeared at the commencement and close of these periods.

>> (Rank leg untrustworthiness (anomalous interest) 57 = 0.9523322723219692 )

EVENT[Leg 57 selects 5804]: Seeing, for instance, that the oldest known mammals, reptiles, and fishes strictly belong to their proper classes, though some of these old forms are in a slight degree less distinct from each other than are the typical members of the same groups at the present day, it would be vain to look for animals having the common embryological character of the Vertebrata, until beds rich in fossils are discovered far beneath the lowest Cambrian strata--a discovery of which the chance is small.

EVENT[Leg 57 selects 5841]: so that, if six genera, each having eight species, be found in one geological formation, and in a succeeding formation there be six other allied or representative genera, each with the same number of species, then we may conclude that generally only one species of each of the older genera has left modified descendants, which constitute the new genera containing the several species.

EVENT[Leg 57 selects 5858]: and lastly, although each species must have passed through numerous transitional stages, it is probable that the periods, during which each underwent modification, though many and long as measured by years, have been short in comparison with the periods during which each remained in an unchanged condition. >>

(Rank leg untrustworthiness (anomalous interest) 58 =  
0.9769063264453055 )

EVENT[Leg 58 selects 5860]: It should also be constantly borne in mind that any linking variety between two forms, which might be found, would be ranked, unless the whole chain could be perfectly restored, as a new and distinct species.

EVENT[Leg 58 selects 5872]: Passing from these difficulties, the other great leading facts in palaeontology agree admirably with the theory of descent with modification through variation and natural selection.

EVENT[Leg 58 selects 5959]: The dissimilarity of the inhabitants of different regions may be attributed to modification through variation and natural selection, and probably in a subordinate degree to the definite influence of different physical conditions. >> (Rank leg untrustworthiness (anomalous interest) 59 = 1.310760571314556 )

EVENT[Leg 59 selects 5969]: As the variability of each species is an independent property, and will be taken advantage of by natural selection, only so far as it profits each individual in its complex struggle for life, so the amount of modification in different species will be no uniform quantity.

EVENT[Leg 59 selects 5996]: and it has been observed by several naturalists that the most natural genera, or those genera in which the species are most closely related to each other, are generally confined to the same country, or if they have a wide range that their range is continuous.

EVENT[Leg 59 selects 6018]: With organic beings which never intercross, if such exist, each species, must be descended from a succession of modified varieties, that have supplanted each other, but have never blended with other individuals or varieties of the same species, so that, at each successive stage of modification, all the individuals of the same form will be descended from a single parent. >> (Rank leg untrustworthiness (anomalous interest) 60 = 0.21945550402227612 ) >> (Rank leg untrustworthiness (anomalous interest) 61 = 0.40935893541262697 )

EVENT[Leg 61 selects 6178]: The identity of many plants and animals, on mountain-summits, separated from each other by hundreds of miles of lowlands, where Alpine species could not possibly exist, is one of the most striking cases known of the same species living at distant points, without the apparent possibility of their having migrated from one point to the other.

EVENT[Leg 61 selects 6218]: for if we compare the present Alpine plants and animals of the several great European mountain ranges, one with another, though many of the species remain identically the same, some exist as varieties, some as doubtful forms or sub-species and some as distinct yet closely allied species representing each other on the several ranges.

EVENT[Leg 61 selects 6242]: Hence, it has come, that when we compare the now living productions of the temperate regions of the New and Old Worlds, we find very few identical species though Asa Gray has lately shown that more plants are identical than was formerly supposed, but we find in every great class many forms, which some naturalists rank as geographical races, and others as distinct species.

>> (Rank leg untrustworthiness (anomalous interest) 62 = 0.2605457348241095 )  
>> (Rank leg untrustworthiness (anomalous interest) 63 = 0.36020643812935094 )  
>> (Rank leg untrustworthiness (anomalous interest) 64 = 0.3205167367453876 )  
>> (Rank leg untrustworthiness (anomalous interest) 65 = 0.39846330748329456 )  
>> (Rank leg untrustworthiness (anomalous interest) 66 = 0.6329390252216519 )

EVENT[Leg 66 selects 6732]: and wherever many closely-allied species occur, there will be found many forms which some naturalists rank as distinct species, and others as mere varieties.

EVENT[Leg 66 selects 6754]: The relations just discussed--namely, lower organisms ranging more widely than the higher--some of the species of widely-ranging genera themselves ranging widely--such facts, as alpine, lacustrine, and marsh productions being generally related to those which live on the surrounding low lands and dry lands--the striking relationship between the inhabitants of islands and those of the nearest mainland--the still closer relationship of the distinct inhabitants of the islands of the same archipelago--are inexplicable on the ordinary view of the independent creation of each species, but are explicable if we admit colonisation from the nearest or readiest source, together with the subsequent adaptation of the colonists to their new homes.

EVENT[Leg 66 selects 6756]: In these chapters I have endeavoured to show that if we make due allowance for our ignorance of the full effects of changes of climate and of the level of the land, which have certainly occurred within the recent period, and of other changes which have probably occurred--if we remember how ignorant we are with respect to the many curious means of occasional transport--if we bear in mind, and this is a very important consideration, how often a species may have ranged continuously over a wide area, and then have become extinct in the intermediate tracts--the difficulty is not insuperable in believing that all the individuals of the same species, wherever found, are descended from common parents.

>> (Rank leg untrustworthiness (anomalous interest) 67 = 0.5272555920831814 )

EVENT[Leg 67 selects 6780]: We can see why, if there exist very closely allied or representative species in two areas, however distant from each other, some identical species will almost always there be found.

EVENT[Leg 67 selects 6786]: so in space, it certainly is the general rule that the area inhabited by a single species, or by a group of species, is continuous, and the exceptions, which are not rare, may, as I have attempted to show, be accounted for by former migrations under different circumstances, or through occasional means of transport, or by the species having become extinct in the intermediate tracts.

EVENT[Leg 67 selects 6789]: In looking to the long succession of past ages, as in looking to distant provinces throughout the world, we find that species in certain classes differ little from each other, whilst those in another class, or only in a different section of the same order, differ greatly from each other. >> (Rank leg untrustworthiness (anomalous interest) 68 = 0.46085287973420586 )

EVENT[Leg 68 selects 6919]: All the foregoing rules and aids and difficulties in classification may be explained, if I do not greatly deceive myself, on the view that the natural system is founded on descent with modification--that the characters which naturalists consider as showing true affinity between any two or more species,

are those which have been inherited from a common parent, all true classification being genealogical--that community of descent is the hidden bond which naturalists have been unconsciously seeking, and not some unknown plan of creation, or the enunciation of general propositions, and the mere putting together and separating objects more or less alike.

EVENT[Leg 68 selects 6922]: but that the AMOUNT of difference in the several branches or groups, though allied in the same degree in blood to their common progenitor, may differ greatly, being due to the different degrees of modification which they have undergone.

EVENT[Leg 68 selects 6933]: So that the comparative value of the differences between these organic beings, which are all related to each other in the same degree in blood, has come to be widely different. >> (Rank leg untrustworthiness (anomalous interest) 69 = 0.5225768259246171 )

EVENT[Leg 69 selects 6979]: and as it has been used in classing varieties which have undergone a certain, and sometimes a considerable amount of modification, may not this same element of descent have been unconsciously used in grouping species under genera, and genera under higher groups, all under the so-called natural system?

EVENT[Leg 69 selects 6983]: Therefore, we choose those characters which are the least likely to have been modified, in relation to the conditions of life to which each species has been recently exposed.

EVENT[Leg 69 selects 7034]: and this would obviously aid in the acquirement through natural selection of parts or organs, strikingly like each other, independently of their direct inheritance from a common progenitor. >> (Rank leg untrustworthiness (anomalous interest) 70 = 0.5544687004811175 )

EVENT[Leg 70 selects 7087]: But, starting with species already somewhat like each other, the closest resemblance, if beneficial, could readily be gained by the above means, and if the imitated form was subsequently and gradually modified through any agency, the imitating form would be led along the same track, and thus be altered to almost any extent, so that it might ultimately assume an appearance or colouring wholly unlike that of the other members of the family to which it belonged.

EVENT[Leg 70 selects 7090]: As the modified descendants of dominant species, belonging to the larger genera, tend to inherit the advantages which made the groups to which they belong large and their parents dominant, they are almost sure to spread widely, and to seize on more and more places in the economy of nature.

EVENT[Leg 70 selects 7140]: Finally, we have seen that natural selection, which follows from the struggle for existence, and which almost inevitably leads to extinction and divergence of character in the descendants from any one parent-species, explains that great and universal feature in the affinities of all organic beings, namely, their subordination in group under group.

>> (Rank leg untrustworthiness (anomalous interest) 71 = 0.3929184077051727 )  
>> (Rank leg untrustworthiness (anomalous interest) 72 = 0.47110473236591704 )

EVENT[Leg 72 selects 7289]: The points of structure, in which the embryos of widely different animals within the same class resemble each other, often have no direct relation to their conditions of

existence.

EVENT[Leg 72 selects 7300]: Cases can even be given of the larvae of allied species, or groups of species, differing more from each other than do the adults.

EVENT[Leg 72 selects 7367]: Now, some of these birds, when mature, differ in so extraordinary a manner in the length and form of beak, and in other characters, that they would certainly have been ranked as distinct genera if found in a state of nature. >> (Rank leg untrustworthiness (anomalous interest) 73 = 0.5950024275484372 )

EVENT[Leg 73 selects 7380]: Then, from the many slight successive variations having supervened in the several species at a not early age, and having been inherited at a corresponding age, the young will have been but little modified, and they will still resemble each other much more closely than do the adults, just as we have seen with the breeds of the pigeon.

EVENT[Leg 73 selects 7398]: If, on the other hand, it profited the young of an animal to follow habits of life slightly different from those of the parent-form, and consequently to be constructed on a slightly different plan, or if it profited a larva already different from its parent to change still further, then, on the principle of inheritance at corresponding ages, the young or the larvae might be rendered by natural selection more and more different from their parents to any conceivable extent.

EVENT[Leg 73 selects 7450]: There are beetles belonging to closely allied species, or even to the same identical species, which have either full-sized and perfect wings, or mere rudiments of membrane, which not rarely lie under wing-covers firmly soldered together. >> (Rank leg untrustworthiness (anomalous interest) 74 = 0.67677132540424 )

EVENT[Leg 74 selects 7481]: As organs in this condition would formerly, when still less developed, have been of even less use than at present, they cannot formerly have been produced through variation and natural selection, which acts solely by the preservation of useful modifications.

EVENT[Leg 74 selects 7552]: Finally, as rudimentary organs, by whatever steps they may have been degraded into their present useless condition, are the record of a former state of things, and have been retained solely through the power of inheritance--we can understand, on the genealogical view of classification, how it is that systematists, in placing organisms in their proper places in the natural system, have often found rudimentary parts as useful as, or even sometimes more useful than, parts of high physiological importance.

EVENT[Leg 74 selects 7568]: Finally, the several classes of facts which have been considered in this chapter, seem to me to proclaim so plainly, that the innumerable species, genera and families, with which this world is peopled, are all descended, each within its own class or group, from common parents, and have all been modified in the course of descent, that I should without hesitation adopt this view, even if it were unsupported by other facts or arguments.

>> (Rank leg untrustworthiness (anomalous interest) 75 = 0.8948623747265352 )

EVENT[Leg 75 selects 7601]: Hence when we find that hybrids produced by a cross between two distinct species are few in number, owing to

their perishing soon after conception or at a very early age, or if surviving that they are rendered more or less sterile, it seems highly probable that this result is due to their having been in fact subjected to a great change in their conditions of life, from being compounded of two distinct organisations.

EVENT[Leg 75 selects 7602]: He who will explain in a definite manner why, for instance, an elephant or a fox will not breed under confinement in its native country, whilst the domestic pig or dog will breed freely under the most diversified conditions, will at the same time be able to give a definite answer to the question why two distinct species, when crossed, as well as their hybrid offspring, are generally rendered more or less sterile, while two domesticated varieties when crossed and their mongrel offspring are perfectly fertile.

EVENT[Leg 75 selects 7619]: Even on a wide area, which has during a long period remained continuous, and of which the climatic and other conditions of life change insensibly in proceeding from a district occupied by one species into another district occupied by a closely allied species, we have no just right to expect often to find intermediate varieties in the intermediate zones. >> (Rank leg untrustworthiness (anomalous interest) 76 = 0.8791332486836764 )

EVENT[Leg 76 selects 7710]: On separate continents, and on different parts of the same continent, when divided by barriers of any kind, and on outlying islands, what a multitude of forms exist, which some experienced naturalists rank as varieties, others as geographical races or sub species, and others as distinct, though closely allied species!

EVENT[Leg 76 selects 7718]: On the view that species are only strongly marked and permanent varieties, and that each species first existed as a variety, we can see why it is that no line of demarcation can be drawn between species, commonly supposed to have been produced by special acts of creation, and varieties which are acknowledged to have been produced by secondary laws.

EVENT[Leg 76 selects 7727]: and as the modified descendants of each species will be enabled to increase by as much as they become more diversified in habits and structure, so as to be able to seize on many and widely different places in the economy of nature, there will be a constant tendency in natural selection to preserve the most divergent offspring of any one species.

>> (Rank leg untrustworthiness (anomalous interest) 77 = 1 )

EVENT[Leg 77 selects 7779]: On the ordinary view of each species having been independently created, why should specific characters, or those by which the species of the same genus differ from each other, be more variable than the generic characters in which they all agree?

EVENT[Leg 77 selects 7793]: On the view of all the species of the same genus having descended from a common parent, and having inherited much in common, we can understand how it is that allied species, when placed under widely different conditions of life, yet follow nearly the same instincts.

EVENT[Leg 77 selects 7796]: If species be only well-marked and permanent varieties, we can at once see why their crossed offspring should follow the same complex laws in their degrees and kinds of resemblance to their parents--in being absorbed into each other by successive crosses, and in other such points--as do the crossed

offspring of acknowledged varieties.

>> (Rank leg untrustworthiness (anomalous interest) 78 = 0.6312738365147673 )

EVENT[Leg 78 selects 7886]: But the chief cause of our natural unwillingness to admit that one species has given birth to other and distinct species, is that we are always slow in admitting any great changes of which we do not see the steps.

EVENT[Leg 78 selects 7901]: They admit that a multitude of forms, which till lately they themselves thought were special creations, and which are still thus looked at by the majority of naturalists, and which consequently have all the external characteristic features of true species--they admit that these have been produced by variation, but they refuse to extend the same view to other and slightly different forms.

EVENT[Leg 78 selects 7962]: Hereafter we shall be compelled to acknowledge that the only distinction between species and well-marked varieties is, that the latter are known, or believed to be connected at the present day by intermediate gradations, whereas species were formerly thus connected.

>> (Rank leg untrustworthiness (anomalous interest) 79 = 0.8383567754957678 )

EVENT[Leg 79 selects 7985]: Species and groups of species which are called aberrant, and which may fancifully be called living fossils, will aid us in forming a picture of the ancient forms of life.

EVENT[Leg 79 selects 7987]: When we can feel assured that all the individuals of the same species, and all the closely allied species of most genera, have, within a not very remote period descended from one parent, and have migrated from some one birth-place.

EVENT[Leg 79 selects 8009]: for the manner in which all organic beings are grouped, shows that the greater number of species in each genus, and all the species in many genera, have left no descendants, but have become utterly extinct.

-----  
Notable events = 153 of total 8022 efficiency = 5243.137254901961 %  
-----

An increase in sampling level gives more of a sense of the content.

In other words, what we see is that spacetime principles can help us to extract meaningful parts of a document, but there is still a minimum threshold for understanding the whole.

Darwin's book is a thesis, not a novel, so it has a clarity of conceptual persistence that we would not expect to find in a novel. Applying the technique to a human story, e.g. Moby Dick, yields an interesting but obviously less focused idea of conceptual content. In [2] a more extensive analysis resulted in a surprising notion: that the main themes in a novel are not typically what we consider objective things, but rather feelings and attitudes. No new method is needed to find this conclusion, only a deeper recombination of the fragment method used here. However, such a deeper analysis may not be a practical approach to analysing streams in realtime.

## 4.7 Applied to short Wikipedia interactions

Having applied the method to examples of short and long narrative data, let's return to the example fed to Chat GPT. We try to run the code *n*-gram fractionation code with a trust rate of 40 percent on the same discussion offered to chat GPT. This selects the following:

```
mark% go run ngrams.go ../../test.dat 40
```



```
*****
** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 40 / 100
*****
>> (Rank leg untrustworthiness (anomalous interest) 0 = 2.0921480067744063 )
```

EVENT[Leg 0 selects 48]: , January UTC Melcous, you call me an editor with a clear conflict of interest - thats a bold accusation.

EVENT[Leg 0 selects 57]: But to be clear again, I did not call you an editor with a clear conflict of interest - I explained that the maintenance templates were added after a COI editor edited the article, and it is a simple matter of looking at the edit history to see that this was in August after MarkBurgess edited the article.

EVENT[Leg 0 selects 86]: I am not trying to stop improvement of this or any other page, but I am trying to abide by wikipedias core guidelines which include no original research or editing to promote something - hence the conflict of interest guidelines which you were pointed to previously.

```
>> (Rank leg untrustworthiness (anomalous interest) 1 = 1 )
```

EVENT[Leg 1 selects 103]: Youll find scores of scientific and other types of articles with many consecutive paragraphs without new citations, acknowledging the fact that repeating the same reference again and again is noise and nothing else.

EVENT[Leg 1 selects 106]: Hazitt talk .

EVENT[Leg 1 selects 107]: , February UTC

```
-----
Notable events = 6 of total 108 efficiency = 1800 %
-----
```

```
----- Sumarize ngram Intentionality threshold selection -----
1 original 6 6 ----- 0.352786847743929
1 editor 9 9 ----- 0.39370747806862555
1 automatically 4 4 ----- 0.3842020031638095
1 trying 7 7 ----- 0.3078684626803202
1 content 9 9 ----- 0.4593253910800631
1 article 11 11 ----- 0.5583420132981638
1 unourced 8 8 ----- 0.5263621766136035
1 hazitt 10 10 ----- 0.4362649298046778
1 conflict 6 6 ----- 0.352786847743929
1 maintenance 5 5 ----- 0.4053037427083812
1 interest 6 6 ----- 0.352786847743929
1 paragraphs 5 5 ----- 0.36845794791671016
1 melcous 11 11 ----- 0.5583420132981638
1 january 10 10 ----- 0.5089757514387907
1 templates 7 7 ----- 0.46180269402048035
2 templates were 4 4 ----- 0.41375600340717944
2 original research 5 5 ----- 0.6263785114584073
2 independent secondary 3 3 ----- 0.4666881864847571
2 secondary sources 3 3 ----- 0.37779519858289856
2 clear conflict 5 5 ----- 0.5158411270833942
2 january utc 10 10 ----- 0.7998190379752426
2 hazitt talk 6 6 ----- 0.4850819156479023
2 melcous talk 6 6 ----- 0.5291802716158935
2 maintenance templates 4 4 ----- 0.620634005110769
2 paragraphs without 3 3 ----- 0.4000184455583632
2 unourced content 3 3 ----- 0.37779519858289856
```

```

3 thank you melcous 3 3 ----- 0.37779519858289856
3 january utc hazitt 3 3 ----- 0.4000184455583632
3 edited the article 3 3 ----- 0.4000184455583632
3 conflict of interest 6 6 ----- 0.8819671193598225
3 independent secondary sources 3 3 ----- 0.644474162288474
3 with a clear 4 4 ----- 0.35464800292043946
3 templates were added 3 3 ----- 0.4444649395092924
3 january utc melcous 3 3 ----- 0.42224169253382776
4 clear conflict of interest 5 5 ----- 0.9579906645834464
4 editor with a clear 3 3 ----- 0.42224169253382776
4 with a clear conflict 4 4 ----- 0.620634005110769
5 editor with a clear conflict 3 3 ----- 0.6222509153130094
5 an editor with a clear 3 3 ----- 0.4889114334602216
6 an editor with a clear conflict 3 3 ----- 0.6889206562394032
6 with a clear conflict of interest 4 4 ----- 0.9752820080312087

```

----- Emergent Longitudinally Stable Concept Fragments -----

```

Particular theme/topic "interest = 0.352787"
Particular theme/topic "conflict = 0.352787"
Particular theme/topic "original = 0.352787"
Particular theme/topic "with a clear = 0.354648"
Particular theme/topic "paragraphs = 0.368458"
Particular theme/topic "secondary sources = 0.377795"
Particular theme/topic "thank you melcous = 0.377795"
Particular theme/topic "unsourced content = 0.377795"
Particular theme/topic "automatically = 0.384202"
Particular theme/topic "january utc hazitt = 0.400018"
Particular theme/topic "paragraphs without = 0.400018"
Particular theme/topic "maintenance = 0.405304"
Particular theme/topic "templates were = 0.413756"
Particular theme/topic "january utc melcous = 0.422242"
Particular theme/topic "editor with a clear = 0.422242"
Particular theme/topic "hazitt = 0.436265"
Particular theme/topic "templates were added = 0.444465"
Particular theme/topic "templates = 0.461803"
Particular theme/topic "independent secondary = 0.466688"
Particular theme/topic "hazitt talk = 0.485082"
Particular theme/topic "an editor with a clear = 0.488911"
Particular theme/topic "january = 0.508976"
Particular theme/topic "clear conflict = 0.515841"
Particular theme/topic "melcous talk = 0.529180"
Particular theme/topic "melcous = 0.558342"
Particular theme/topic "maintenance templates = 0.620634"
Particular theme/topic "with a clear conflict = 0.620634"
Particular theme/topic "editor with a clear conflict = 0.622251"
Particular theme/topic "original research = 0.626379"
Particular theme/topic "independent secondary sources = 0.644474"
Particular theme/topic "an editor with a clear conflict = 0.688921"
Particular theme/topic "january utc = 0.799819"
Particular theme/topic "conflict of interest = 0.881967"
Particular theme/topic "clear conflict of interest = 0.957991"
Particular theme/topic "with a clear conflict of interest = 0.975282"

```

In its raw untailed form, this has no way of inferring or extracting the parts of the text that refer to names of individuals or their feelings. Nevertheless, the results of the fragmentation approach are very interesting, because they are entirely based on process dynamics. The parts extracted would be sufficient to detect a conflict in play.

One could imagine, rather than flagging awkward behaviour to some policing body, as social media companies do, the users received an automated warning that their tone or behaviour is possibly veering into the realm of conflict rather than mutual assistance. Rate limiting could also be applied to change to protect against corruption. Some of these methods are already in play [9].

In order to compare this to the results of the chat GPT assessment, we would need to supplement the

selections with knowledge of the meanings of words to assess their actual contextual significance. This is what language models (large or small) can accomplish more convincingly, though at enormously greater cost. In a narrow domain, such as Wikipedia editing, we can probably make a reasonable number of inferences about potential trouble on the basis of whitelists of words and phrases. One imagines that the narrower the context, the more likely that is to succeed. This remains a topic for future trials.

## 5 Remarks on adapting the technique to other languages and glyph writing systems

The method has been tested on Norwegian text with similar results. Since the method is not based on knowledge of meanings, it should work independently of language, at least for alphabetic systems of writing. The method is adaptable to glyph writing systems too. In glyphs single symbols play the role of words in an alphabetic system. The length of a word could be imagined to correspond to the number of strokes in a glyph.

I've applied this to kanji in the Chinese writing system, using a database of strokes to calculate the 'work' factor. The results are approximately similar to those found in English, at least in so far as they can be compared, up to some recalibrations for the different rates of information. Remarkably, the approach seems to work equally well in all the languages tried.

## 6 Final assessment (remarks)

The method developed here promises an approach to subsampling of intentional linguistic (semantic) content in the form of narrative text. The method is not really a final assessment of the text, nor is it a replacement for human assessment. It's a tool for controlling the efficiency of the attention process. Trustworthiness is related to the final assessment of an agent, based on the results.

The circular nature of the two parts of trust are apparent here. Our initial assessment of trustworthiness (based on indirect evidence, like reputation) can be modified by what we sample from the direct output promised by a source. This assessment's accuracy depends on the kinetic trust or level of attention to the output. Our assessment's trustworthiness to self and others is quality constrained by this sampling.

How might one use this technique and its capability (which is billions of times cheaper than Large Language Models) to modulate adaptive sampling? Some possibilities come to mind:

- It might be used as we use genetic trait analysis, for matching potential clues about a text from a partial sample, in a kind of Monte Carlo approach.
- It might be used to gamble on time-saving for skimming reports and symbolic data feeds.
- It can be used as a method of knowledge extraction for mapping data management as the first stage of a method for divining emergent concepts [2]. Although these ideas have been around for twenty years, industry is only just beginning to adopt ideas from the 1990s—and then with limited success. There is much room for improvement.

Can any of this help to determine trustworthiness of users on platforms like Wikipedia? This remains to be tested further in the next phase of the project. The governance rules for Wikipedia [9] already take into account many of the issues described here using alternative approaches. A widespread use of bots to check already detects anomalies, often with greater specialization. It might not be efficient, but it's established and therefore trustworthy.

The prototype method developed here might still be improved in a number of ways. Further adaptations can be based on changes to the length of sentences mid stream, and so forth. This will be particularly useful for informal interactions. In formal texts, like consistent delivery services and focused texts, such as learning books, we have a much easier job to trust content consistency and message predictability.

Although I've steered clear of Large Language Models in this work, they may still have a role to play in divining more subtle features of communication in human communities, such as recognizing sarcasm and deception. No attempt to extract actual meaning is attempted in this method; that is treated entirely as a maximally downstream process of interpretation by the end user—which is both its strength and its weakness.

As a final note, we gain some insight into the limitations of trust from these studies. Trust doesn't always appear to be helpful in informing processes. In Wikipedia, which was a key use case, it's not clear what one would do with the information that certain users are to be considered untrustworthy. There are already protocols for governance of the commons in place for crowd sourcing. On the other hand, not all communities are as large or as self-governing at scale as Wikipedia. Internal corporate cultures might benefit from oversight in resource-stretched teams. A scan by the summarizer could be a way to assess the quality of understandability for a document.

The number of individuals involved in a process of change plays a role in 'democratic thinking'. Consensus is a commonly trusted criterion, even though it has obvious flaws and it's a well studied problem how to hack. These issues are not captured here and remain to be studied elsewhere.

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## A Moby Dick at 40% trust

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** SEMANTIC TEXT SAMPLER, SST basis model
** Sampling trust threshold = 40 / 100
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EVENT[Leg 65 selects 6582]: Then again, there is an imposing quarto, written by one Captain Colnett, a Post Captain in the English navy, entitled A Voyage round Cape Horn into the South Seas, for the purpose of extending the Spermaceti Whale Fisheries.

EVENT[Leg 65 selects 6585]: To mention but one thing about it, let me say that it has an eye which applied, according to the accompanying scale, to a full grown sperm whale, would make the eye of that whale a bow-window some five feet long.

EVENT[Leg 65 selects 6636]: In connexion with the monstrous pictures of whales, I am strongly tempted here to enter upon those still more monstrous stories of them which are to be found in certain books, both ancient and modern, especially in Pliny, Purchas, Hackluyt, Harris, Cuvier, etc.

>> (Rank leg untrustworthiness (anomalous interest) 66 = 0.3330486052709788 )  
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>> (Rank leg untrustworthiness (anomalous interest) 80 = 0.45782321025543127 )

EVENT[Leg 80 selects 8151]: while these ribbed, arched, hairy sides, present us with those wondrous, half vertical, scimeter-shaped slats of whalebone, say three hundred on a side, which depending from the upper part of the head or crown bone, form those Venetian blinds which have elsewhere been cursorily mentioned.

EVENT[Leg 80 selects 8152]: The edges of these bones are fringed with hairy fibres, through which the Right Whale strains the water, and in whose intricacies he retains the small fish, when openmouthed he goes through the seas of brit in feeding time.

EVENT[Leg 80 selects 8176]: Ere this, you must have plainly seen the truth of what I started with that the Sperm Whale and the Right Whale have almost entirely different heads.

>> (Rank leg untrustworthiness (anomalous interest) 81 = 0.4160859500529254 )

EVENT[Leg 81 selects 8184]: Again, the Right Whale has two external spout-holes, the Sperm Whale only one.

EVENT[Leg 81 selects 8241]: that though the Sperm Whale stove a passage through the Isthmus of Darien, and mixed the Atlantic with the Pacific, you would not elevate one hair of your eye-brow.

EVENT[Leg 81 selects 8265]: A large whales case generally yields about five hundred gallons of sperm, though from unavoidable circumstances, considerable of it is spilled, leaks, and dribbles away, or is otherwise irrevocably lost in the ticklish business of securing what you can.

>> (Rank leg untrustworthiness (anomalous interest) 82 = 0.3402707346171268 )  
>> (Rank leg untrustworthiness (anomalous interest) 83 = 0.3875665042549984 )  
>> (Rank leg untrustworthiness (anomalous interest) 84 = 0.3082721525505477 )  
>> (Rank leg untrustworthiness (anomalous interest) 85 = 0.3906558032461926 )  
>> (Rank leg untrustworthiness (anomalous interest) 86 = 0.4537879211576763 )

EVENT[Leg 86 selects 8704]: and so low had the whale now settled that the submerged ends could not be at all approached, while every moment whole tons of ponderosity seemed added to the sinking bulk, and the ship seemed on the point of going over.

EVENT[Leg 86 selects 8756]: for in the ancient Joppa, now Jaffa, on the Syrian coast, in one of the Pagan temples, there stood for many ages the vast skeleton of a whale, which the citys legends and all the inhabitants asserted to be the identical bones of the monster that Perseus slew.

EVENT[Leg 86 selects 8772]: for though the creature encountered by that valiant whaleman of old is vaguely represented of a griffin-like shape, and though the battle is depicted on land and the saint on horseback, yet considering the great ignorance of those times, when the true form of the whale was unknown to artists.

>> (Rank leg untrustworthiness (anomalous interest) 87 = 0.482702748518144 )

EVENT[Leg 87 selects 8803]: but the Vedas, or mystical books, whose perusal would seem to have been indispensable to Vishnoo before beginning the creation, and which therefore must have contained something in the shape of practical hints to young architects, these Vedas were lying at the bottom of the waters.

EVENT[Leg 87 selects 8819]: one of which represented Jonahs whale with two spouts in his head a peculiarity only true with respect to a species of the Leviathan the Right Whale, and the varieties of that order, concerning which the fishermen have this saying, A penny roll would choke him.

EVENT[Leg 87 selects 8840]: But not to speak of the passage through the whole length of the Mediterranean, and another passage up the Persian Gulf and Red Sea, such a supposition would involve the complete circumnavigation of all Africa in three days, not to speak of the Tigris waters, near the site of Nineveh, being too shallow for any whale to swim in.

>> (Rank leg untrustworthiness (anomalous interest) 88 = 0.48400908519070235 )

EVENT[Leg 88 selects 8910]: Every one knows that by the peculiar cunning of their gills, the finny tribes in general breathe the air which at all times is combined with the element in which they swim.

EVENT[Leg 88 selects 8930]: If unmolested, upon rising to the surface, the Sperm Whale will continue there for a period of time exactly uniform with all his other unmolested risings.

EVENT[Leg 88 selects 8961]: in other words, whether the spout of the Sperm Whale is the mere vapor of the exhaled breath, or whether that exhaled breath is mixed with water taken in at the mouth, and discharged through the spiracle.

>> (Rank leg untrustworthiness (anomalous interest) 89 = 0.3672135290511101 )

>> (Rank leg untrustworthiness (anomalous interest) 90 = 0.6037952645632315 )

EVENT[Leg 90 selects 9134]: Ahab purposing to pass through them into the Javan sea, and thence, cruising northwards, over waters known to be frequented here and there by the Sperm Whale, sweep inshore by the Philippine Islands, and gain the far coast of Japan, in time for the great whaling season there.

EVENT[Leg 90 selects 9163]: But here be it premised, that owing to the unwearied activity with which of late they have been hunted over all four oceans, the Sperm Whales, instead of almost invariably sailing in small detached companies, as in former times, are now frequently met with in extensive herds, sometimes embracing so great

a multitude, that it would almost seem as if numerous nations of them had sworn solemn league and covenant for mutual assistance and protection.

EVENT[Leg 90 selects 9167]: Unlike the straight perpendicular twin-jets of the Right Whale, which, dividing at top, fall over in two branches, like the cleft drooping boughs of a willow, the single forward-slanting spout of the Sperm Whale presents a thick curled bush of white mist, continually rising and falling away to leeward.

>> (Rank leg untrustworthiness (anomalous interest) 91 = 0.579876492402268 )

EVENT[Leg 91 selects 9199]: But no sooner did the herd, by some presumed wonderful instinct of the Sperm Whale, become notified of the three keels that were after them, though as yet a mile in their rear, than they rallied again, and forming in close ranks and battalions, so that their spouts all looked like flashing lines of stacked bayonets, moved on with redoubled velocity.

EVENT[Leg 91 selects 9200]: Stripped to our shirts and drawers, we sprang to the white-ash, and after several hours pulling were almost disposed to renounce the chase, when a general pausing commotion among the whales gave animating token that they were now at last under the influence of that strange perplexity of inert irresolution, which, when the fishermen perceive it in the whale, they say he is galled.

EVENT[Leg 91 selects 9223]: now edging away from that, whose colossal flukes were suspended overhead, while all the time, Starbuck stood up in the bows, lance in hand, pricking out of our way whatever whales he could reach by short darts, for there was no time to make long ones.

>> (Rank leg untrustworthiness (anomalous interest) 92 = 0.5157096723323609 )

EVENT[Leg 92 selects 9299]: The sperm whale, as with all other species of the Leviathan, but unlike most other fish, breeds indifferently at all seasons.

EVENT[Leg 92 selects 9355]: but the boats still lingered in their wake to pick up what drugged whales might be dropped astern, and likewise to secure one which Flask had killed and waifed.

EVENT[Leg 92 selects 9357]: and which, when additional game is at hand, are inserted upright into the floating body of a dead whale, both to mark its place on the sea, and also as token of prior possession, should the boats of any other ship draw near.

>> (Rank leg untrustworthiness (anomalous interest) 93 = 0.4848683515821838 )

EVENT[Leg 93 selects 9408]: His title, schoolmaster, would very naturally seem derived from the name bestowed upon the harem itself, but some have surmised that the man who first thus entitled this sort of Ottoman whale, must have read the memoirs of Vidocq, and informed himself what sort of a country-schoolmaster that famous Frenchman was in his younger days, and what was the nature of those occult lessons he inculcated into some of his pupils.

EVENT[Leg 93 selects 9409]: The same secludedness and isolation to which the schoolmaster whale betakes himself in his advancing years, is true of all aged Sperm Whales.

EVENT[Leg 93 selects 9457]: And when those defendants were



remonstrated with, their captain snapped his fingers in the plaintiffs teeth, and assured them that by way of doxology to the deed he had done, he would now retain their line, harpoons, and boat, which had remained attached to the whale at the time of the seizure.

>> (Rank leg untrustworthiness (anomalous interest) 94 = 0.42099111362827163 )

EVENT[Leg 94 selects 9529]: Now when these poor sun-burnt mariners, bare-footed, and with their trowsers rolled high up on their eely legs, had wearily hauled their fat fish high and dry, promising themselves a good from the precious oil and bone.

EVENT[Leg 94 selects 9553]: To which my Lord Duke in substance replied both letters were published that he had already done so, and received the money, and would be obliged to the reverend gentleman if for the future he the reverend gentleman would decline meddling with other peoples business.

EVENT[Leg 94 selects 9588]: and by the eddying cloud of vulture sea-fowl that circled, and hovered, and swooped around him, it was plain that the whale alongside must be what the fishermen call a blasted whale, that is, a whale that has died unmolested on the sea, and so floated an unappropriated corpse.

>> (Rank leg untrustworthiness (anomalous interest) 95 = 0.4614108563281708 )

EVENT[Leg 95 selects 9598]: Nevertheless, in the proper place we shall see that no knowing fisherman will ever turn up his nose at such a whale as this, however much he may shun blasted whales in general.

EVENT[Leg 95 selects 9602]: sometimes lowering their boats for breakers, mistaking them for Sperm Whale spouts.

EVENT[Leg 95 selects 9685]: Marking all this, Stubb argued well for his scheme, and turning to the Guernsey-man had a little chat with him, during which the stranger mate expressed his detestation of his Captain as a conceited ignoramus, who had brought them all into so unsavory and unprofitable a pickle.

>> (Rank leg untrustworthiness (anomalous interest) 96 = 0.5472731189630553 )

EVENT[Leg 96 selects 9719]: By this time Stubb was over the side, and getting into his boat, hailed the Guernsey-man to this effect, that having a long tow-line in his boat, he would do what he could to help them, by pulling out the lighter whale of the two from the ships side.

EVENT[Leg 96 selects 9730]: Stubb was beginning to look disappointed, especially as the horrible nosegay increased, when suddenly from out the very heart of this plague, there stole a faint stream of perfume, which flowed through the tide of bad smells without being absorbed by it, as one river will flow into and then along with another, without at all blending with it for a time.

EVENT[Leg 96 selects 9755]: I have forgotten to say that there were found in this ambergris, certain hard, round, bony plates, which at first Stubb thought might be sailors trowsers buttons.

>> (Rank leg untrustworthiness (anomalous interest) 97 = 0.4209818345103153 )

EVENT[Leg 97 selects 9812]: though, as ere long will be seen, what was thus temporarily subdued in him, in the end was destined to be

luridly illumined by strange wild fires, that fictitiously showed him off to ten times the natural lustre with which in his native Tolland County in Connecticut, he had once enlivened many a fiddlers frolic on the green.

EVENT[Leg 97 selects 9853]: a whale would sell for thirty times what you would, Pip, in Alabama.

EVENT[Leg 97 selects 9880]: though, indeed, such considerations towards oarsmen jeopardized through their own timidity, is not always manifested by the hunters in all similar instances.

>> (Rank leg untrustworthiness (anomalous interest) 98 = 0.4225652352433021 )

EVENT[Leg 98 selects 9948]: Now, while discoursing of sperm, it behooves to speak of other things akin to it, in the business of preparing the sperm whale for the try-works.

EVENT[Leg 98 selects 9966]: It designates the dark, glutinous substance which is scraped off the back of the Greenland or right whale, and much of which covers the decks of those inferior souls who hunt that ignoble Leviathan.

EVENT[Leg 98 selects 9991]: and had you strolled forward nigh the windlass, pretty sure am I that you would have scanned with no small curiosity a very strange, enigmatical object, which you would have seen there, lying along lengthwise in the lee scuppers.

>> (Rank leg untrustworthiness (anomalous interest) 99 = 0.38518803286003406 )  
>> (Rank leg untrustworthiness (anomalous interest) 100 = 0.4075284022120989 )

EVENT[Leg 100 selects 10134]: Had you descended from the Pequods try-works to the Pequods forecastle, where the off duty watch were sleeping, for one single moment you would have almost thought you were standing in some illuminated shrine of canonized kings and counsellors.

EVENT[Leg 100 selects 10193]: aloft there, at the three mast heads, stand three men intent on spying out more whales, which, if caught, infallibly will again soil the old oaken furniture, and drop at least one small grease-spot somewhere.

EVENT[Leg 100 selects 10197]: when from the boat, where they have swelled their wrists with all day rowing on the Line, they only step to the deck to carry vast chains, and heave the heavy windlass, and cut and slash, yea, and in their very sweatings to be smoked and burned anew by the combined fires of the equatorial sun and the equatorial try-works.

>> (Rank leg untrustworthiness (anomalous interest) 101 = 0.3460900221715949 )  
>> (Rank leg untrustworthiness (anomalous interest) 102 = 0.21950383976702165 )  
>> (Rank leg untrustworthiness (anomalous interest) 103 = 0.3226185894491543 )  
>> (Rank leg untrustworthiness (anomalous interest) 104 = 0.3526151476568129 )  
>> (Rank leg untrustworthiness (anomalous interest) 105 = 0.47968930194128545 )

EVENT[Leg 105 selects 10668]: Be it distinctly recorded here, that the Nantucketers were the first among mankind to harpoon with civilized steel the great Sperm Whale.

EVENT[Leg 105 selects 10672]: and returning to her berth with her hold full of the precious sperm, the Amelias example was soon followed by other ships, English and American, and thus the vast Sperm Whale grounds of the Pacific were thrown open.

EVENT[Leg 105 selects 10674]: Samuel and all his Sonshow many, their mother only knowsand under their immediate auspices, and partly, I think, at their expense, the British government was induced to send the sloop-of-war Rattler on a whaling voyage of discovery into the South Sea.

>> (Rank leg untrustworthiness (anomalous interest) 106 = 0.46930437767674105 )

EVENT[Leg 106 selects 10762]: I impute it, though, to their naturally unctuous natures, being rendered still more unctuous by the nature of their vocation, and especially by their pursuing their game in those frigid Polar Seas, on the very coasts of that Esquimaux country where the convivial natives pledge each other in bumpers of train oil.

EVENT[Leg 106 selects 10764]: Now, as those polar fisheries could only be prosecuted in the short summer of that climate, so that the whole cruise of one of these Dutch whalemens, including the short voyage to and from the Spitzbergen sea, did not much exceed three months, say, and reckoning men to each of their fleet of sail, we have , Low Dutch seamen in all.

EVENT[Leg 106 selects 10805]: Chief among these latter was a great Sperm Whale, which, after an unusually long raging gale, had been found dead and stranded, with his head against a cocoa-nut tree, whose plumage-like, tufted droopings seemed his verdant jet.

>> (Rank leg untrustworthiness (anomalous interest) 107 = 0.4821711985317174 )

EVENT[Leg 107 selects 10870]: There is a Leviathanic Museum, they tell me, in Hull, England, one of the whaling ports of that country, where they have some fine specimens of fin-backs and other whales.

EVENT[Leg 107 selects 10891]: According to a careful calculation I have made, and which I partly base upon Captain Scoresbys estimate, of seventy tons for the largest sized Greenland whale of sixty feet in length.

EVENT[Leg 107 selects 10892]: according to my careful calculation, I say, a Sperm Whale of the largest magnitude, between eighty-five and ninety feet in length, and something less than forty feet in its fullest circumference, such a whale will weigh at least ninety tons.

>> (Rank leg untrustworthiness (anomalous interest) 108 = 0.69858741027992 )

EVENT[Leg 108 selects 10990]: I am horror-struck at this antemosaic, unsourced existence of the unspeakable terrors of the whale, which, having been before all time, must needs exist after all humane ages are over.

EVENT[Leg 108 selects 10996]: Nor must there be omitted another strange attestation of the antiquity of the whale, in his own osseous post-diluvian reality, as set down by the venerable John Leo, the old Barbary traveller.

EVENT[Leg 108 selects 11009]: But upon investigation we find, that not only are the whales of the present day superior in magnitude to those whose fossil remains are found in the Tertiary system embracing a distinct geological period prior to man, but of the whales found in that Tertiary system, those belonging to its latter formations exceed in size those of its earlier ones.

>> (Rank leg untrustworthiness (anomalous interest) 109 = 0.8468505435984218 )

EVENT[Leg 109 selects 11036]: Comparing the humped herds of whales with the humped herds of buffalo, which, not forty years ago, overspread by tens of thousands the prairies of Illinois and Missouri, and shook their iron manes and scowled with their thunder-clotted brows upon the sites of populous river-capitals, where now the polite broker sells you land at a dollar an inch.

EVENT[Leg 109 selects 11045]: Nor, considered aright, does it seem any argument in favour of the gradual extinction of the Sperm Whale, for example, that in former years the latter part of the last century, say these Leviathans, in small pods, were encountered much oftener than at present, and, in consequence, the voyages were not so prolonged, and were also much more remunerative.

EVENT[Leg 109 selects 11061]: And there seems no reason to doubt that if these elephants, which have now been hunted for thousands of years, by Semiramis, by Porus, by Hannibal, and by all the successive monarchs of the East if they still survive there in great numbers, much more may the great whale outlast all hunting, since he has a pasture to expatiate in, which is precisely twice as large as all Asia, both Americas, Europe and Africa, New Holland, and all the Isles of the sea combined.

>> (Rank leg untrustworthiness (anomalous interest) 110 = 0.46146326084684586 )

EVENT[Leg 110 selects 11111]: And when that functionary appeared before him, he bade him without delay set about making a new leg, and directed the mates to see him supplied with all the studs and joists of jaw-ivory Sperm Whale which had thus far been accumulated on the voyage, in order that a careful selection of the stoutest, clearest-grained stuff might be secured.

EVENT[Leg 110 selects 11136]: out of clean shaved rods of right-whale bone, and cross-beams of sperm whale ivory, the carpenter makes a pagoda-looking cage for it.

EVENT[Leg 110 selects 11192]: That is hard which should be soft, and that is soft which should be hard.

>> (Rank leg untrustworthiness (anomalous interest) 111 = 0.17655790751741407 )  
>> (Rank leg untrustworthiness (anomalous interest) 112 = 0.3013488883074792 )  
>> (Rank leg untrustworthiness (anomalous interest) 113 = 0.5683722373180304 )

EVENT[Leg 113 selects 11430]: Captain Ahab, said the reddening mate, moving further into the cabin, with a daring so strangely respectful and cautious that it almost seemed not only every way seeking to avoid the slightest outward manifestation of itself, but within also seemed more than half distrustful of itself.

EVENT[Leg 113 selects 11493]: and mildly but deeply looked out at you there from his sickness, a wondrous testimony to that immortal health in him which could not die, or be weakened.

EVENT[Leg 113 selects 11512]: There was some heathenish, coffin-coloured old lumber aboard, which, upon a long previous voyage, had been cut from the aboriginal groves of the Lackaday islands, and from these dark planks the coffin was recommended to be made.

>> (Rank leg untrustworthiness (anomalous interest) 114 = 0.48247706224340126 )

EVENT[Leg 114 selects 11520]: Overhearing the indignant but

half-humorous cries with which the people on deck began to drive the coffin away, Queequeg, to every ones consternation, commanded that the thing should be instantly brought to him, nor was there any denying him.

EVENT[Leg 114 selects 11550]: and that when the mystery is probed, it turns out always that in their wholly forgotten childhood those ancient tongues had been really spoken in their hearing by some lofty scholars.

EVENT[Leg 114 selects 11599]: and at length after sitting on the windlass for a few indolent days but eating with a vigorous appetite he suddenly leaped to his feet, threw out his arms and legs, gave himself a good stretching, yawned a little bit, and then springing into the head of his hoisted boat, and poising a harpoon, pronounced himself fit for a fight.

>> (Rank leg untrustworthiness (anomalous interest) 115 = 0.4128906173256702 )

EVENT[Leg 115 selects 11632]: that sea in which the hated White Whale must even then be swimming.

EVENT[Leg 115 selects 11640]: Availing himself of the mild, summer-cool weather that now reigned in these latitudes, and in preparation for the peculiarly active pursuits shortly to be anticipated, Perth, the begrimed, blistered old blacksmith, had not removed his portable forge to the hold again, after concluding his contributory work for Ahabs leg, but still retained it on deck, fast lashed to ringbolts by the foremast.

EVENT[Leg 115 selects 11702]: With matted beard, and swathed in a bristling shark-skin apron, about mid-day, Perth was standing between his forge and anvil, the latter placed upon an iron-wood log, with one hand holding a pike-head in the coals, and with the other at his forges lungs, when Captain Ahab came along, carrying in his hand a small rusty-looking leathern bag.

>> (Rank leg untrustworthiness (anomalous interest) 116 = 0.34726442110485695 )

>> (Rank leg untrustworthiness (anomalous interest) 117 = 0.5349449918742812 )

EVENT[Leg 117 selects 11886]: and drawing still nearer, a crowd of her men were seen standing round her huge try-pots, which, covered with the parchment-like poke or stomach skin of the black fish, gave forth a loud roar to every stroke of the clenched hands of the crew.

EVENT[Leg 117 selects 11888]: while suspended in an ornamented boat, firmly secured aloft between the foremast and mainmast, three Long Island negroes, with glittering fiddle-bows of whale ivory, were presiding over the hilarious jig.

EVENT[Leg 117 selects 11891]: Lord and master over all this scene, the captain stood erect on the ships elevated quarter-deck, so that the whole rejoicing drama was full before him, and seemed merely contrived for his own individual diversion. >> (Rank leg untrustworthiness (anomalous interest) 118 = 0.4968224295750795 )

EVENT[Leg 118 selects 11949]: Nor has this thy whale sunwards turned his dying head, and then gone round again, without a lesson to me.

EVENT[Leg 118 selects 11974]: who crouching in the bow, sat watching the sharks, that spectrally played round the whale, and tapped the light cedar planks with their tails.

EVENT[Leg 118 selects 12006]: and every day when Ahab, coming from

his cabin, cast his eyes aloft, the vigilant helmsman would ostentatiously handle his spokes, and the eager mariners quickly run to the braces, and would stand there with all their eyes centrally fixed on the nailed doubloon.

>> (Rank leg untrustworthiness (anomalous interest) 119 = 0.42105970474194415 )

EVENT[Leg 119 selects 12080]: When darkness came on, sky and sea roared and split with the thunder, and blazed with the lightning, that showed the disabled masts fluttering here and there with the rags which the first fury of the tempest had left for its after sport.

EVENT[Leg 119 selects 12082]: at every flash of the lightning glancing aloft, to see what additional disaster might have befallen the intricate hamper there.

EVENT[Leg 119 selects 12086]: A great rolling sea, dashing high up against the reeling ships high teetering side, stove in the boats bottom at the stern, and left it again, all dripping through like a sieve.

>> (Rank leg untrustworthiness (anomalous interest) 120 = 0.39349850533337016 )

>> (Rank leg untrustworthiness (anomalous interest) 121 = 0.25717755566638223 )

>> (Rank leg untrustworthiness (anomalous interest) 122 = 0.40340725251607273 )

EVENT[Leg 122 selects 12363]: Why, you King-Post, you, I suppose you would have every man in the world go about with a small lightning-rod running up the corner of his hat, like a militia officers skewered feather, and trailing behind like his sash.

EVENT[Leg 122 selects 12374]: Seems to me we are lashing down these anchors now as if they were never going to be used again.

EVENT[Leg 122 selects 12420]: Some hours after midnight, the Typhoon abated so much, that through the strenuous exertions of Starbuck and Stubbone engaged forward and the other aftthe shivered remnants of the jib and fore and main-top-sails were cut adrift from the spars, and went eddying away to leeward, like the feathers of an albatross, which sometimes are cast to the winds when that storm-tossed bird is on the wing.

>> (Rank leg untrustworthiness (anomalous interest) 123 = 0.34603309869780324 )

>> (Rank leg untrustworthiness (anomalous interest) 124 = 0.5259123243981002 )

EVENT[Leg 124 selects 12582]: As for the men, though some of them lowly rumbled, their fear of Ahab was greater than their fear of Fate.

EVENT[Leg 124 selects 12595]: Accessory, perhaps, to the impulse dictating the thing he was now about to do, were certain prudential motives, whose object might have been to revive the spirits of his crew by a stroke of his subtile skill, in a matter so wondrous as that of the inverted compasses.

EVENT[Leg 124 selects 12609]: One after another they peered in, for nothing but their own eyes could persuade such ignorance as theirs, and one after another they slunk away.

>> (Rank leg untrustworthiness (anomalous interest) 125 = 0.19997106439883644 )

>> (Rank leg untrustworthiness (anomalous interest) 126 = 0.5009584897954967 )

EVENT[Leg 126 selects 12767]: Those rocky islands the ship had passed

were the resort of great numbers of seals, and some young seals that had lost their dams, or some dams that had lost their cubs, must have risen nigh the ship and kept company with her, crying and sobbing with their human sort of wail.

EVENT[Leg 126 selects 12768]: But this only the more affected some of them, because most mariners cherish a very superstitious feeling about seals, arising not only from their peculiar tones when in distress, but also from the human look of their round heads and semi-intelligent faces, seen peeringly uprising from the water alongside.

EVENT[Leg 126 selects 12778]: And thus the first man of the Pequod that mounted the mast to look out for the White Whale, on the White Whales own peculiar ground.

>> (Rank leg untrustworthiness (anomalous interest) 127 = 0.23783647051953988 )  
>> (Rank leg untrustworthiness (anomalous interest) 128 = 0.6100763692467206 )

EVENT[Leg 128 selects 12981]: It seemed that somewhat late on the afternoon of the day previous, while three of the strangers boats were engaged with a shoal of whales, which had led them some four or five miles from the ship.

EVENT[Leg 128 selects 13019]: but among the number of the other boats crews, at the same time, but on the other hand, separated from the ship during the dark vicissitudes of the chase, there had been still another son.

EVENT[Leg 128 selects 13024]: Nor does it unfrequently occur, that Nantucket captains will send a son of such tender age away from them, for a protracted three or four years voyage in some other ship than their own.

>> (Rank leg untrustworthiness (anomalous interest) 129 = 0.31682564674758723 )  
>> (Rank leg untrustworthiness (anomalous interest) 130 = 0.8622562004057975 )

EVENT[Leg 130 selects 13142]: and now that all his successive meetings with various ships contrastingly concurred to show the demoniac indifference with which the white whale tore his hunters, whether sinning or sinned against.

EVENT[Leg 130 selects 13221]: When in working with his hands at some lofty almost isolated place in the rigging, which chances to afford no foothold, the sailor at sea is hoisted up to that spot, and sustained there by the rope.

EVENT[Leg 130 selects 13226]: the only strange thing about them seemed to be, that Starbuck, almost the one only man who had ever ventured to oppose him with anything in the slightest degree approaching to decision one of those too, whose faithfulness on the look-out he had seemed to doubt somewhat.

>> (Rank leg untrustworthiness (anomalous interest) 131 = 0.5045832144072494 )

EVENT[Leg 131 selects 13237]: only now almost the least heedful eye seemed to see some sort of cunning meaning in almost every sight.

EVENT[Leg 131 selects 13260]: Hast seen the White Whale?

EVENT[Leg 131 selects 13270]: and I swear to temper them triply in that hot place behind the fin, where the White Whale most feels his accursed life!

>> (Rank leg untrustworthiness (anomalous interest) 132 = 0.2868151142631495 )  
>> (Rank leg untrustworthiness (anomalous interest) 133 = 0.6086223581375027 )

EVENT[Leg 133 selects 13460]: Soon that peculiar odor, sometimes to a great distance given forth by the living sperm whale, was palpable to all the watch.

EVENT[Leg 133 selects 13465]: Thundering with the butts of three clubbed handspikes on the forecastle deck, Daggoo roused the sleepers with such judgment claps that they seemed to exhale from the scuttle, so instantaneously did they appear with their clothes in their hands.

EVENT[Leg 133 selects 13479]: Fired by the cry which seemed simultaneously taken up by the three look-outs, the men on deck rushed to the rigging to behold the famous whale they had so long been pursuing.

>> (Rank leg untrustworthiness (anomalous interest) 134 = 1 )

EVENT[Leg 134 selects 13574]: But suddenly as he peered down and down into its depths, he profoundly saw a white living spot no bigger than a white weasel, with wonderful celerity uprising, and magnifying as it rose, till it turned, and then there were plainly revealed two long crooked rows of white, glistening teeth, floating up from the undiscoverable bottom.

EVENT[Leg 134 selects 13583]: through every plank and each rib, it thrilled for an instant, the whale obliquely lying on his back, in the manner of a biting shark, slowly and feelingly taking its bows full within his mouth, so that the long, narrow, scrolled lower jaw curled high up into the open air, and one of the teeth caught in a row-lock.

EVENT[Leg 134 selects 13590]: and while the other boats involuntarily paused, as before a quick crisis impossible to withstand, then it was that monomaniac Ahab, furious with this tantalizing vicinity of his foe, which placed him all alive and helpless in the very jaws he hated.

>> (Rank leg untrustworthiness (anomalous interest) 135 = 0.5972527521236344 )

EVENT[Leg 135 selects 13663]: swimming with a velocity which plainly showed, that if now, under these circumstances, pushed on, the chase would prove an indefinitely prolonged, if not a hopeless one.

EVENT[Leg 135 selects 13678]: As he was thus walking, uttering no sound, except to hail the men aloft, or to bid them hoist a sail still higher, or to spread one to a still greater breadth thus to and fro pacing, beneath his slouched hat, at every turn he passed his own wrecked boat, which had been dropped upon the quarter-deck, and lay there reversed.

EVENT[Leg 135 selects 13733]: And so saying, he placed himself half way within the scuttle, and slouching his hat, stood there till dawn, except when at intervals rousing himself to see how the night wore on.

>> (Rank leg untrustworthiness (anomalous interest) 136 = 0.8906080136922084 )

EVENT[Leg 136 selects 13745]: Here be it said, that this pertinacious pursuit of one particular whale, continued through day into night, and through night into day, is a thing by no means unprecedented in



the South sea fishery.

EVENT[Leg 136 selects 13747]: that from the simple observation of a whale when last descried, they will, under certain given circumstances, pretty accurately foretell both the direction in which he will continue to swim for a time, while out of sight, as well as his probable rate of progression during that period.

EVENT[Leg 136 selects 13748]: And, in these cases, somewhat as a pilot, when about losing sight of a coast, whose general trending he well knows, and which he desires shortly to return to again, but at some further point.

>> (Rank leg untrustworthiness (anomalous interest) 137 = 0.8348096511193408 )

EVENT[Leg 137 selects 13841]: the White Whale churning himself into furious speed, almost in an instant as it were, rushing among the boats with open jaws, and a lashing tail, offered appalling battle on every side.

EVENT[Leg 137 selects 13847]: But at last in his untraceable evolutions, the White Whale so crossed and recrossed, and in a thousand ways entangled the slack of the three lines now fast to him, that they foreshortened, and, of themselves, warped the devoted boats towards the planted irons in him.

EVENT[Leg 137 selects 13863]: in that wild simultaneousness of a thousand concreted perils, Ahabs yet unstricken boat seemed drawn up towards Heaven by invisible wires, as, arrow-like, shooting perpendicularly from the sea, the White Whale dashed his broad forehead against its bottom, and sent it, turning over and over, into the air.

>> (Rank leg untrustworthiness (anomalous interest) 138 = 0.46233064525856477 )

EVENT[Leg 138 selects 13996]: When dusk descended, the whale was still in sight to leeward.

EVENT[Leg 138 selects 14000]: while still as on the night before, slouched Ahab stood fixed within his scuttle.

EVENT[Leg 138 selects 14024]: And yet, Ive sometimes thought my brain was very calmfrozen calm, this old skull cracks so, like a glass in which the contents turned to ice, and shiver it.

>> (Rank leg untrustworthiness (anomalous interest) 139 = 0.5132247795368095 )

EVENT[Leg 139 selects 14047]: and veer not from their mark, however the baser currents of the sea may turn and tack, and mightiest Mississippies of the land swift and swerve about, uncertain where to go at last.

EVENT[Leg 139 selects 14083]: But at last, some three points off the weather bow, Ahab descried the spout again, and instantly from the three mast-heads three shrieks went up as if the tongues of fire had voiced it.

EVENT[Leg 139 selects 14129]: Well talk to-morrow, nay, to-night, when the white whale lies down there, tied by head and tail.

>> (Rank leg untrustworthiness (anomalous interest) 140 = 0.605681830852204 )

EVENT[Leg 140 selects 14170]: But these were the first sharks that

had been observed by the Pequod since the White Whale had been first descried.

EVENT[Leg 140 selects 14171]: and whether it was that Ahabs crew were all such tiger-yellow barbarians, and therefore their flesh more musky to the senses of the sharks a matter sometimes well known to affect them, however it was, they seemed to follow that one boat without molesting the others.

EVENT[Leg 140 selects 14240]: pinioned in the turns upon turns in which, during the past night, the whale had reeled the involutions of the lines around him, the half torn body of the Parsee was seen.

>> (Rank leg untrustworthiness (anomalous interest) 141 = 0.7794446052919893 )

EVENT[Leg 141 selects 14299]: At length as the craft was cast to one side, and ran ranging along with the White Whales flank, he seemed strangely oblivious of its advance as the whale sometimes will and Ahab was fairly within the smoky mountain mist, which, thrown off from the whales spout, curled round his great, Monadnock hump.

EVENT[Leg 141 selects 14303]: spasmodically rolled his nigh flank against the bow, and, without staving a hole in it, so suddenly canted the boat over, that had it not been for the elevated part of the gunwale to which he then clung, Ahab would once more have been tossed into the sea.

EVENT[Leg 141 selects 14339]: But as the oarsmen violently forced their boat through the sledge-hammering seas, the before whale-smitten bow-ends of two planks burst through, and in an instant almost, the temporarily disabled boat lay nearly level with the waves.

>> (Rank leg untrustworthiness (anomalous interest) 142 = 0.7341097134362402 )

EVENT[Leg 142 selects 14387]: all their enchanted eyes intent upon the whale, which from side to side strangely vibrating his predestinating head, sent a broad band of overspreading semicircular foam before him as he rushed.

EVENT[Leg 142 selects 14418]: and since neither can be mine, let me then tow to pieces, while still chasing thee, though tied to thee, thou damned whale!

EVENT[Leg 142 selects 14434]: while fixed by infatuation, or fidelity, or fate, to their once lofty perches, the pagan harpooners still maintained their sinking lookouts on the sea.

>> (Rank leg untrustworthiness (anomalous interest) 143 = 0.680199113410741 )

EVENT[Leg 143 selects 14453]: Round and round, then, and ever contracting towards the button-like black bubble at the axis of that slowly wheeling circle, like another Ixion I did revolve.

EVENT[Leg 143 selects 14455]: and now, liberated by reason of its cunning spring, and, owing to its great buoyancy, rising with great force, the coffin life-buoy shot lengthwise from the sea, fell over, and floated by my side.

EVENT[Leg 143 selects 14457]: The unharmed sharks, they glided by as if with padlocks on their mouths.

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Notable events = 135 of total 14461 efficiency = 10711.851851851852 %

----- Sumarize ngram Intentionality threshold selection -----

1 expand 6 6 ----- 0.36  
1 banks 6 6 ----- 0.3  
1 murmured 12 12 ----- 0.96  
1 snatched 5 5 ----- 0.4  
1 recently 5 5 ----- 0.4  
1 remains 24 24 ----- 1.68  
1 try-works 18 18 ----- 1.6199999999999999  
1 evangelist 3 3 ----- 0.3  
1 sufficiently 9 9 ----- 1.08  
...  
1 shrouded 6 6 ----- 0.48  
1 devilish 7 7 ----- 0.56  
1 whalers 19 19 ----- 1.33  
1 receive 8 8 ----- 0.56  
1 brief 10 10 ----- 0.5  
1 skeletons 5 5 ----- 0.45  
...  
2 little flask 7 7 ----- 0.8400000000000001  
2 who was 10 10 ----- 0.7000000000000001  
2 between two 5 5 ----- 0.55  
2 stood on 5 5 ----- 0.4  
2 right whales 14 14 ----- 1.6800000000000002  
2 his berth 6 6 ----- 0.54  
2 after his 5 5 ----- 0.45  
2 up all 5 5 ----- 0.30000000000000004  
...  
3 straits of sunda 6 6 ----- 0.96  
3 though it was 5 5 ----- 0.65  
3 side by side 6 6 ----- 0.72  
3 no man can 3 3 ----- 0.3  
3 on a level 3 3 ----- 0.3  
3 my little man 4 4 ----- 0.52  
3 eight bells there 3 3 ----- 0.51  
...  
4 hast seen the white 5 5 ----- 0.9500000000000001  
4 stern of the boat 3 3 ----- 0.51  
4 as soon as possible 3 3 ----- 0.57  
4 at the present day 5 5 ----- 0.9  
4 as if it had 4 4 ----- 0.48  
4 to the deck by 3 3 ----- 0.42  
4 historical story of jonah 3 3 ----- 0.75  
4 bottom of the sea 9 9 ----- 1.53  
4 one way or other 3 3 ----- 0.48  
4 greenland or right whale 4 4 ----- 0.96  
4 bodily into the air 3 3 ----- 0.57  
4 when the proper time 3 3 ----- 0.6  
4 ye look they look 3 3 ----- 0.51  
4 what do you think 3 3 ----- 0.51  
4 whale and the right 3 3 ----- 0.57  
4 for the first time 6 6 ----- 1.08  
4 vicissitudes of the chase 3 3 ----- 0.75  
4 which the right whale 3 3 ----- 0.63  
4 loss of his leg 3 3 ----- 0.44999999999999996  
4 each side of his 3 3 ----- 0.48  
4 pilot of the living 3 3 ----- 0.57  
4 for all the world 4 4 ----- 0.68  
4 skin of the whale 3 3 ----- 0.51  
4 end of the line 3 3 ----- 0.44999999999999996

4 thus far had been 3 3 ----- 0.51  
4 as the case might 4 4 ----- 0.68  
4 as if he had 3 3 ----- 0.36  
4 did by no means 3 3 ----- 0.44999999999999996  
4 one and the same 5 5 ----- 0.8  
4 on board the pequod 9 9 ----- 1.71  
4 an inch in thickness 3 3 ----- 0.6  
4 cape of good hope 6 6 ----- 1.02  
4 middle of the room 4 4 ----- 0.72  
4 be said to have 3 3 ----- 0.44999999999999996  
4 gave me to understand 4 4 ----- 0.84  
4 jesty joky hoky-poky lad 3 3 ----- 0.72  
4 jonah and the whale 3 3 ----- 0.57  
4 whosoever of ye raises 3 3 ----- 0.65999999999999999  
4 one after the other 4 4 ----- 0.76  
4 side of the deck 3 3 ----- 0.48  
4 here be it said 6 6 ----- 0.89999999999999999  
4 one of the most 3 3 ----- 0.44999999999999996  
4 on top of his 3 3 ----- 0.39  
4 look you look he 3 3 ----- 0.48  
4 to be found in 5 5 ----- 0.70000000000000001  
4 chase to moby dick 3 3 ----- 0.54  
4 funny sporty gamy jesty 3 3 ----- 0.69  
4 rising to the surface 4 4 ----- 0.84  
4 at last succeeded in 3 3 ----- 0.6  
4 no more of this 3 3 ----- 0.44999999999999996  
4 out of the boat 5 5 ----- 0.75  
4 all this as it 4 4 ----- 0.56  
4 so as to be 5 5 ----- 0.55  
4 to think of it 3 3 ----- 0.42  
4 seven hundred and seventy-seventh 6 6 ----- 1.98  
4 position of the whales 3 3 ----- 0.65999999999999999  
4 one to the other 5 5 ----- 0.8  
4 seen the white whale 8 8 ----- 1.6  
4 would have almost thought 4 4 ----- 1  
4 round and round in 3 3 ----- 0.54  
4 as you may say 5 5 ----- 0.70000000000000001  
4 land and on sea 3 3 ----- 0.44999999999999996  
4 if it be really 3 3 ----- 0.44999999999999996  
4 turned out to be 3 3 ----- 0.48  
4 at the same time 20 20 ----- 3.2  
4 sacred to the memory 3 3 ----- 0.6  
4 up into the air 4 4 ----- 0.6  
4 front of his head 3 3 ----- 0.51  
4 as if they were 3 3 ----- 0.44999999999999996  
4 you would have seen 4 4 ----- 0.76  
4 as in the case 4 4 ----- 0.56  
4 such a funny sporty 3 3 ----- 0.57  
4 lad is the ocean 3 3 ----- 0.48  
4 two in a bed 4 4 ----- 0.48  
4 for a long time 4 4 ----- 0.6  
4 brought to bear upon 3 3 ----- 0.6  
4 who thus far had 4 4 ----- 0.64  
4 as if he were 4 4 ----- 0.52  
4 this as it may 4 4 ----- 0.56  
4 for the most part 9 9 ----- 1.53  
4 so have i seen 3 3 ----- 0.42  
4 will be all right 4 4 ----- 0.68  
4 oclock in the morning 3 3 ----- 0.63  
4 some four or five 3 3 ----- 0.51  
4 for the white whale 3 3 ----- 0.57  
4 something of that sort 3 3 ----- 0.65999999999999999  
4 down into the cabin 5 5 ----- 0.95000000000000001

4 species of the leviathan 6 6 ----- 1.44  
4 if he did not 4 4 ----- 0.52  
4 so as to get 3 3 ----- 0.36  
4 out of the way 4 4 ----- 0.56  
4 not seem to be 3 3 ----- 0.42  
4 there is no telling 7 7 ----- 1.33  
4 captain of the pequod 3 3 ----- 0.63  
4 high in the air 3 3 ----- 0.4499999999999996  
4 out of the water 5 5 ----- 0.8  
4 whole of the law 3 3 ----- 0.48  
4 seemed on the point 3 3 ----- 0.57  
4 dropped into the sea 3 3 ----- 0.6  
4 though to be sure 3 3 ----- 0.51  
4 all the world like 3 3 ----- 0.54  
4 skeleton of the whale 3 3 ----- 0.63  
4 look ye look they 3 3 ----- 0.51  
4 he seemed to be 6 6 ----- 0.8999999999999999  
4 jumped from a whale-boat 3 3 ----- 0.72  
4 if it had been 3 3 ----- 0.42  
4 morning to ye shipmates 3 3 ----- 0.69  
4 me out in it 3 3 ----- 0.36  
4 on land and on 3 3 ----- 0.42  
4 we look ye look 3 3 ----- 0.4499999999999996  
4 so be it then 3 3 ----- 0.39  
4 this business of whaling 3 3 ----- 0.72  
4 give it to him 3 3 ----- 0.42  
4 death and the judgment 3 3 ----- 0.6599999999999999  
4 should like to know 5 5 ----- 0.9500000000000001  
4 he had not been 3 3 ----- 0.4499999999999996  
4 who for the first 3 3 ----- 0.51  
4 from side to side 5 5 ----- 0.8500000000000001  
4 so soon as he 3 3 ----- 0.39  
4 you would have almost 3 3 ----- 0.63  
4 started to his feet 4 4 ----- 0.76  
4 on the other side 9 9 ----- 1.53  
4 to ye shipmates morning 3 3 ----- 0.69  
4 as if it were 11 11 ----- 1.43  
4 have mercy on us 4 4 ----- 0.64  
4 by the sperm whale 3 3 ----- 0.54  
4 sporty gamy jesty joky 3 3 ----- 0.6599999999999999  
4 bear me out in 3 3 ----- 0.42  
4 even at the present 3 3 ----- 0.57  
4 you would have thought 5 5 ----- 1.1  
4 he must have been 4 4 ----- 0.68  
4 some time or other 3 3 ----- 0.54  
4 so much the more 7 7 ----- 1.12  
4 gamy jesty joky hoky-poky 3 3 ----- 0.75  
4 had it not been 3 3 ----- 0.4499999999999996  
4 up and down in 3 3 ----- 0.42  
4 part of the ship 4 4 ----- 0.64  
4 mercy on us all 3 3 ----- 0.4499999999999996  
4 on the other hand 3 3 ----- 0.51  
4 to and fro in 3 3 ----- 0.39  
4 as a general thing 8 8 ----- 1.44  
4 had thus far been 5 5 ----- 0.8500000000000001  
4 isles of the sea 3 3 ----- 0.48  
4 roll of the sea 3 3 ----- 0.4499999999999996  
4 now that i think 4 4 ----- 0.64  
4 corpusants have mercy on 3 3 ----- 0.72  
4 so that the whole 3 3 ----- 0.51  
4 one or two other 3 3 ----- 0.48  
4 you look he looks 3 3 ----- 0.51  
4 tell you what it 3 3 ----- 0.48

4 should like to see 3 3 ----- 0.54  
4 look at this matter 3 3 ----- 0.57  
5 funny sporty gamy jesty joky 3 3 ----- 0.84  
5 from one to the other 4 4 ----- 0.84  
5 have mercy on us all 3 3 ----- 0.6  
5 on top of his head 3 3 ----- 0.54  
5 sporty gamy jesty joky hoky-poky 3 3 ----- 0.96  
5 hast seen the white whale 5 5 ----- 1.25  
5 pilot of the living god 3 3 ----- 0.69  
5 such a funny sporty gamy 3 3 ----- 0.72  
5 gamy jesty joky hoky-poky lad 3 3 ----- 0.87  
5 hoky-poky lad is the ocean 3 3 ----- 0.78  
5 we look ye look they 3 3 ----- 0.6  
5 sleep two in a bed 4 4 ----- 0.72  
5 position of the whales eyes 3 3 ----- 0.8099999999999999  
5 at one and the same 4 4 ----- 0.76  
5 had it not been for 3 3 ----- 0.57  
5 three or four years voyage 3 3 ----- 0.78  
5 look you look he looks 3 3 ----- 0.6599999999999999  
5 be all this as it 4 4 ----- 0.68  
5 on land and on sea 3 3 ----- 0.54  
5 for all the world like 3 3 ----- 0.6599999999999999  
5 corpusants have mercy on us 3 3 ----- 0.8099999999999999  
5 business is that of yours 3 3 ----- 0.75  
5 as the case might be 4 4 ----- 0.8  
5 morning to ye shipmates morning 3 3 ----- 0.9299999999999999  
5 out of sight of land 5 5 ----- 1  
5 sperm whale and the right 3 3 ----- 0.75  
5 look ye look they look 3 3 ----- 0.6599999999999999  
5 who for the first time 3 3 ----- 0.6599999999999999  
5 bear me out in it 3 3 ----- 0.51  
5 you would have almost thought 3 3 ----- 0.87  
5 whats the matter with you 4 4 ----- 1  
5 as if it had been 3 3 ----- 0.51  
5 death and the judgment then 3 3 ----- 0.8099999999999999  
5 one and the same time 3 3 ----- 0.63  
5 lad is the ocean oh 3 3 ----- 0.57  
5 all this as it may 4 4 ----- 0.72  
5 on each side of his 3 3 ----- 0.57  
5 whosoever of ye raises me 3 3 ----- 0.75  
5 even at the present day 3 3 ----- 0.69  
6 story of jonah and the whale 3 3 ----- 0.84  
6 now that i think of it 4 4 ----- 0.88  
6 at one and the same time 3 3 ----- 0.72  
6 be all this as it may 4 4 ----- 0.84  
6 we look ye look they look 3 3 ----- 0.75  
6 corpusants have mercy on us all 3 3 ----- 0.9299999999999999  
6 such a funny sporty gamy jesty 3 3 ----- 0.8999999999999999  
6 joky hoky-poky lad is the ocean 3 3 ----- 0.9299999999999999  
6 funny sporty gamy jesty joky hoky-poky 3 3 ----- 1.14  
6 sporty gamy jesty joky hoky-poky lad 3 3 ----- 1.08  
6 to the bottom of the sea 3 3 ----- 0.72  
6 what business is that of yours 3 3 ----- 0.8999999999999999  
6 hoky-poky lad is the ocean oh 3 3 ----- 0.87

----- Emergent Longitudinally Stable Concept Fragments -----

Particular theme/topic "fire-place = 0.300000"  
Particular theme/topic "repentance = 0.300000"  
Particular theme/topic "living god = 0.300000"  
Particular theme/topic "seas where = 0.300000"  
Particular theme/topic "punishment = 0.300000"  
Particular theme/topic "knew not = 0.320000"

Particular theme/topic "boarders = 0.320000"  
Particular theme/topic "side ladder = 0.330000"  
Particular theme/topic "as a sailor = 0.330000"  
Particular theme/topic "bed with me = 0.330000"  
Particular theme/topic "great pilot = 0.330000"  
Particular theme/topic "from the bed = 0.360000"  
Particular theme/topic "centre table = 0.360000"  
Particular theme/topic "lesson to us = 0.360000"  
Particular theme/topic "punchbowl = 0.360000"  
Particular theme/topic "sleep two = 0.360000"  
Particular theme/topic "to the memory = 0.390000"  
Particular theme/topic "into the room = 0.390000"  
Particular theme/topic "like queequeg = 0.390000"  
Particular theme/topic "jonah teaches = 0.390000"  
Particular theme/topic "carpet-bag = 0.400000"  
Particular theme/topic "entry = 0.400000"  
Particular theme/topic "spouter-inn = 0.440000"  
Particular theme/topic "two in a bed = 0.480000"  
Particular theme/topic "landlady = 0.480000"  
Particular theme/topic "sleep two in = 0.480000"  
Particular theme/topic "kill-e = 0.480000"  
Particular theme/topic "euroclydon = 0.500000"  
Particular theme/topic "mapple = 0.540000"  
Particular theme/topic "quohog = 0.540000"  
Particular theme/topic "kicked = 0.540000"  
Particular theme/topic "wharf = 0.550000"  
Particular theme/topic "as a passenger = 0.560000"  
Particular theme/topic "tarshish = 0.560000"  
Particular theme/topic "pilot of the living = 0.570000"  
Particular theme/topic "sacred to the memory = 0.600000"  
Particular theme/topic "astonishment = 0.600000"  
Particular theme/topic "what whaling = 0.600000"  
Particular theme/topic "quaker = 0.600000"  
Particular theme/topic "go to sea = 0.630000"  
Particular theme/topic "his ramadan = 0.660000"  
Particular theme/topic "delight is to him = 0.680000"  
Particular theme/topic "said the landlord = 0.680000"  
Particular theme/topic "pilot of the living god = 0.690000"  
Particular theme/topic "woe to him = 0.700000"  
Particular theme/topic "octavo = 0.720000"  
Particular theme/topic "sleep two in a bed = 0.720000"  
Particular theme/topic "ramadan = 0.770000"  
Particular theme/topic "said bildad = 0.770000"  
Particular theme/topic "landlord said = 0.780000"  
Particular theme/topic "morning to ye = 0.780000"  
Particular theme/topic "bulkington = 0.800000"  
Particular theme/topic "his tomahawk = 0.840000"  
Particular theme/topic "said peleg = 0.900000"  
Particular theme/topic "hussey = 0.900000"  
Particular theme/topic "against the wall = 0.960000"  
Particular theme/topic "this harpooneer = 1.050000"  
Particular theme/topic "father mapple = 1.170000"  
Particular theme/topic "radney = 1.200000"  
Particular theme/topic "tomahawk = 1.360000"  
Particular theme/topic "young man = 1.440000"  
Particular theme/topic "porpoise = 1.520000"  
Particular theme/topic "lakeman = 1.540000"  
Particular theme/topic "didnt = 1.650000"  
Particular theme/topic "house = 1.650000"  
Particular theme/topic "captain bildad = 1.680000"  
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Particular theme/topic "truth = 1.800000"  
Particular theme/topic "blubber = 1.820000"

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Particular theme/topic "human = 1.850000"  
Particular theme/topic "plain = 1.850000"  
Particular theme/topic "quick = 1.950000"  
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Particular theme/topic "sharp = 2.000000"  
Particular theme/topic "either = 2.040000"  
Particular theme/topic "wonder = 2.040000"  
Particular theme/topic "devil = 2.100000"  
Particular theme/topic "at once = 2.100000"  
Particular theme/topic "species = 2.100000"  
Particular theme/topic "manner = 2.160000"  
Particular theme/topic "placed = 2.160000"  
Particular theme/topic "by his = 2.160000"  
Particular theme/topic "flukes = 2.160000"  
Particular theme/topic "middle = 2.160000"  
Particular theme/topic "means = 2.200000"  
Particular theme/topic "watch = 2.200000"  
Particular theme/topic "object = 2.220000"  
Particular theme/topic "aspect = 2.220000"  
Particular theme/topic "whiteness = 2.250000"  
Particular theme/topic "teeth = 2.250000"  
Particular theme/topic "sailed = 2.280000"  
Particular theme/topic "darted = 2.280000"  
Particular theme/topic "single = 2.280000"  
Particular theme/topic "do not = 2.280000"  
Particular theme/topic "nature = 2.280000"  
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Particular theme/topic "as in = 2.300000"  
Particular theme/topic "waves = 2.300000"  
Particular theme/topic "let me = 2.340000"  
Particular theme/topic "course = 2.340000"  
Particular theme/topic "ground = 2.340000"  
Particular theme/topic "to say = 2.340000"  
Particular theme/topic "people = 2.400000"  
Particular theme/topic "saying = 2.400000"  
Particular theme/topic "below = 2.450000"  
Particular theme/topic "craft = 2.450000"  
Particular theme/topic "at his = 2.460000"  
Particular theme/topic "landlord = 2.480000"  
Particular theme/topic "whats = 2.500000"  
Particular theme/topic "will be = 2.520000"  
Particular theme/topic "holding = 2.520000"  
Particular theme/topic "as well = 2.520000"  
Particular theme/topic "caught = 2.520000"  
Particular theme/topic "if you = 2.520000"  
Particular theme/topic "making = 2.520000"  
Particular theme/topic "brought = 2.520000"  
Particular theme/topic "seamen = 2.520000"  
Particular theme/topic "passed = 2.520000"  
Particular theme/topic "shipmates = 2.520000"  
Particular theme/topic "forth = 2.550000"  
Particular theme/topic "do you = 2.580000"  
Particular theme/topic "sudden = 2.580000"  
Particular theme/topic "comes = 2.600000"  
Particular theme/topic "grand = 2.600000"  
Particular theme/topic "not so = 2.640000"  
Particular theme/topic "began = 2.650000"  
Particular theme/topic "by some = 2.660000"  
Particular theme/topic "monster = 2.660000"  
Particular theme/topic "to make = 2.660000"  
Particular theme/topic "plainly = 2.660000"



Particular theme/topic "above = 2.700000"  
Particular theme/topic "as for = 2.700000"  
Particular theme/topic "his face = 2.720000"  
Particular theme/topic "thoughts = 2.720000"  
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Particular theme/topic "struck = 2.760000"  
Particular theme/topic "for it = 2.760000"  
Particular theme/topic "broken = 2.760000"  
Particular theme/topic "coffin = 2.760000"  
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Particular theme/topic "for all = 2.800000"  
Particular theme/topic "chase = 2.850000"  
Particular theme/topic "ocean = 2.850000"  
Particular theme/topic "surface = 2.870000"  
Particular theme/topic "whaleman = 2.880000"  
Particular theme/topic "bulwarks = 2.880000"  
Particular theme/topic "behind = 2.880000"  
Particular theme/topic "savage = 2.880000"  
Particular theme/topic "for his = 2.940000"  
Particular theme/topic "to it = 2.950000"  
Particular theme/topic "his hand = 2.960000"  
Particular theme/topic "any other = 2.970000"  
Particular theme/topic "aloft = 3.000000"  
Particular theme/topic "indian = 3.000000"  
Particular theme/topic "when he = 3.010000"  
Particular theme/topic "somehow = 3.010000"  
Particular theme/topic "distance = 3.040000"  
Particular theme/topic "creature = 3.040000"  
Particular theme/topic "slowly = 3.060000"  
Particular theme/topic "taking = 3.060000"  
Particular theme/topic "others = 3.060000"  
Particular theme/topic "coming = 3.060000"  
Particular theme/topic "sharks = 3.060000"  
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Particular theme/topic "since = 3.100000"  
Particular theme/topic "which he = 3.120000"  
Particular theme/topic "bottom = 3.180000"  
Particular theme/topic "several = 3.220000"  
Particular theme/topic "gentlemen = 3.240000"  
Particular theme/topic "creatures = 3.240000"  
Particular theme/topic "at times = 3.360000"  
Particular theme/topic "you will = 3.360000"  
Particular theme/topic "wondrous = 3.360000"  
Particular theme/topic "point = 3.400000"  
Particular theme/topic "forward = 3.430000"  
Particular theme/topic "captains = 3.440000"  
Particular theme/topic "anything = 3.440000"  
Particular theme/topic "second = 3.480000"  
Particular theme/topic "to see = 3.480000"  
Particular theme/topic "turning = 3.500000"  
Particular theme/topic "to this = 3.500000"  
Particular theme/topic "no more = 3.500000"  
Particular theme/topic "once more = 3.510000"  
Particular theme/topic "captain peleg = 3.510000"  
Particular theme/topic "touching = 3.520000"  
Particular theme/topic "least = 3.600000"  
Particular theme/topic "forecastle = 3.600000"  
Particular theme/topic "whatever = 3.600000"  
Particular theme/topic "large = 3.700000"  
Particular theme/topic "each other = 3.700000"  
Particular theme/topic "death = 3.750000"  
Particular theme/topic "carpenter = 3.780000"  
Particular theme/topic "might have = 3.800000"

Particular theme/topic "known = 3.800000"  
Particular theme/topic "with him = 3.840000"  
Particular theme/topic "having = 3.840000"  
Particular theme/topic "would be = 3.840000"  
Particular theme/topic "at least = 3.920000"  
Particular theme/topic "suddenly = 3.920000"  
Particular theme/topic "has been = 3.920000"  
Particular theme/topic "looking = 3.920000"  
Particular theme/topic "turned = 3.960000"  
Particular theme/topic "waters = 3.960000"  
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Particular theme/topic "did not = 4.060000"  
Particular theme/topic "old man = 4.130000"  
Particular theme/topic "not only = 4.160000"  
Particular theme/topic "fishery = 4.200000"  
Particular theme/topic "seems = 4.250000"  
Particular theme/topic "going = 4.250000"  
Particular theme/topic "right whale = 4.290000"  
Particular theme/topic "especially = 4.300000"  
Particular theme/topic "must be = 4.340000"  
Particular theme/topic "peculiar = 4.400000"  
Particular theme/topic "stood = 4.500000"  
Particular theme/topic "all these = 4.680000"  
Particular theme/topic "general = 4.690000"  
Particular theme/topic "could not = 4.770000"  
Particular theme/topic "always = 4.800000"  
Particular theme/topic "harpoon = 4.900000"  
Particular theme/topic "matter = 4.920000"  
Particular theme/topic "he would = 4.960000"  
Particular theme/topic "together = 5.040000"  
Particular theme/topic "instant = 5.110000"  
Particular theme/topic "more than = 5.130000"  
Particular theme/topic "at all = 5.160000"  
Particular theme/topic "indeed = 5.280000"  
Particular theme/topic "business = 5.280000"  
Particular theme/topic "must have = 5.310000"  
Particular theme/topic "heard = 5.350000"  
Particular theme/topic "there was = 5.490000"  
Particular theme/topic "times = 5.500000"  
Particular theme/topic "present = 5.530000"  
Particular theme/topic "nevertheless = 6.000000"  
Particular theme/topic "sperm whales = 6.000000"  
Particular theme/topic "small = 6.100000"  
Particular theme/topic "they were = 6.210000"  
Particular theme/topic "harpooneers = 6.270000"  
Particular theme/topic "moby dick = 6.570000"  
Particular theme/topic "leviathan = 6.930000"  
Particular theme/topic "pequod = 7.380000"  
Particular theme/topic "sometimes = 7.560000"  
Particular theme/topic "cried = 7.650000"  
Particular theme/topic "against = 9.240000"  
Particular theme/topic "chapter = 12.040000"