

The Exhaustion of the Interaction of Words:
Brainstorming with the ParaMind Brainstorming Program
by Robert Pearson

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Preface

1. Can Computers Generate New Ideas By Themselves?

Can helpful new ideas be discovered by computer-automated brainstorming?

For anyone with an open mind and a bright outlook on the future, it should seem obvious that there are many important ideas that we have not discovered. Over the years, I have come to see it as a fascinating possibility that computer-automated brainstorming can help us get to these new fascinating ideas which may help us solve some of our most challenging problems.

I remember sitting in a friend's apartment one night while in college and wondering what some of the major new ideas would be. My friend was a computer science major, and I was undecided but leaning towards English composition.

I looked at many different books that had computer notations. My friend had one called "Combinatorics." I liked the sense of that word and what it could imply. At the time, I was of the opinion that a single person could come up with very startling and useful ideas, if he really applied himself to it. I still believe that. A lot of people will say 'there are really no new ideas' but I don't think this thought has any practical truth to it.

That night, I realized that if we were to take all our words and put them in every possible meaningful combination, we would then have every idea available to us, at least those ideas that could be expressed in our language. I thought that some kind of shorthand would then be needed to express new ideas that we do not have words for yet, and in the process, we would have to invent new words.

The idea of pre-existing language holding the key to future scientific progress can be seen in the following example. Imagine the time when Edison built the first phonograph. At that moment, some computer disc-drive or CD concepts and terminology were already with us. Someone back in 1910 could logically have seen the idea of the present personal computer if they looked at concepts such as the phonograph, the typewriter, and the motion picture. They just needed to combine the ideas all together, perhaps even with ideas of how the human brain works for memory, and think of new possible ideas that might have some value.

A good dictionary should contain all the words that the books of our library contain in that library's main language. Our library is merely the intelligent interactions of the words of our dictionary in meaningful ways. If we were to exhaust the meaningful interactions of our words, we would come up with new discoveries that we are bound to stumble upon in the future by the slower ways we currently come up with ideas.

I decided upon going with English in college and focused my personal studies on unusual ideas of composition and the layout of scientific information. I was an English major but I would come home from the library with books on every different type of science I could find. I was more interested in the

terminology and structure of the textbooks for presenting language and ideas than actually understanding all the concepts written in them. I wrote several papers on this idea while getting my BA in English composition. There was hardly an assignment given that I couldn't somehow twist and use as an excuse to further my studies on this brainstorming idea.

A few years after I graduated, I decided that building the software was going to be my goal. The program I came up with I called ParaMind Brainstorming Software, "para-mind" meaning "beside the mind." I took it to mean "beyond" the mind or thinking outside of the "box" of the mind. The software uses copying and merging of texts that the user types in, combining these texts with new words that are grouped together in what we call "word categories." The word categories are words that have some relationship to each other, such as adjectives related to sight, or adverbs related to human motion and so on. There is a database available of over 1100 word categories, and users can add as many of their own new word categories as they like.

ParaMind Brainstorming Software has been selling versions of this software since late 1992. Many of the customers have been doctors and scientists, but basically it is the general public who are using ParaMind. Several of the buyers are from general types of businesses. One user told me that he was a holder of many patents and he thought my idea was a great one. Some buyers are creative writers, such as a very famous rock lyricist who doesn't seem to want people to know he uses the program. A person who works at the United Nations gave ParaMind a strong endorsement. Another person who bought the program and continues to purchase upgrades is a European ambassador. It's very good for anyone who may have a writer or thinker's block or who may need to get many variations on a single idea.

All versions of ParaMind automatically merge your sentence with the new word categories, creating thousands of new idea combinations, but the process of coming up with these new ideas has become a totally automated one with the last release of the ParaMind Professional Version. The user enters in their sentence, presses only one button, and the computer sends back hundreds of pages of ideas related to their sentence.

My answer to the question, "Can Computers Generate New Ideas By Themselves?" is, "No. It still takes a human, but computers can radically speed up the way humans generate new ideas." This book attempts to be both a conceptual book about this futuristic theory of ideas and also a book to explain

the ParaMind program. The description of the software is needed in order to understand the concept, so it is explained in detail to better describe the theory.

Through this long story, through a long relationship with this idea, the idea becomes like an allegory of what else is out there in the future, in the universe, presently unknown to man.

2. The History of Meaningful Word-interaction Exhaustion

A working definition of meaningful word-interaction exhaustion is any literature composed for a purpose but is created by means that are partly or wholly beyond the limitations of a human mind. Thus, meaningful word-interaction exhaustion is the literature which proceeds in an alternative way to the progression which is kept under control and limitations by humanity's intellect. An idea of this scope must have a history outside its relationship to the current time in which it was coined. It is the purpose of this section to discover the history of literature produced by alternative methods. I have to say for fairness when I started thinking of the idea, that I had never heard the expression "the exhaustion of the interaction of words" nor the idea represented in any of the thinkers I will now describe. My inspiration at that time was more the basic "cosmic consciousness" type philosophy and my father's scientific optimism that would often show itself when we watched science-fiction movies together. At the time, I had also been exposed to ideas about "cut-ups" -- cutting words out of text with scissors and then reassembling them.

Ramon Lull (1232-1315) created a system of "thinking" outside of the limitations of human thought in 1275. He invented a type of logical machine by creating a small set of words that could be combined together in specific fashions. He did this for a purpose, since he was trying to get people to combine elements of new thinking, in this case, trying to convert Muslims to Christianity. Lull's machine allows the words to be combined together and show all the possible statements, in his limited set, on the subject.

Athanasius Kircher (1602-1680) was called the last Renaissance man and compared to Leonardo da Vinci. He wrote works on optics, geography, astronomy, hieroglyphs, alchemy and music, and invented a magnetic clock, an automatic organ, and a "magic lantern." Kircher wrote "Ars Magna Sciendi," the Great Art of Science, in 1669, which names Lull and describes a system similar to

the Lullian art. Kircher thought the art of combination was a secret matter only for those that God enlightens.

Another German philosopher who used the Lullian method of combination was Gottfried Wilhelm Leibniz (1646-1716). Leibniz published "Dissertatio de Arte Combinatoria" in 1666, which describes an "alphabet of human thought." He thought of all ideas as only combinations of a small number of simple concepts. Like the meaningful word interaction exhaustion theory of the value of exploring sentences by expanding upon them, Leibniz thought that since all sentences are composed of a subject and a predicate, one might find new sentences by finding all the predicates appropriate to the sentence in a given subject. He also thought one could find all the subjects that are related to a given predicate. He went into much detail in this work that should be explored for possible inspiration in meaningful word interaction exhaustion.

Descartes (1596 – 1650) was a philosopher who also discussed ideas regarding a break-down of human thought into smaller components. Leibniz was influenced by Descartes so it is important to give him a passing mention.

Contained in the work of Jonathan Swift's (1667 –1745) "Gulliver's Travels" there is a reference to a machine which is designed in such a way to compose juxtapositions by the turning of handles on which there is structure of symbols. There would be people employed to work on this machine, turning the handles and writing down the results of the juxtapositions. Hopefully, according to the story, there would be several more machines built so that ideas could come about easier. It is impossible for us to know if Swift was serious in any way in his short discussion of his idea, but contained within this reference is a small bit of the meaningful word-interaction exhaustion philosophy.

Novalis (1772 – 1801) provides another predecessor to the meaningful word-interaction exhaustion ideas. There are currently no full translations into English from the German of Novalis' Broullion, an encyclopedia project that was never completed. Contained within Broullion is a scheme for creating a "calculus of ideas," "a loom of ideas" using a "magic wand of analogy" (Neubauer, 1980). These phrases represent a linkage of ideas with meaningful word-interaction exhaustion since as a discipline it aims to meaningfully exhaust the interactions of words available to us (thus exhausting logical thoughts/inventions/etc.). It was by Novalis' study of "encyclopedia theory" that he came upon the work of Leibniz, the German philosopher who worked on a science of analogies.

Tristan Tzara (1896 –1963) was the first recorded person to use "cut-ups," a writing style using scissors and pre-written sentences. The text is cut into sections which are then reassembled into new text. This poet's invention became popular among some writers in modern times. He provides a good example of the thinker who tries to introduce elements of chance into the thinking process.

My history with the idea was briefly explained but I will go into more detail here. In early May of 1985, I conjured up an idea for this computer/human technique which I think could increase knowledge in general. I call this technique meaningful word-interaction exhaustion. By design, it tries to exhaust the meaningful interactions of words in a certain subject, and therefore constitutes a type of ultra-literature.

To understand my confidence in playing around with this idea, it is necessary to understand my influences. My father was born in 1921 and he had the kind of scientific optimism that many had in that generation. They saw the future as wondrous because of all the incredible things that science would bring to us. I was an artistically-minded child who also loved science with the same kind of optimism my father had. Through various artists, I also learned to incorporate the love of philosophy and spirituality into scientific thinking. Some of these philosophers pointed towards "cosmic consciousness" ideas. The idea that one could find out more about the universe by tapping into spirituality was fascinating to me.

Other influences were the art movements which occurred primarily from 1916 to around 1940. These groups contained young people who had contempt for that which was considered proper and academic. This alone would not have impressed me so much, but they substituted things which were competent academically -- they didn't just complain. From them I learned to have confidence in my own ideas. They viewed institutionalized learning as something that wasn't always representing the only view of things and the last word on intelligence. They saw it was moldable, and often changed by young minds or "outcasts" who are disregarded in their times. This kind of philosophy empowers young thinkers.

During the same time that meaningful word-interaction exhaustion occurred to me, I was concerned with the idea of expanding artistic and futuristic ideas by use of the "cut-up" writing technique. The cut-up

technique of writing is a technique invented by the poet Tristan Tzara in the late 1910's. With a pair of scissors, one cuts up some text into either individual words or groups of words, and then jumbles the pieces together in a chance fashion. The reorganization of the words is the new piece of "information," the power and potential of which is not limited by the person's mind at all. As one can imagine, a lot of gibberish is produced by this technique. Occasionally, breathtaking combinations of words are found.

During 1985-1987, I wrote about the idea in various college papers and finally in 1992 I started a company to create a software product based on the idea. There were already a few brainstorming-type programs on the market but none of them were very sophisticated in the direction that I wanted to go in.

3. What is a "Generative Computer Brainstorming Program"?

A "generative computer brainstorming program" is one that produces new ideas from your idea, not a program that gives popular associations like a thesaurus or asks you questions to let your mind develop the idea. It is also not a flow chart type program that maps out your ideas. A lot of what is sold as brainstorming software today falls under the guise of asking the user to define their ideas or map out their ideas like a flow chart. The ParaMind program is different because it uses a radical way to quickly multiply the user's original spark of an idea.

The first problem encountered was to get the computer to understand the complexity of word relationships. Failure in this area produces output that isn't grammatically correct, and if it is, the words are not in semantic context with each other, so they don't make sense anyway. With the merge technique, the user's work is always in context, and can be easily made grammatically correct with features such as a common replace function, when it is not.

This program works by replacing one or two words in the user's idea sentence with words that are the same part of speech and even the same subject matter, tense, class, and so on. The idea sentence is simply the user's idea put in a few words on the ParaMind screen. You can then replace another word in the new sentences that are created for even more new ideas. You take out a noun to replace it with another noun, or you take out an adjective to replace it with another adjective. You can do complex searches of the word category database

to locate related words to make your new ideas appear fast and be significant to your original subject.

If users could predict the results, they wouldn't need the program in the first place. What is created are hundreds and even thousands of sometimes fascinating, sometimes even hilarious results, depending on the original idea sentence. With this program, you can select word categories that are configured to fit into your own sentences. You scan through the word categories to see which category is best suited for your ideas. The program will also scan your sentence and suggest word categories that are in the database that might be the best for brainstorming on your sentence.

No matter what idea you are after, you work towards that idea by typing in a sentence that contains the basic outline of what you know about the idea so far. You then select some of the program's 1100 word categories, or add in your own word categories. The software can then expand any idea into all its various avenues. You read through those thousands of idea combinations to see which ones are the best. ParaMind can also help the user to find just one idea, and easily splice that idea into pre-existing text and documents, by using the "Replace Highlighted Word" feature, which allows the user to brainstorm on one sentence by eyeing the word categories with their sentence.

4. The Meaningful Exhaustion of the Interaction of Words and Symbols

This chapter goes over the basic philosophy that came about from the general idea of exhausting the interactions of words by computer means. It is written in philosophical language that attempts to set up new conditions, so at times it may seem terse and like shorthand. I've found it is the only way to express the idea of exhausting the interactions of words, of the possibility and actually having the motivation to "come up with every idea possible."

Ideas are built of an interlocking of meanings. Meanings can be represented by symbols. For us, these symbols have become words. When we want to express an idea, all we do is pick words that represent our different meanings and lock them together in an interaction of words that we call a sentence. We then lock sentences together in paragraphs and put them in books,

magazines, or other literary forms. We have formalized the conceptualization of meaning into locked blocks called ideas. We then catalogue valid ideas, and other ideas we put together in categories such as nonsense, neologisms, science fiction, and so on. What we often don't see is that valid ideas can start off as nothing more complex than words, or a few words related to each other in a phrase. That is, the deepest, most basic concept of an idea can be a simple word.

Our dictionary is a collection of words which can be called units of ideas. Our library contains these units of the dictionary organized in intelligible ways. In the future there will arise the need for more books which would then be created from our dictionary's words organized in different intelligible ways. This is because of our inevitable progress. This work proposes that by stimulating the intelligent creation of new interactions of words, and then merging constituents by computer means, we can find new, important and interesting ideas. We do this by simply exhausting the interactions of words in ways that make sense. That is, we try to exhaust as many as possible -- of course to try to exhaust the interactions of all words would be unnecessary because only a subset of the words interacted with each other would make sense anyway.

Ideas frequently come many decades before they are accepted as being valid ideas. New ideas can almost always be stated in words from our own dictionary or in combinations of the old parts of words such as suffixes and prefixes. We get many of the suffixes and prefixes for the new words from old Latin, Greek, Arab, Asian, African, Native American or other roots.

We can get at a framework for the meaningful exhaustion of the interaction of words if we draw out the basic linguistic truth that ideas can be broken down into words, and different interactions of words equal different ideas. This theory states that it is useful to look at this idea philosophically. By an exhaustion of the interaction of words, we can theoretically discover many new ideas available to us. This is the premise of the meaningful or purposeful exhaustion of the interaction of words.

Linguistics, while adding to the science of the computer understanding of language, has made a complex introduction to the gateways to thinking about our topic of word interaction exhaustion. If we get into an essentially useless linguistic quagmire, we are missing the point of finding tools that have practical value.

When we look at linguistics such as semiotics, syntax, or semantics, we find studies as dedicated as computer programming or aeronautics. Word interaction exhaustion extracts only what is needed from these studies in linguistics, and never is imposed upon by that which is dedicated merely to preserving the study of describing language. Word interaction exhaustion theory should take guidelines from grammar and syntax studies but does not have to be limited by statements they make about what are valid ideas in general.

Word interaction exhaustion, when used in the hard sciences, must be done by people with some training in those areas. One does not have to be a learned linguist to invent ideas with the merge method of word interaction exhaustion; the fact is that we develop brainstorming methods for better idea generation after we begin to use the software program.

A combination of units, called words, whose meanings we simply find in the dictionary, produces things called ideas, whose purpose and value differ in degrees of intensity. People using the technique of word interaction exhaustion could map out these degrees of value and purpose. Combining words together creates new meanings out of the words that have a single meaning when in relationship with those items. The point that each word is very simply defined can be seen when we break down the sentence: "The old analog music synthesizers refined their sounds by using voltage controlled filters." This simple way of using consensual definitions is used in conceptualizing the purpose and possibility of word interaction exhaustion.

Linguistic studies have validity here when one has already gotten to the point of accepting word interaction exhaustion's basic premise of it being possible to create beneficial ideas by creating large collections of meaningful text by intelligent computer merging. Linguistic studies can be used in merging an expert system rule base in the program's text output. The expert system would filter through the text output and retain more of the meaningful and important statements. Advanced linguistic studies can be introduced to create criteria for lexicons for indexing patterns that would produce meaningful merges.

Older and/or simpler brainstorming software uses random word jumbling to create strings of new word combinations. Without basic linguistic knowledge, such as grammar, entering into this all we will get is difficulty in reading the results or even gibberish. We should be able to use basic sentence rules to get at text outputs that make sense, let alone have any value to the general public that

use the program. The easiest way to do this is to develop ideas with the merge concept. The merge concept in developing ideas allows us to produce volumes of meaningful and grammatically correct output with much less effort.

5. Brainstorming as a Succession of Idea Lists

For any science to progress, it must have an exact language. Even to use a computer program, one must agree upon standard terms for such things as the menu bar, title bar, or dialog boxes. For our purpose, we also have created an exact language to describe this brainstorming technique.

A key sentence is the first sentence that you start an idea merging out on. They are chosen for their richness of direction for the merge technique. A word category is a list of words, symbols, or phrases that a word interaction exhaustion program uses for its brainstorming techniques. An idea list is the result of a merge of a key sentence and a word category or group of word categories. Idea lists are simply the shorthand expression for the program merge outputs.

The theory states that if we can have an ordered, encyclopedic set of records of word category groups, or well-calculated phrases in topical groups, and put them into meaningful and semantically rich "key sentences," we can achieve an accumulation of interesting, if not useful ideas. This can be done in any idea, from fiction to the symbolic characters of mathematical formulas.

Our future knowledge comes from our present knowledge in the same way our present knowledge stems from our past knowledge. Therefore, the first task can be to extract key sentences from our present language and mutate them with what can be called different related terminologies to those sentences. What I mean by related terminologies are word categories that somehow relate to the key sentence. A key sentence that describes interior decorating would have related terminologies of carpets, furniture, ceramics, paintings, and so on. The related terminologies have different indexing criteria. One example of indexing criteria would be whether or not the word categories fit into noun slots in the sentence, or verb slots, and so on. Some indexing criteria may be very creatively linked, that is, not apparently related to the key sentences, or the secondary areas that the key sentence mutates into. Secondary areas are the new directions produced by merges that were not apparent at first glancing at the key sentence.

The brainstorming at first might be difficult if one doesn't have anything one needs to, or wants to, discover. Therefore, one must find some good key sentences to work with. This is the first stage of any serious work in exhausting the interactions of words. The key sentence is the region that is to have its meaning mutated into something new and exciting, and the secondary areas are the present text outputs one is branching off toward.

One can find these key sentences anywhere there is any text. One can use one's favorite passages from novelists to see various twists and turns on landscape, character or plot. One can use favorite scientific writing or science fiction. Anything that has a good enough structure that can lend itself to the method will be fun to merge with and expand by adding new words at various points in the key sentence. These merge points may be weak points, just redefining a certain word by an adjective, or they may be strong points, changing the entire direction of the sentence by introduction of new nouns. Merge points are any words where the user can see a new stream of thought possibly developing.

These new streams of thought are basically the growth of ideas. One might have a digital document or create a journal of these key sentences for whenever one sits down at the program to brainstorm. They will come from whatever source one finds interesting, whether it is lines from a favorite poet, sentences from the writings of social activists such as Martin Luther King, text from theoretical or practical science, or anything else that one normally reads or thinks about.

As mentioned, idea lists are simply the shorthand expression for the program merge outputs. If idea lists are combined and indexed together into a database, this idea list database will contain lists of ideas that are new, useful, and unique -- ideas which are not quite incorporated into our present world. Ideas from this "new, useful, and unique" database will produce valuable findings for specialist libraries. For instance, thousands of variations of science-fiction ideas that have only been touched upon in a few sentences by science-fiction authors can be explored and modified by people ranging from poets to physicists.