Understanding trendy neologisms

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New words have been entering English at an ever increasing rate. Although this phenomenon is often associated with new things, processes, and concepts that need names, there is also a great increase, indeed acceleration, in clever, trendy, eye-and-ear-catching words.

I have been especially interested in blends – underlying compounds in which part of one word or both words are clipped. A few blends have existed for a long time. *Smog* (*smoke* + *fog*) is cited in Merriam Webster dictionaries and the OED in 1905. *Soliloquacity* (< *soliloquy* + *loquacity*) is dated as 1895. However, in the last two or three decades blends have become even more common, and nowadays, one encounters new blends almost every day. Unfortunately, linguistics textbooks and other books dealing with morphology and lexicology treat blends as peripheral to English word-formation and therefore unimportant. While this may have been true in the past, it no longer is the case.

In this article I will discuss some reasons for the popularity of neologisms in general and then turn to some psycholinguistic research I have done on how speakers understand blends they encounter for the first time.[*]

1. Why neologisms?

One common explanation given for the introduction of new words in a language is to provide new names for new things and processes. This must certainly be true. And a common explanation for changes in the forms we also see in neologisms follows from Zipf's Law (1949) which says that frequent forms tend to become shorter. Acronyms like *scuba* and *ID*, clippings like *lab* (< *laboratory, labrador*) and *vet* (< *veterinarian, veteran*), and some blends like *fortran* (< *formula* + *translation*) and *transceiver* (< *transmitter* + *receiver*) are shortened for efficiency.

However, what is unusual about most new blends and other trendy neologisms is that they DON'T increase efficiency. In fact, they create more effort to interpret – at least at first, until readers and hearers have figured out what the source words are and what they mean. *Cocacolonization* (< *Coca cola* + *colonization*) is easy to get, but *squangle* (< *square* + *angle*) and *narcoma* (< *narcotic* + *coma*) are harder to process than the whole compounds.

Although my experiments have mostly dealt with words in isolation, neologisms appear in contexts where their interpretation is usually obvious, and when it is not obvious, either a definition or explanation is provided. If these neologisms make the reader or hearer work harder, what is their purpose?

2. The pragmatics of neologistic blends

Bach & Harnish (1979) propose a linguistic presupposition that a speaker (or writer) assumes that the hearer (or reader) knows the language being used. This presupposition includes vocabulary as well as grammar. We are aware that no single individual has mastered the whole vocabulary, since there are many technical, dialectal, archaic, and slang words (or meanings of words with other basic senses) that only some speakers know. However, we assume that there is a core that everyone knows. Therefore, when a speaker uses a neologism on purpose – an expression he thinks is new to the hearer – he must have some perlocutionary intent. Assuming that the speaker does not intend complete confusion or deliberate rudeness, what might the speaker be trying to communicate?

First of all, the speaker must assume that hearer can figure out the meaning. In the case of blends, the hearer must identify the complete words in the underlying compound and then find a plausible meaning. Since blends and other neologisms almost always occur in context, the problem of identification and interpretation is highly determined.

The perlocutionary intentions include using a word to catch the hearer's attention. This is especially important, since many neologisms, including blends, occur in print – ads, newspaper and magazine articles, etc. – where there is a great deal of competition for the reader's attention. Secondly, neologisms, especially in ads, are intended to be memorable. The speaker wants the hearer to remember the name of the product, process, or business establishment.

Many of the neologisms are witty; they involve word play, such as puns and allusions, as well as the puzzle of novelty. Therefore, when the hearer figures out the intended meaning, he or she is amused and perhaps feels clever for having 'gotten' the point. As a result, the hearer has a positive attitude toward the speech event and possibly toward the speaker and the referent of the neologism. If a positive attitude is created, this will reinforce the speaker's intention if the goal is for the hearer to remember the item (and maybe buy the product). This perlocutionary intent and effect can be loosely related to Malinowski's concept of phatic communion (1923), where the purpose of speech is to create a social bond.

3. Pyscholinguistic experiments with blends

The first experiments I conducted on processing blends are reported in Lehrer (1996), and I will only summarize the results. Blends can be classified as follows:

> A full words followed by a splinter (word part), e.g. *oildraulic* < *oil* + *hydraulic*.
> A splinter followed by a full word, e.g. *narcoma* < *narcotic* + *coma*
> Two splinters, e.g. *Spanglish* < *Spanish* + *English*); *sitcom* < *situation* + *comedy*
> Zero splinters from complete overlap, e.g. *cattitude* < *cat* + *attitude*
> An embedded splinter, e.g. *entreporneur* < *entrepreneur* + *pornography*.

In my experiments, subjects responded without time constraints. They were given a list of blends with an explanation of what blends are, and they were asked to identify the target words (e.g., the source words of blends), and to provide a gloss. Finally, subjects indicated whether they had heard or read each item before the experiment.

The results were calculated for the total set and for various subsets: blends of different types (as described above), blends that were novel to at least half the subjects, the number and percentage of letters and syllables missing in the splinters, the frequency of the target words, and the lexical neighbors of the target words. Neighbors are words which have the same letters in the same position as the target. In *psychergy* < *psychic* + *energy*, the splinter *-ergy* has *clergy* as a neighbor since the splinter could belong to that word. The semantic plausibility of the two targets and the context is very important, but I have not yet found a way to quantify this factor. Below is a summary of the results.

1. More frequent targets are easier to identify than less frequent ones.[1]
2. Targets with no neighbors or less frequent neighbors are easier to identify than targets with more frequent neighbors.
3. The number of letters and/or syllables that are present help identify only novel blends, not familiar ones.
4. The ease of identification is ordered as follows: word + splinter >

splinter + word > two splinters > complete overlap > embedded splinter.

5. Blends are processed more easily in context than without context.
6. Successfully identifying of one part of a blend helps identify the other part, based on strategies of semantic plausibility. For example, one of the hardest words to identify was *swacket* (< *sweater* + *jacket*). Subjects who successfully identified *jacket* could usually then get *sweater*, even though there are many words beginning with *sw*.

Each of these factors contributes to correct identification, but none is necessary or sufficient. What is especially interesting about these findings is that they are completely consistent with research on lexical retrieval, where frequency, neighborhood effects, and semantic priming facilitate word retrieval (explained below).

4. On-line processing

We understand most novel blends quickly and easily, especially when they occur in context. The creators, often journalists and advertisers, use these terms without definitions, expecting readers and hearers to 'get' them. Like jokes, if the point must be explained, the new word is unsuccessful. One of my favorite examples of a novel blend comes from a special show at the National Gallery in London in 1996 which had a double exhibit of two artists: the first was Peter Blake, an English painter whose style was described as *pop*. The second was Cheetah, a chimpanzee who had retired from his movie career after appearing in many Tarzan films. Cheetah's style of painting was described as *apestraction*. The word *apestraction* was never defined, and the effect would be weakened, if not lost, were it necessary to mention the target words *ape* and *abstraction*.

The results of the experiments summarized above has led me to hypothesize that the same factors would show up in experiments where there are time pressures, proving that English speakers have developed strategies to process novel blends quickly. I hypothesized the following:

1. Blends in which the targets are frequent would be processed more quickly than those that are less frequent
2. Blends without neighbors or with less frequent neighbors will be processed faster than those with more frequent neighbors.
3. Semantic plausibility will facilitate identification.

4. Familiar blends (or those encountered before) will be processed faster than novel ones.

I expected these hypotheses to be confirmed because many psycholinguistic experiments have found a strong correlation between speed and accuracy. In general, tasks that subjects perform quickly are performed with few errors, whereas tasks that take longer tend to have more errors. Therefore, it seemed reasonable to test for response times.

5. Previous studies

The relevant psycholinguistic literature is concerned with general issues, such as memory (or kinds of memory – semantic vs. episodic) or with issues of the representation, access, and processing of language. One topic that is pertinent to this problem is whether processing blends shows similar patterns to that of other morphologically complex or compound words. Is there rapid automatic decomposition, e.g., into a root and affix or into two roots? Experiments to examine this question produced conflicting results.

One experimental paradigm uses a lexical decision task. A subject is shown a string of letters on a screen, and he or she must press the YES button if the letters spell a word and the NO button for nonwords. Reaction time is recorded. Foster (1985) found that when a bound stem like *juvenate* is presented, reaction time (to press the NO button) is significantly slower than for a matched string of letters like *julerate*, suggesting that subjects decompose morphologically complex words like *rejuvenate*.

A variation of the lexical decision task uses priming. A prime is a repetition effect that occurs when the same lexical item is presented twice in rapid succession. Subjects respond more quickly to the second presentation (Foster 1985:88). Variations have been used where the second item is either morphologically or semantically related to the prime. For example, *gave* can be primed by *give* and *nurse* can be primed by *doctor*. This technique has been used to show that morphological decomposition takes place with morphologically complex words. For example, if the subject has already responded to the word *act*, then he will response faster to *action, react,* or *active* compared to subjects who have not recently seen *act*.

There are fewer studies of the decomposition of compounds and most of these studies use conventional compounds, like *woodwork*, rather than novel ones, like *birdglass*. Some work on novel compounds by van Jaarsveld and Rattink (1988) examines how subjects process novel noun-noun compounds in Dutch. Since these novel items are nonwords, the lexical decision task must be modified. Therefore, subjects were to decide if the string of letters could be interpreted or not. In the first experiment subjects were presented with 120 compounds which judges had previously rated as very interpretable (the "words") or not interpretable (the "nonwords"). Although there was no significant difference in decision time for the interpretable and noninterpretable compounds, error rates were significantly higher for the "words". The frequency of the first word in the compound (but not the second) significantly affected response time. That is, if the first word in the compound was frequent, subjects responded faster than if it was not. Therefore, van Jaarsveld and Rattink concluded that decomposition takes place.

Libban (1994) in a review of the literature reports on a few studies which show that subjects can decompose compounds faster than words with affixes. He concludes that for ambiguous novel compounds, "all possible parses undergo lexical access" (381). Since blends are abbreviated compounds, speakers might process them as they do compounds.

Blends that speakers have encountered before are probably represented as whole items, that is, as words. However, for novel blends they must find an interpretation by segmenting the item and identifying the source words (targets). Since a few psycholinguistic experiments suggested that novel compounds are decomposed, I decided to proceed with new experiments.

6. New experiments

Csaba Veres and I conducted several sets of experiments with blends. The ones described below required subjects to respond as quickly as possible (Lehrer & Veres, 1998).

6.1. Experiment 1

The first experiment was not a lexical decision task, since many blends were novel, but we used the same technology. The subjects were undergraduates in introductory linguistics courses, and they were given extra credit for their (voluntary) participation.

The subjects were told that the experiment involved identifying and interpreting blends, and they were given several examples of blends and the target words. They were placed in a booth in front of a computer screen. By pushing a foot pedal, a blend appeared on the screen, which also started the timer. They were asked to press the YES button when they were able to identify the two target words. (The NO button was not to be used in this experiment). They spoke the target words into a microphone next to the computer.

Subjects were presented with a list of 40 blends with examples of each kind. There were two lists for a total of 80 items. (The two lists were used for a different experiment, not described in this paper). When the subject pressed the foot pedal, a blend appeared. After 20 seconds the word disappeared from the screen, and if the subject had not responded by pressing the YES button by this time, no further response would be counted. In fact, if a subject could not respond in 4 second or less, he generally did not respond at all.

Afterwards subjects were given the list of the blends they saw and asked to circle the ones that were novel. This way we could correlate their responses with whether they are heard or seen the items before.

6.1.1. Results

Response times were quite long. See Table 1.

Table 1

	List 1	List 2
No. of Subjects	21	17
No. of Items	40	40
Mean response time	2985 ms.	2994 ms.
Standard deviation	828 ms.	515 ms.

With so much variability in response time, we did not expect significant differences to emerge, and they did not. The response times for different types of blends were compared: Word + splinter, splinter + word, two splinters, and complete overlap. An ANOVA produced an F ratio of .69, which is not significant.

6.1.2. Identifying the targets

Analyses were carried out on the accuracy in identifying the targets. Responses were judged to be correct if they matched the targets and meanings given by the person (or company) who created the blend.[2] Although response times did not vary as we hypothesized, we could still compare the accuracy when subjects worked under time pressure with the responses of subjects reported in Lehrer (1996) where subjects had no time pressure. Table 2 presents the results of correct responses in terms of percentages by subjects who identified both targets. Since the two lists were not matched for difficulty, the differences in the percent of correct responses have no significance.

Table 2

	Word + splinter	Splinter + word	Two splinters	Complete overlap
List 1	52%	50%	34%	69%
List 2	79%	77%	54%	59%

To determine the effects of frequency and neighbors, items were divided into those with no neighbors or those with neighbors that are less frequent than the target. In addition, responses were divided into those which over 50% of the subjects identified correctly and those which fewer than 50% identified correctly. Of the items that were correctly identified by 50% or more 24 had no neighbors or no neighbors with a higher frequency than the targets. Only 5 items had more frequent neighbors, and in these cases, the semantics of the combination would help subjects get the right answer. For example, in *applicious* the target of the splinter *-icious* is *delicious*, which has a frequency of 9. The neighbor *vicious* has a frequency of 17, but *vicious apple* is not a plausible interpretation.

Since subjects reported which blends were novel to them, we divided the responses into items previously unfamiliar to 50% or more of the subjects and items familiar to 50% or more. Of the unfamiliar items that were not identified correctly by half the subjects, 18 had more frequent neighbors, and 9 did not. However, of those 9, plausible explanations can be found for their difficulty. For example, in *beermare* (< *beer* + *nightmare*), the item can be treated as a simple compound, which some subject did, offering a gloss like ‘a horse that drinks beer'. In some cases, such as *snizzle* (< *snow* + *drizzle)*, *swingle* (< *swinging* + *single*), and *lunner* (< *lunch* + *dinner*) it is not clear how these blends should be segmented, and therefore there is considerable ambiguity as to what the splinters are. In *ziposium* (< *zipper* + *symposium)* and *qualatex* (< *quality* + *latex*), the targets *symposium* and *latex* are infrequent words, even if they lack more frequent neighbors.

Of the 15 items familiar to over 50% of the subjects, 14 were correctly identified. The only one which fewer than 50% of the subjects knew was *motel*, a word that has become so conventionalized that young speakers no longer can decompose it.

Thus we see that even when subjects are required to identify the targets of blends as fast as they can, their performance is like that when there is no time pressure. It took subjects on average almost 3 seconds to respond, which is a long time. In most lexical retrieval studies, response times are less than 1 second. (However, typical experiments use only 4 to 7 letters).

6.2. Experiment 2: lexical decision

The second set of experiments used with lexical decision task (as described above), but with masked priming. A masked prime is a prime that is presented for a very short time (usually 50 ms.) immediately before the word to be tested. This effect is independent of word frequency and word type. The masked prime is present for such a short time that subjects generally cannot see it, even when they are told that it is there. And although it is difficult to detect, a masked prime produces a reliable effect in speeding up response for words, but not usually for nonwords (Forster 1985:89).

6.2.1. Method

Three sets of stimuli were constructed (explained below). Subjects saw a total of 126 items, half of which were words and half of which were nonwords. With this paradigm, subjects might see the following:

a string of hatch mark.	#	#	#	#	#	#	#
a masked prime in small letters	d	y	n	e	t	i	c
a target word in capital letters	D	Y	N	A	M	I	C

The hatch marks direct the subject's attention to the screen. The masked prime appears for 100 ms. Usually masked primes appear for only 50 or 60 ms. Since most lexical decision tasks use short target words and primes – only 4 to 7 letters and in our experiment most blends had 10 to 17 letters, we allowed the masked prime to appear for a longer time. Finally, the target word appeared for 1000 ms. Then the subject pushed the YES or NO button. There were three conditions for words and three for nonwords. In condition 1 the masked prime was a blend, and the target was one of the words in the blend. In condition 2, the prime was identical to the target, and in condition 3 the prime was unrelated. Subjects saw only one form of each target.

Condition 1	Condition 2	Condition 3
# # # # # # # # #	# # # # # # # # #	# # # # # # # # #
f r u i t o p i a	# # f r u i t # #	s t i l l b o r n
# # F R U I T # #	# # F R U I T # #	# # F R U I T # #

Each group of subjects saw 21 targets where the prime was a blend and the target one of the words contributing to the blend, 21 targets with identical primes, and 21 with unrelated primes for a total or 63 words and 63 nonwords. The 126 items were randomly ordered. In each set of 21 blends, 7 consisted of a word followed by a splinter, 7 of a splinter followed by a word, and 7 of two splinters.

Our hypothesis was that the identical prime would be responded to the fastest (as the previous research had shown), next would be the target preceded by a blend (showing evidence of rapid automatic decomposition of the blend), and slowest by the unrelated prime.

Condition 2 > Condition 1 > Condition 3
Fastest Slowest

6.2.2. Results

Data were discarded if a subject's error rate was over 15%. This eliminated one subject each in groups 1 and 2 and 5 in group 3, leaving 17 subjects in each of the three groups. In addition, we calculated the response times for items that at least half the subjects reported having read or heard before. The results are present in Table 3.

The order of speed was as predicted, where the fastest response time was to the identical prime and the slowest to the unfamiliar prime, with the blend prime in the middle. However, when an analysis of variance was carried out on the data, the time differences were not significant at the .05 level either for all subjects and all items or

Table 3

	Blend primes	Identical primes	Unrelated primes
All groups, All responses	942.0 ms.	878.7 ms.	949.3 ms.
Familiar items	943.4 ms.	872.8 ms.	933.7 ms.

for responses to the familiar items. Thus the results of our two experiments did not confirm our hypotheses that rapid, automatic decomposition takes place.[3]

7. Discussion

The question I raised in this paper is the following: How do hearers and readers of English process novel blends? This question is complex, and the experiments described here touched on only one part of the process, tapping into the speed of identifying blends. Since neologistic blends have become common, can speakers process them as quickly as other kinds of complex and compound words? We tested reaction times, using a lexical decision task. The hypothesis was that if speakers respond quickly, then they are treating neologist blends no differently from other complex words. When Csaba Veres and I began this research, this is what we expected to find. I wanted to challenge the traditional textbooks of morphology and word formation for their treatment of blends as marginal and theoretically uninteresting. My original goal in these experiments was to show that neologistic creations have become so common that speakers of English have developed strategies to process them quickly and automatically.

Blends present a processing challenge because some part of the word or words in the underlying compound is missing, and the hearer or reader must figure out what must be replaced. Experiment 1 showed that speakers needed a long time to identify the targets. Experiment 2 showed that blend primes did not significantly speed up processing time. If we had been able to provide evidence of rapid automatic decomposition, the results would have been dramatic and surprising in the context of previous work on lexical retrieval and language processing. Since Veres and I did not succeed in confirming our hypotheses, we did not continue with these experiments, although there are many more possible paradigms and variations of these paradigms that could be used.

Another hypothesis, however, is that novel blends are not just like other novel compounds. Writing this paper provided an opportunity to reexamine these results in the context of pragmatics. The experiments we performed were done with respect to the hearer/reader, who expects to understand the content as quickly and efficiently as possible. However, the creator of a trendy neologism wants the form of the new item to be noticed and appreciated. The perlocutionary intent, which I discussed at the beginning of the article, casts a new perspective on this phenomenon. The creator does not want the hearer/reader to respond quickly and automatically. If the goal is to capture someone's attention with a clever or puzzling new word, a slowed-down response is desirable; it suggests that the hearer/reader is paying attention to the form of the stimulus. Understanding blends and other neologisms, then, is to be compared to literary tools like metaphor, metonymy, and other figures of speech, all of which may have the aesthetic goal of providing pleasure, amusement, and entertainment as well as meaning.

Since we are surrounded by visual and auditory stimuli from the world of media – advertisers, journalists, politicians, etc. – all competing for our attention, a neologism, especially a blend, is one device. Advertisers and politicians want their words – product names, slogans, and catchy phrases to be remembered. Therefore, from their standpoint it is desirable for the response **not** to be automatic. When we automatically and normally process language, we focus on the meaning, and after recoding the input, we remember the gist but usually forget the actual words in the original message. Since clever neologisms require effort to figure out and process, we are more likely to remember the form. Consider two product names (neither used in the experiments): *Wheatables*™ and *Craisins*™. If these products were simply called *Wheat Crackers* or *Dried Cranberries*, the names would not produce much interest or curiosity. A shopper who encounters them for the first time has to examine the product in order to understand what the word means, not only in terms of what the actual item is, but also in terms of the target words that constitute the name. After speakers have succeeded in identifying the meaning, they do not have to work out the puzzle again, but a new name will have entered their vocabulary. In addition, the manufacturer hopes that the trendy new name will persuade people to try the product.

Therefore, in light of the speaker/writer's perlocutionary intent – which includes calling attention to the form of the message – the results of these experiments should be viewed as positive from neologism creator's viewpoint. Hearers and readers must figure out what the neologism means, and in the case of blends, what the contributing words are. But in addition, the creator wants the neologism to be appreciated linguistically and remembered. And this process takes a little bit of time.

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Endnotes

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1 Frequency was determined by KuËera & Brown (1967).

2 When we also counted as correct responses that were equally plausible or at least compatible, the profiles were the same. There were relatively few additional items to be included as correct responses.

3 Mike Harnish (pc) suggested that perhaps the lexical decision task was not the most appropriate one and that perhaps a naming task would have produced significant time differences.

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