Can Shape Predict An Emotional Response? Detecting the Valence of Blurry Words

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Can Shape Predict An Emotional Response? Detecting the Valence of Blurry Words

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Abstract

My study attempted to find out if the old part of our brain (limbic system) had a significant role in influencing how we detect the valence of blurry words without conscious awareness of what the words are. 10 participants were shown blurry words that could not be read and were asked to guess valence, without a time limit. The hypotheses for this study was that participants would be accurate in detecting valence of blurred words and that participants would rate negative words the most accurately. I also predicted that participants would attempt to read words before rating valence and they would attempt to read the words only in the beginning. The stimuli were shown to the participants on printed-paper. There were 10 blurred words per page with accompanying 5-point Likert scales by each blurred word with a reference scale at the top of every page. My research data found that there was a significant statistical difference between people's ability to detect the valence of blurred words compared to the normal ability (which is 100% accuracy). The comparison showed that the participants were significantly worse at detecting the valence of blurred words than unblurred words. There was no significant statistical difference between people's ability to detect the valence of blurry neutral words compared to the valence of blurry nonsensical words. Participants were equally accurate at both of these word-types. Participant responses also showed that they were statistically better at detecting the valence of negative blurry words than positive blurry words. So they were better at detecting negative valence than those of other valences.

Introduction & Hypothesis:

Today, more and more information is being done on the brain with recent brain imaging technology and technics such as fMRI and EEG. Direct imaging allows for brain mapping and attributing associated areas of brain processes we take for granted, including our emotions, emotion elicited stimuli or even word recognition and reading as you are doing now. For example, the human amygdala's involvement in negative emotion is now very well established (Hamann & Mao, 2001).

The study done by Hamann and Mao (2001) examined the neural response to emotionally positive, negative, and neutral words using fMRI. In comparison to neutral words, positive and negative emotional words elicited greater activity in the left amygdala. Positive (but no negative) words evoked activity in the dorsal and ventral striatal regions of the brain, which we know have been associated in previous neuroimaging studies to reward and positive affect (Hamann & Mao, 2001). Through their findings we see direct evidence that the amygdala is elicited due to perceived emotional value of words by both negative and positive emotional words, and additionally, positive words activate brain regions related to reward. Similarly a study done by Nobre, Allison and McCarthy (1994) found that two discrete portions of the fusiform gyrus responded preferentially to letter-strings of which a region of the posterior fusiform gyrus responded equally to words and non-words. This region remained unaffected by the semantic context in which words were presented.

A study done by Nasrallah, Carmel and Lavie (2009) found that participants' confidence ratings were low overall on detecting the degree of valence of words when the words were presented to them under subliminal presentation conditions. For their study, the confidence rating was part of their experimental design, where participants rated how confident they were about the word that was presented to them after each stimulus presentation. Subliminal presentation conditions also entailed that the luminance of the word was reduced to 1.29 cd/m^2 and presented at 22ms. Though participants were not confident when detecting the word valences in the subliminal presentation conditions, their accuracy in detecting the correct valence of the words was unaffected as compared to the conditions where participants rated much higher in response confidence. This finding suggests that valence can be determined by a system that does not require conscious awareness of what word was observed.

According to Dehaene (2014), recordings of neural activity have now provided evidence that brain regions involved in semantic processing can be activated without consciousness. Dehaene and colleagues asked whether the amygdala activates in the presence of an unconscious, frightening word. To carry out this experiment, they planted electrodes that entered deep into the amygdala. They then proceeded to flash highly negative and disturbing words such as *rape, danger,* or *poison*. They noticed electrical signals appear when the words where highly negative and disturbing, which were absent for neutral words such as *fridge* or *sonata.* This indicates that the amygdala detected words that still remained invisible to the patients themselves

The theoretical idea called the *dual process theory* by Stanovich and Evans (2013), explains their theoretical approach as one in which rapid autonomous processes called Type 1 or System 1 are assumed to yield default responses unless intervened on by distinctive higher order reasoning processes called Type 2 or System 2. The defining difference is that System 2 processing supports hypothetical thinking and load heavily on working memory. They argue that this dual process distinction is supported by much evidence in recent research within the discipline of cognitive science. This theory along with the results found on subliminal word valence recognition (potentially System 2 at work here) and associated word recognition areas in the old brain (also System 2) are what have fueled and motivated my study.

The studies discussed above talk of subliminal presentation of words in a way that has the words displayed but at a very fast pace and/or unaltered text. What the present study will attempt to do is to find out if at all how the amygdala of the old part of our brain has a significant role in influencing how we detect and construe blurry words and their valences with little conscious effort or awareness. What I essentially believed in this study was that perhaps the shape of words is partially what the automatic parts of our brain use to help decipher the valence of a word. With presenting blurry words to participants we can potentially see a new way of how the brain interprets word valence. Where my study also differs in relation to much of what has been studied about the amygdala and emotional valence of words is the presentation style of the words. What I am essentially looking for is if the shape of a word is a key function of the brain's interpretation of a word. I will show participants words that cannot be read and also give participants more time to view the stimuli. My hypotheses will therefore be similar to what I expect from the prior discussed articles.

The hypotheses for this study are that (1) participants will be accurate in detecting valence of blurred words, and that (2) participants will rate negative words the most accurately. The null hypotheses state (1) participants will not be accurate in detecting valence of blurred words, and (2) participants will not rate negative words the most accurately.

Methods

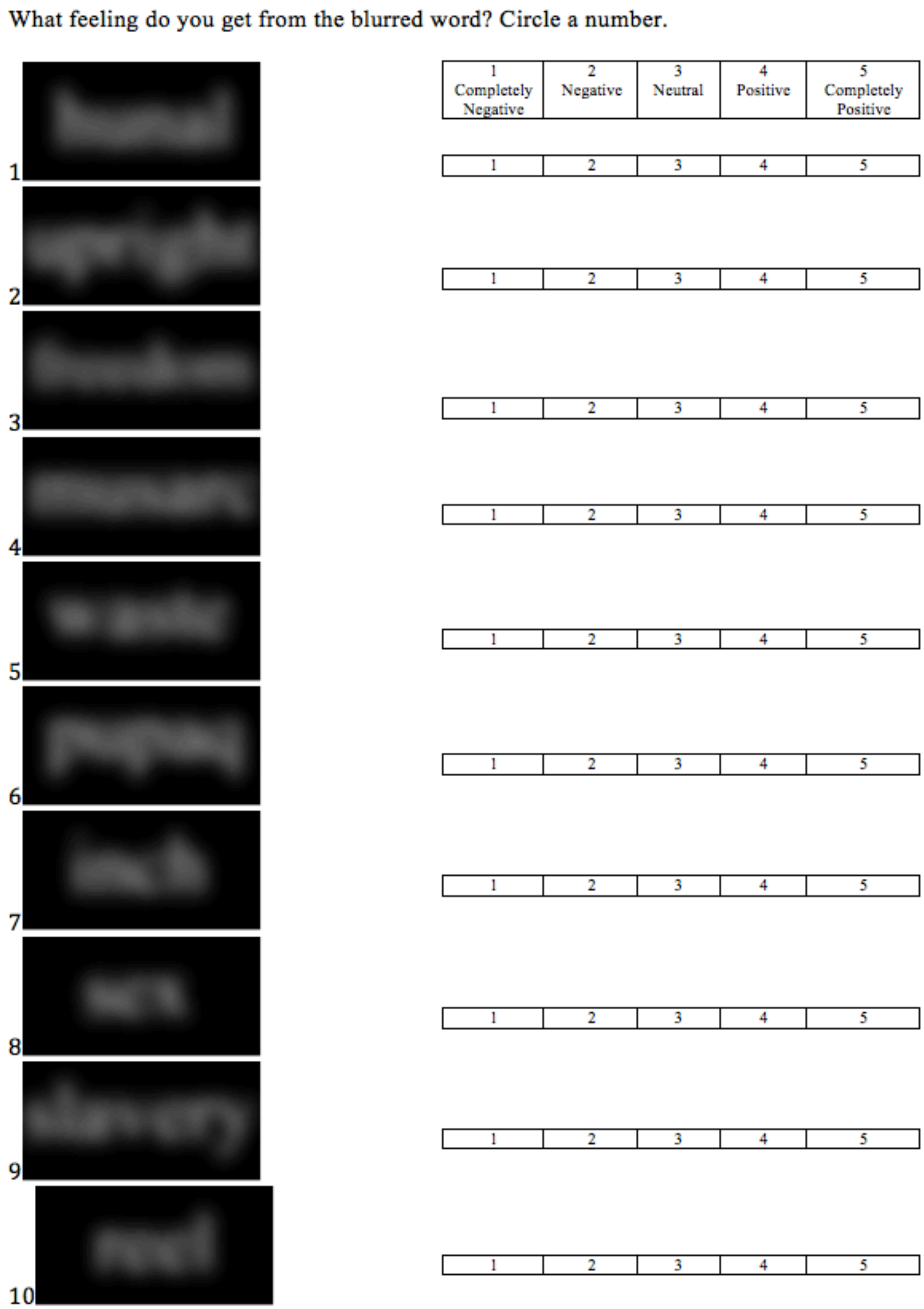
Participants

For this experiment 10 participants were recruited. Participants consisted of Carleton University students as well members of the Ottawa community. Participants were recruited through different means, such as personal contact (i.e. face to face), by phone, email and social media. Participants were screened to make sure they had normal and/or corrected to normal vision. Out of the total 10 participants 7 were male and 3 were female.

Stimuli

A list of 10 blurry words were numbered and put on a sheet of paper for a total of 10 pages of 100 words. The words were initially written in all lower case white text, with the standard times new roman font with a black rectangle surrounding the word serving as the background (See *Figure 1*). The words were blurred using *Adobe Photoshop CS6*. The Photoshop tool used to blur the words was the *Gaussian Blur* under the *Filter* drop-down menu, in the *Blur* section of *Adobe Photoshop CS6*. To maintain consistency, all words were blurred to the same level of blurriness at *Radius: 25.0 Pixels*. It is noteworthy here that *Adobe Photoshop CS6* allows for multiple layer blurring of the *Gaussian Blur* effect, which ultimately can keep layering the previously blurred word. Since I was interested in blurring the words up to the point at which it is just unnoticeable, this experiment only blurred the words once at the *Radius: 25.0 Pixels* level as I found that this was the best level to set for the desired blurriness. See Appendix B for all 100 words.

Figure 1: Exact Replication of page one of the Stimuli



What feeling do you get from the blurred word? Circle a number.

	1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive
1	1	2	3	4	5
2	1	2	3	4	5
3	1	2	3	4	5
4	1	2	3	4	5
5	1	2	3	4	5
6	1	2	3	4	5
7	1	2	3	4	5
8	1	2	3	4	5
9	1	2	3	4	5
10	1	2	3	4	5

Along with the list of 10 blurry word images was a 5-point Likert scale beside each blurred word numbered 1 to 5. The scale read “Completely Negative” at 1, “Negative” at 2, “Neutral” at 3, “Positive” at 4 and “Completely Positive” at 5. This would serve as the scale participants were bound within to answer. Only the trial numbers were put beside the blurred words and the descriptors in the Likert scale were only mentioned on the top of each page, serving as a legend or reference only. At the top of the first page only, the instructions read, “What feeling do you get from the blurred words? Circle a number.” There was be no need to continuous have the instruction on every page since it was the same task throughout all pages of the list of words.

The words were listed randomly. The order of listing the blurry words was obtained through the common randomization technic called *simple randomization* (Suresh, 2011). There are multiple ways to apply simple randomization including coin tossing, dice rolling or even through the use of cards. The technic chosen to randomize all 100 words was through the use of *Microsoft Excel 2011*. The words were all put in Column A and the randomize function was used to randomize all 100 words in Column A. The randomize function was applied only once so words were randomized only once. All participants received the same randomized order of words.

All of the words (except the nonsensical words, which I made up) were specifically chosen from the *Handbook of Semantic Word Norms* (Toglia & Battig, 1978). The method of choosing each word was by simply looking at a word’s pleasantness level based on participant statistical response data in their study. In the handbook, there were 8 clusters of words, and each word was rated for multiple features which include; concreteness, imagery, categorizability, meaningfulness, familiarity, number of attributes, and pleasantness. The words chosen for this experiment were chosen with two of these features in mind, namely, familiarity and pleasantness. For a word to be chosen, it would need an average to high rating of familiarity with the occasional low rated words to maintain a good experimental balance. Words would also either need to have a very high level of pleasantness, very low level of pleasantness, or very neutral level of pleasantness. Intuitively, higher levels of pleasantness were categorized as positive within this study, low levels of pleasantness with negative words and neutral levels of pleasantness as emotionally neutral. The complete word list can be found in Appendix A.

Procedure

The stimuli were printed on paper, with 10 blurred words per page with accompanying 5-point Likert scales with each blurred word with a reference scale at the top of every page (See *Figure 1*). After the paper stimuli was given to the participant, both written and verbal instructions were then given to them. The written instructions were located at the beginning of the stimuli paper and the primary researcher gave the verbal instructions just before the participant would start. Participants were instructed to rate what feeling (if any) they got from the blurred word stimuli and circle the number accordingly.

There was no specific set time for participants to answer each stimulus but the researcher would on occasion when necessary remind the participant to make a choice based on their strongest feeling and move on. This was done for fear of the participant possibly burning out before finishing all 100 words, which would also potentially run the risk of collecting responses based on fatigue, frustration and exhaustion, leading possibly to things such as representing how they may feel when bored by expressing their boredom or exhaustion through the answers neglecting the task itself. If this were to happen a danger would be that responses would reflect a feeling outside of the stimuli and render results useless. A time frame of about 2 minutes was a general limit to each question though this was not specified to the participant. Even though this was a general time frame I wanted, participants were never forced to move forward and were given as much time as they needed.

With 100 words and 10 pages of 10 stimuli each, it took participants between 10-25 minutes to complete the ratings. Once participants were finished with the stimuli presentation, they were asked follow-up questions:

1. Did you try to figure the word out first?
2. Did you try to figure out all the words?
3. How did you arrive at your feeling?

They were then given a debriefing flyer along with verbal debriefing which all took between 1-10 minutes in total. Participants were offered light refreshments after they finished the experiment. With approximately 2-5 minutes of verbal instructions at the beginning, the longest participant ran for 40 minutes.

Results

There is a significant statistical difference between people's ability to detect the valence of blurred words compared to the ability to detect the valence of non-blurred words (assumed to be a 100% accuracy rate). The comparison shows that the participants were significantly worse at detecting blurred words than a person's normal ability (M =

0.338, z = 5.094, p = 1.752). The "Non-Inferiority Test" was also run to check statistics for chance by comparing my finding (M = 33.6 [33.8%]) to the chance statistic (33.3%). It showed no statistical difference, therefore participant responses were due to chance (33.3%). Differences did not reach significance ($z = 0.26$, $p = 0.40$).

Participant responses also showed that they are statistically better at detecting negative blurry words than positive words (which were the next best), where χ^2 (1, n = 497) = 8.13, $p < .004$ and $\Phi = 0.128$. So they were better at detecting negative valence than all other word types.

Table 1: χ^2 calculation between negative words and positive words.

Word Valence		Test		Total
		Correct	Incorrect	
Negative Words	Count	121	127	248
	Expected	105.3	142.7	
Positive Words	Count	90	159	249
	Expected	105.7	143.3	
Total	Count	211	286	497.0

There is no significant statistical difference between peoples ability to detect blurry neutral words (M = 6.6 [27%]) compared to blurry nonsensical words (M = 6.1 [25%]). Participants are equally accurate at both of these word-types (z = 0.349, p = 0.364).

Accuracy rates and averages in this experiment are summarized in *Table 2*. It is noteworthy at this point that the total available responses were 1000. It has been adjusted and put as 993 because a few participants skipped a collective total of 7 questions and it was not necessarily a miss nor was it a hit, so the calculations hereon are a result of calculating all the answered responses by participants.   Participants guessed 336 correct out of the total 993 answered (*M* = 33.6 [33.8%]).

Table 2: The summarized results of this study, in which the averages of accuracy response percentages were calculated within each word condition. The total correct also stated here out of the possible answers that participants responded.

	Accuracy Rate	
Word Valence	Average (%)	Correct/Total
Positive	9 (36.1%)	90/249
Negative	12.1 (48.8%)	121/248
Neutral	6.6 (27%)	66/249
Nonsensical	6.1 (24.7%)	61/247
TOTAL	33.6 (33.8%)	336/993

Negative words were the most correctly answered words with a total of 121 out of 248 (*M* = 12.1 [48.8%]). The total for positive words answered correctly were 90 out of 249 (*M* = 9 [36.1%]), which were the second most accurately answered word condition. Neutral words yielded lower accuracy rates to both Positive and Negative words with 66 out of 249 being correct (*M* = 6.6 [27%]). Though rated the lowest, the nonsensical words were surprising close in accuracy to the Neutral words of which 61 out of 247 words were correctly answered (M = 6.1 [24.7%]).

Out of a possible 250 positive words, participants collectively responded 325 times that they felt positive about the stimuli. Out of a possible 250 negative words, participants collectively responded 413 times when they felt negative about the stimuli. And out of a total of 500 neutral and nonsensical words, participant collectively responded feeling neutral 255 times about the stimuli.

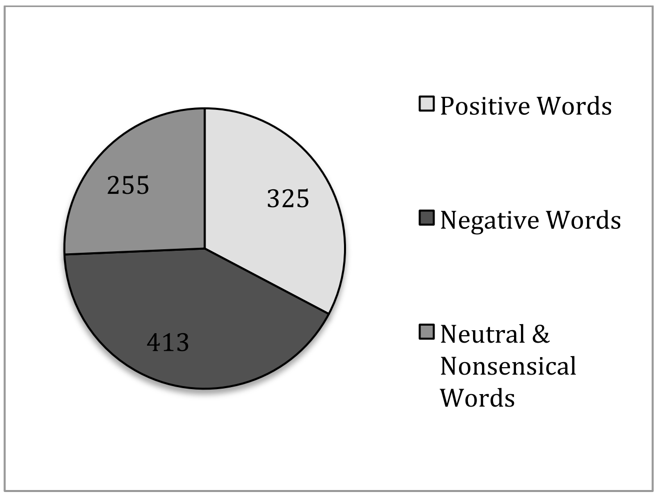
To run statistical analyses for the data in reference to the hypotheses of this experiment, Chi-square Independence Test was used because the data is categorical (i.e. there was no clear regular difference between the answer options). Also, an Independent rather than a Repeated-measures Chi-square Test was chosen because the data and experimental design of this study does not easily fit into a repeated-measures design format.

To see if there was no difference between the accuracy rate of correct blurred word responses compared to an assumed normal accuracy rate of 100%, the use of what is referred to as the “Non-inferiority Test” (Silva, Logan & Klein, 2008), was implemented which proved adequate and useful. This same test was also used to test to see if there was no difference between neutral accuracy responses to nonsensical accuracy responses.

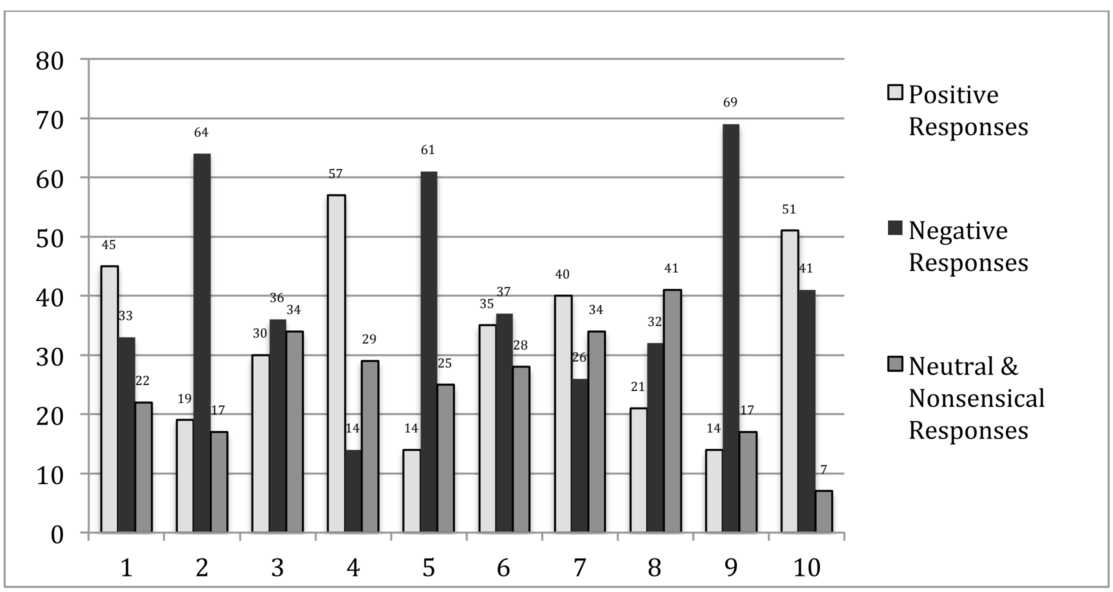
As stated earlier the total number of responses answered by all participants was 993 of which 325 (33%) were positive, 413 (42%) were negative, and 255 (25%) were a combined neutral and nonsensical (See *Table 3 a*). When looking at the individual response rates of all words (See *Table 3 b*), it is the case that negative responses were the highest due to outlier responses by participants 2, 5 and 9. All other participants have fairly evened-out responses except for participant 4 who was the only one to display a high rate of positive responses compared to their other personal responses.

Table 3: Differences in totals and individual totals of positive, negative and neutral/nonsensical word response.

(*a*) Total Answered by all participants



(*b*) Individual Total Answers, x-axis represents each participant and y-axis represents response total (total answers by each individual) of each three condition.



Discussion

Overall the results show that the data collected is not evident of everything that we were looking for or desirable to the study. There were only three options to choose from and with significant statistical significance this clearly tells us that it is more than likely participants were guessing with no luck to any sign of possible valence detection, leaving the responses at practically pure chance.

The hypotheses of this study were as follows:

1. Participants will be accurate in detecting valence of blurred words.
2. Participants will rate negative words the most accurately.

The first hypothesis was not supported, and in that sense we fail to reject its null hypothesis. Failing to reject the null hypothesis can lead to a Type 2 error. I am able to claim that this hypothesis is not supported due to the "Non-Inferiority Test" that was ran (Silva et al. 2008), which compared our findings (*M* = 33.6 [33.8%]) with 100% accuracy as well as chance (33.3%).

People were significantly worse at detecting the valence of the words when presented to them in such manner. There currently is no definitive reason to understanding the main reason that this was the case, but suffice to say it doesn't support the findings of Nasrallah et al. (2009) and Dehaene (2014). What this can possibly tell us is that the detection of word valence at the automatic processing level does not have anything to do with the possible shape of the word. With the results of this study showing us that participants, by chance, are guessing the word valence accuracy with a clear significant statistical difference, there is little to no plausible way that word shape plays a role in automatic word valence detection.

Numerous factors come into question when asking the reason behind why responses turned dissimilar to other research. Perhaps the words were set to a level of blurriness that may have altered the word and shape quality to an extreme that was not useful anymore. Participants reported that for the most part they were completely baffled by the blurry words and could not tell at all what the words were. They also did report that they felt strongly that they could tell what few of the words may have been. It was a good thing that participants could not tell what the words were at all, but again as mentioned earlier, this may have been problematic because this may have been an indication that the word quality has completely gone and the brain could not make reference to the stimuli at such a blurry state of input. Participant mood may have also come into play as confounding variable.

Participants reported that they were in certain moods and states of mind coming in to the experiment. Strangely enough participants did not seem to know what state of mind they were in, neither their mood when they walked in. However, after taking the questionnaire, upon reflection during the follow-up questions, they seemed to better understand the mood they were in and where their minds were, as though to say the questionnaire brought out a kind of mind-revealing awareness state. This was particularly interesting because some participants began to question their own mind-states and how they perceive things in general beyond the questionnaire. Needless to say, much of what they reported about their mood and mind-state did not completely reflect many of their responses.

Perhaps participants may have been attempting to please the researcher or even hide feelings at some points. For instance a participant did mention that perhaps the length of the questionnaire for them was too long and maybe that's why they began to feel stressed and therefore negative. Something worth noting however which may not be of any relevance was the fact that the highest scoring participant (6) was the participant I gave the least instructions and clarification to before they attempted the questionnaire. They reported that they did not bother at all with figuring out the word, and neither did they care much about the theory behind the study, they just wanted to go ahead with the questionnaire and not even think at all. They reported just going through the questionnaire almost completely out of feeling and no critical thought, and remarkably scored the highest. This may suggest that perhaps if I did not give much instruction or clarify the study to participants before they attempted the questionnaire perhaps scores and responses may have been dramatically different. Participants reported that they used their System 2 part of the brain quite a bit.

All participants except Participant 6 reported having used their brain to think about what they are feeling and what the word is. Perhaps the excessive use of their System 2 was another factor. Some participants, after continuously attempting to figure out the words, resorted to their own beliefs of how to distinguish the valences after realizing they were unable to tell the word. This may have been another factor. Participant 9 for example stressed that they did not like non-linear words. Words that had numerous dips and upward points were too "uncomfortable" they mentioned. This participant was also an outlier with most of their responses as negative (See *Table 3 b*).

As was suspected, participants (with the exception of participant 6) all attempted to read the words before rating the valence. They also attempted to read the words mostly at the beginning, which was also an expectation of this study. Most participants reported attempting to figure out the words and with higher attempts during the beginning of the study. Results did not show any significant patterns from the beginning to the end however.

Oddly enough, even though participants' collective accuracy was exactly at chance with a significant statistical difference, of all the answer options, negative words were the most accurate. This directly supports the second hypothesis, which stated that negative words would be the most accurately answered. This finding directly supports the study discussed in the introduction done by Nasrallah et al. (2009). Part of their study included the finding of enhanced automatic brain sensitivity to negative words above all others. This perhaps can be due in part to the idea that things that are negative can be fatally counter to survival and therefore the brain has developed a higher sensitivity to negative stimuli. With the accuracy level of chance in my study, it would still seem my data completely supports this idea and their findings.

Regardless of the fact that the total response accuracy was at chance, participants showed that there is no significant statistical difference between their ability to detect blurry neutral words and blurry nonsensical words. The idea behind using nonsensical words was purely theoretical, but now seems potentially accurate. Putting nonsensical words in the stimuli served as a control condition of which were meant to also elicit a neutral response since theoretically they actually don't have any meaning so they cannot possibly elicit a strong emotional response. The nonsensical category was meant to serve as a comparison to the neutral words in the event that the data showed little to no statistical difference between normal accuracy (100%) to the blurred word accuracy (33.8%). If there was no difference then nonsensical would be the same as neutral. But as seen with the data, even with significant statistical difference, both neutral and nonsensical words showed very similar levels of accuracy. There are things to take away and also expand on from the data and results of this study.

Future research and recommendations may include issues that need addressing such as length of stimuli presentation as a whole or even the method of presentation itself. From the findings of this study, it is clear that the shape of the word is not much a part of how the brain interprets word valence automatically. However it may be worthwhile to look into issues surrounding hypothesis 2 and results of similar accuracy rates between neutral and nonsensical words. It would most certainly be somewhat of a gamble to use the data from this study to begin a fresh new study, but one can definitely say that it is intriguing nonetheless that at such a low accuracy rate, some theories and ideas still seem plausible in such conditions (namely hypotheses 2). At the very least, what one can take away from this study is to rule out with a certain degree of confidence that the brain may be using shape, even partially, to detect word valance.

Conclusion

This study attempted to find out if perhaps the shape of words is partially what the automatic parts of our brain use to help decipher the valence of a word with little conscious effort or awareness. This approach was fueled by the idea that the shape of the word influenced the brain to detect word valence. The hypotheses in this study stated that (1) participants will be accurate in detecting valence of blurred words and (2) participants will rate negative words the most accurately.

This study found significant statistical difference between peoples ability to detect the valence of blurred words compared to peoples normal ability. The comparison showed us that people were significantly worse at detecting the valence of blurred words than a person's normal ability.

The research from this study however supports much research done by others showing that we are most sensitive to negative stimuli. People showed that they are statistically better at detecting the valence of negative blurred words than any other category. The data would also seem to support the idea that nonsensical words theoretically would have the same accuracy rate outcome as the neutral word category. There was no significant statistical difference between peoples ability to detect neutral words over nonsensical or vice versa.

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Appendix A: 100 Words (Positive, Negative, Neutral & Nonsensical)

25 Positive:

1. amuse
2. beauty
3. cheerful
4. dance
5. eagle
6. fantasy
7. freedom
8. generous
9. gentle
10. happy
11. imagination
12. intimate
13. joy
14. kiss
15. knowledge
16. live
17. music
18. passion
19. peace
20. praise
21. pretty
22. rejoice
23. sex
24. travel
25. wise

25 Negative:

1. agony
2. bad
3. crime
4. dead
5. fail
6. guilt
7. hate
8. insult
9. jerk
10. kill
11. liar
12. misery
13. nervous
14. offend
15. pain
16. quarrel

17. rejected
18. slavery
19. trouble
20. ugly
21. unjust
22. vile
23. vulgar
24. waste
25. weak

25 Neutral:

1. angle
2. base
3. chart
4. deck
5. eight
6. figure
7. fowl
8. general
9. horizontal
10. inch
11. junction
12. line
13. molecule
14. number
15. ounce
16. peddle
17. reel
18. rows
19. shape
20. temperature
21. upright
22. vote
23. watts
24. year
25. zone

25 Nonsensical:

1. abrop
2. bodol
3. culil
4. donaq
5. eaort
6. fropka
7. glwat
8. hunal

9. itoop
10. jacrut
11. kusyp
12. lonae
13. musarc
14. ninrom
15. otrur
16. pupaq
17. qacipe
18. rilor
19. sindu
20. tosar
21. uwarq
22. vinuo
23. wazcel
24. yeislt
25. zorabre

Appendix B: What feeling do you get from the blurred word? Circle a number.

1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

1 

1	2	3	4	5

2 

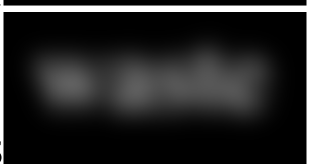
1	2	3	4	5

3 

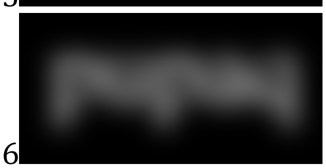
1	2	3	4	5

4 

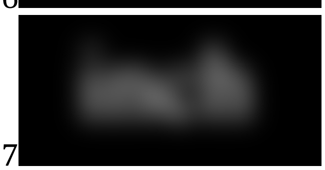
1	2	3	4	5

5 

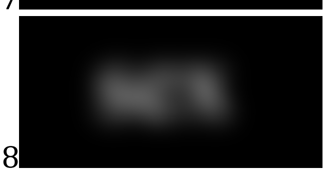
1	2	3	4	5

6 

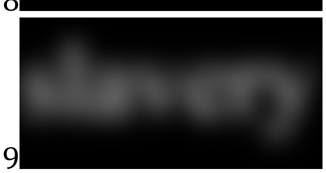
1	2	3	4	5

7 

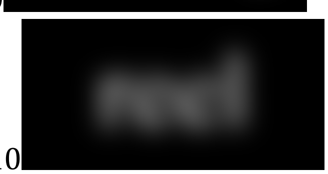
1	2	3	4	5

8 

1	2	3	4	5

9 

1	2	3	4	5

10 

1	2	3	4	5

1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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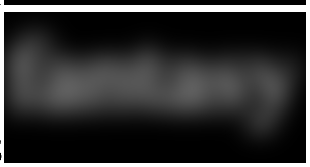
15 

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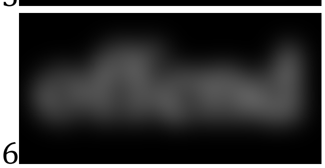
16 

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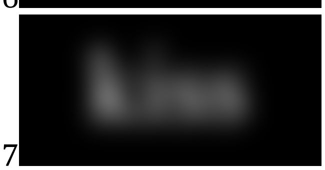
17 

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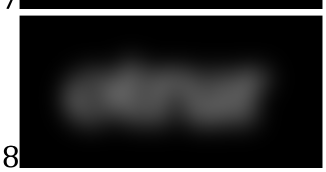
18 

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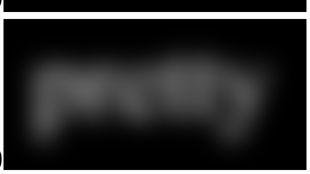
20 

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1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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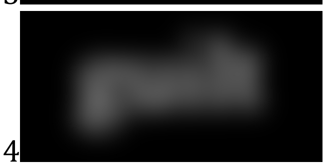

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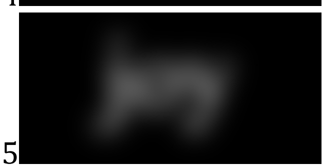

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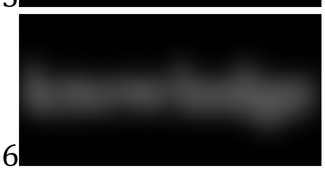

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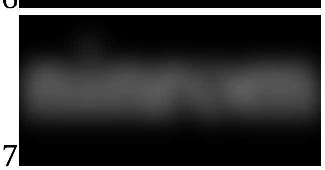

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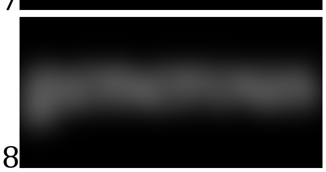

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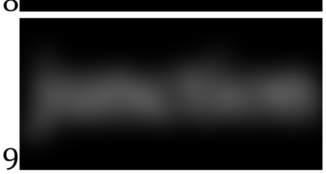

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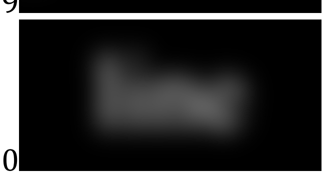

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1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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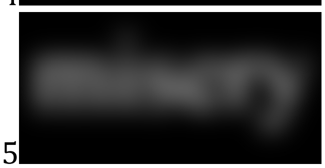
35 

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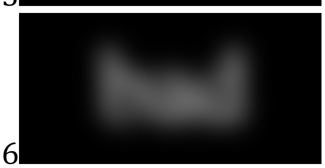
36 

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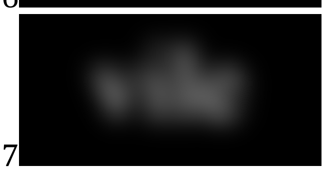
37 

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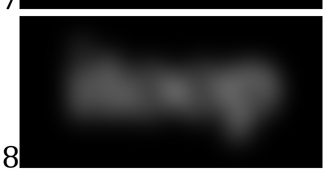
38 

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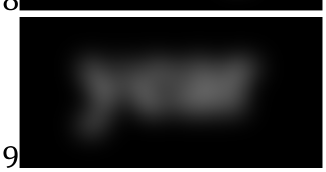
39 

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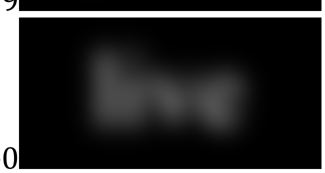
40 

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1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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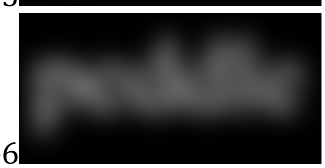

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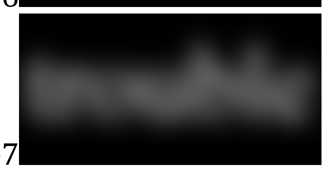

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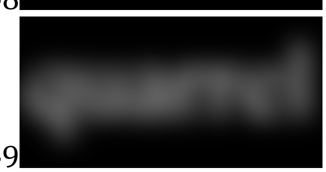

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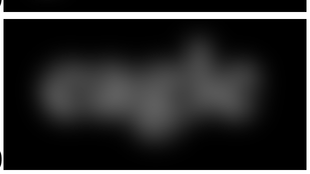

1	2	3	4	5

1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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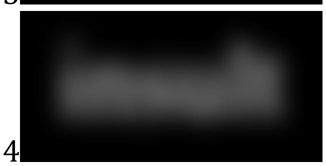
54 

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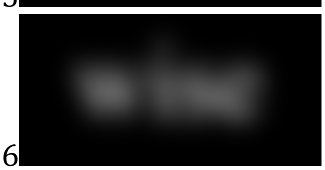
56 

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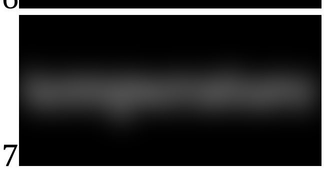
57 

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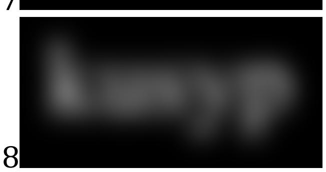
58 

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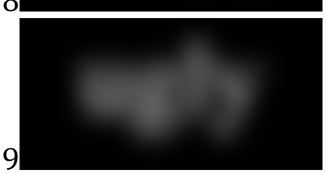
59 

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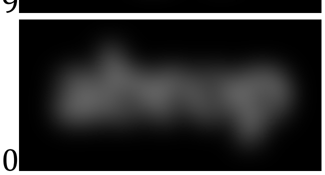
60 

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1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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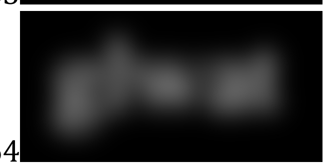
64 

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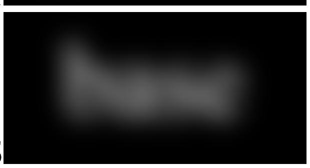
65 

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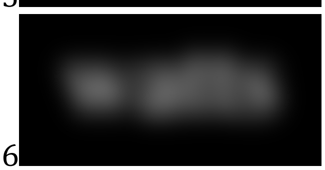
66 

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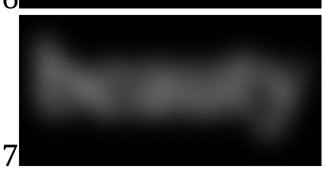
67 

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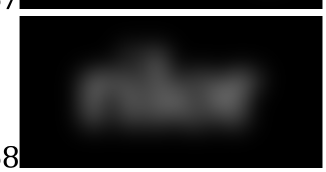
68 

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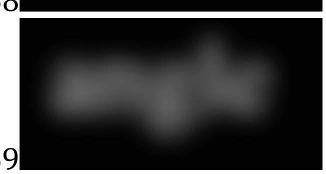
69 

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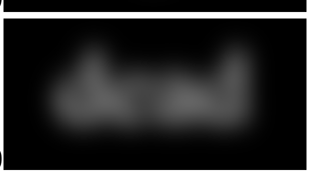
70 

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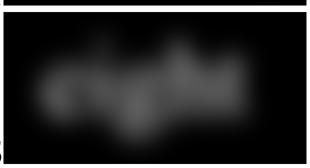

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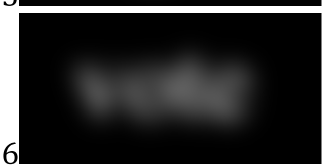

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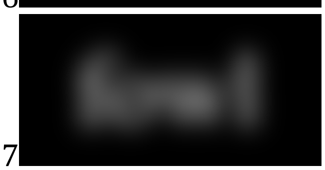

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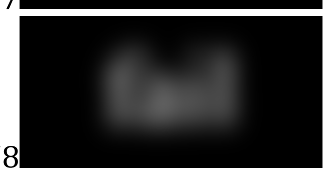

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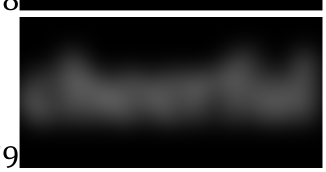

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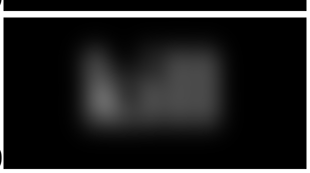

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1 Completely Negative	2 Negative	3 Neutral	4 Positive	5 Completely Positive

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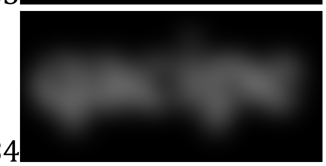
84 

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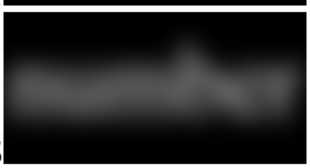
85 

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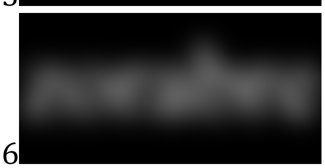
86 

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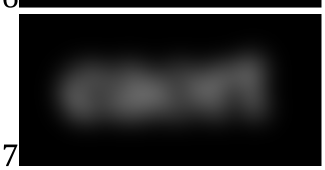
87 

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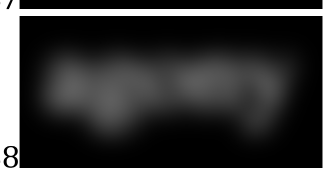
88 

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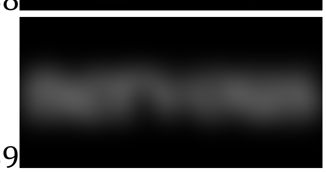
89 

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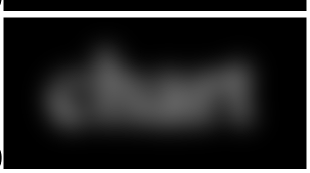
90 

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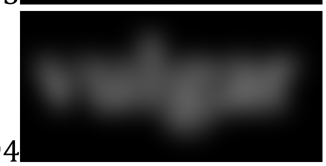
94 

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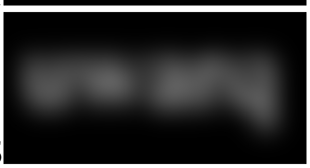
95 

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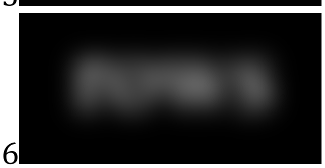
96 

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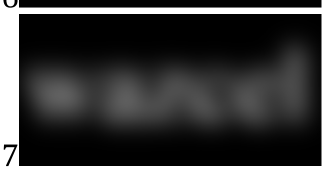
97 

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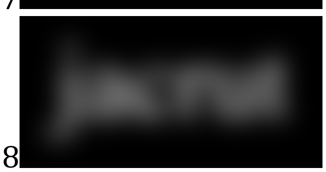
98 

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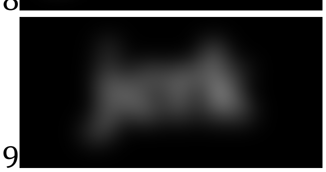
99 

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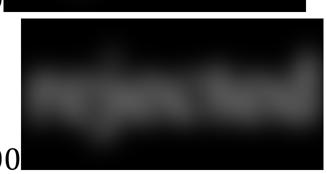
100 

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