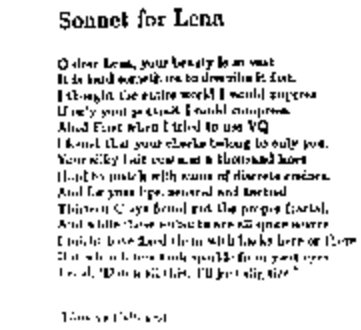
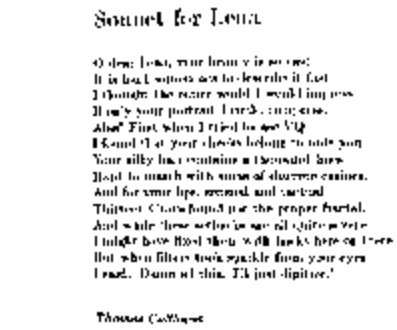
```
%Pratap Luitel
%ENGS 111
%part 3
%gradient thresholding

filename = 'son1-1.gif';

%read the gif image
%
%Note: the image had to be read as an intensity and color map because not doing
%so brought about noticable changes in the input image
[im,map] = imread(filename,'frames','all');

img1 = thresh_grad1(im,map);
img2 = thresh_grad2(im,map);

figure
subplot(121)
imshow(img1)
title('gradient threshold: spatial filtering')

subplot(122)
imshow(img2)
title('gradient threshhold: frequency filtering')

fprintf('For thresh_grad1, I first converted the image to grayscale,\n');
fprintf('and then to double. An average filter of kernel size 11(arbitarily) \n');
fprintf('was then applied to the resulting image. To reduce the gradient\n');
fprintf('illumination, the original image was subtracted from the \n');
fprintf('transformed image. The resulting image was thresholded \n');
fprintf('with a threshold value of 0. A complement of the outcome is\n');
fprintf('then my final image.\n');

fprintf('\n');
fprintf('For thresh_grad2, I again converted the input image to grayscale,\n');
fprintf('and then to double. An unsharp mask is applied to the double image,\n');
fprintf('and then the resulting output is converted to bw with appropriate \n');
fprintf('threshold of greater than 0 \n');
```

```
For thresh_grad1, I first converted the image to grayscale,
and then to double. An average filter of kernel size 11(arbitarily)
was then applied to the resulting image. To reduce the gradient
illumination, the original image was subtracted from the
transformed image. The resulting image was thresholded
with a threshold value of 0. A complement of the outcome is
then my final image.

For thresh_grad2, I again converted the input image to grayscale,
and then to double. An unsharp mask is applied to the double image,
and then the resulting output is converted to bw with appropriate
threshold of greater than 0
```

gradient threshold: spatial filtering



gradient threshhold: frequency filtering



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