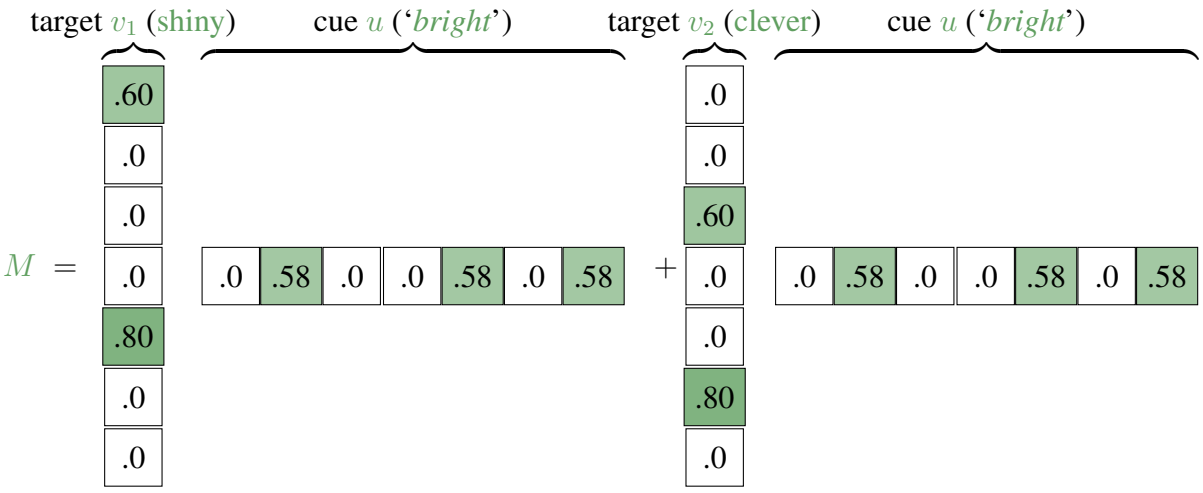
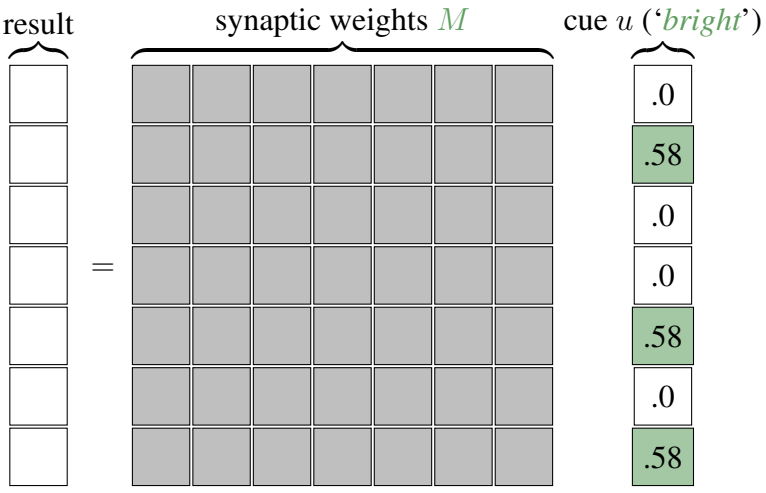
LING5702: Problem Set 3

Due via Carmen dropbox at 11:59 PM 2/17.

1. (a) [7 pts.] If associative memory M is made from one cue u and two targets v_1 and v_2:

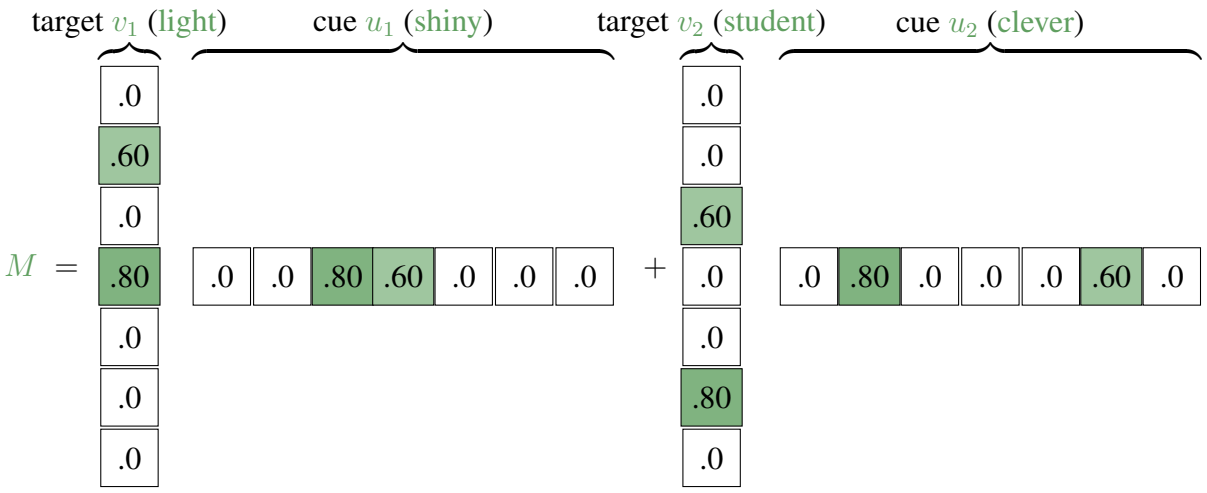


what is the result of cueing M with u? (HINT: You don't need to calculate the matrix!)

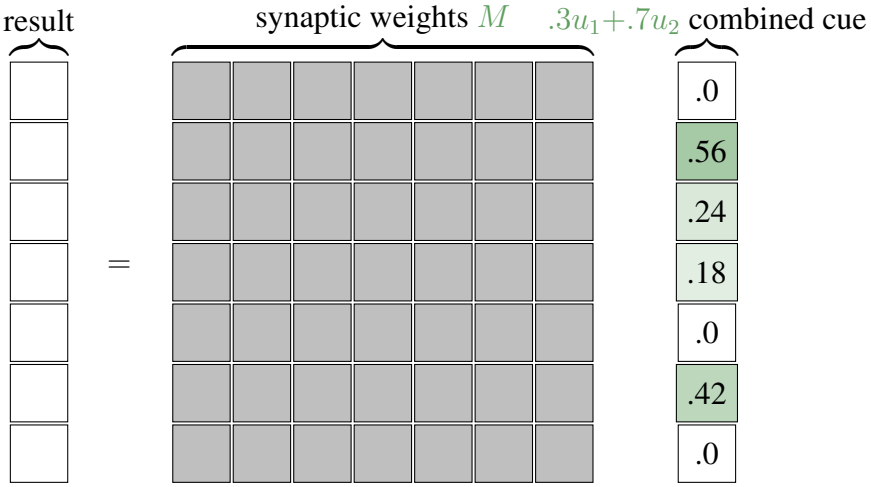


(b) [3 pts.] Describe the result in a sentence in terms of v_1 and v_2.

2. (a) [7 pts.] If associative memory M is made from cues u_1 and u_2 and targets v_1 and v_2:

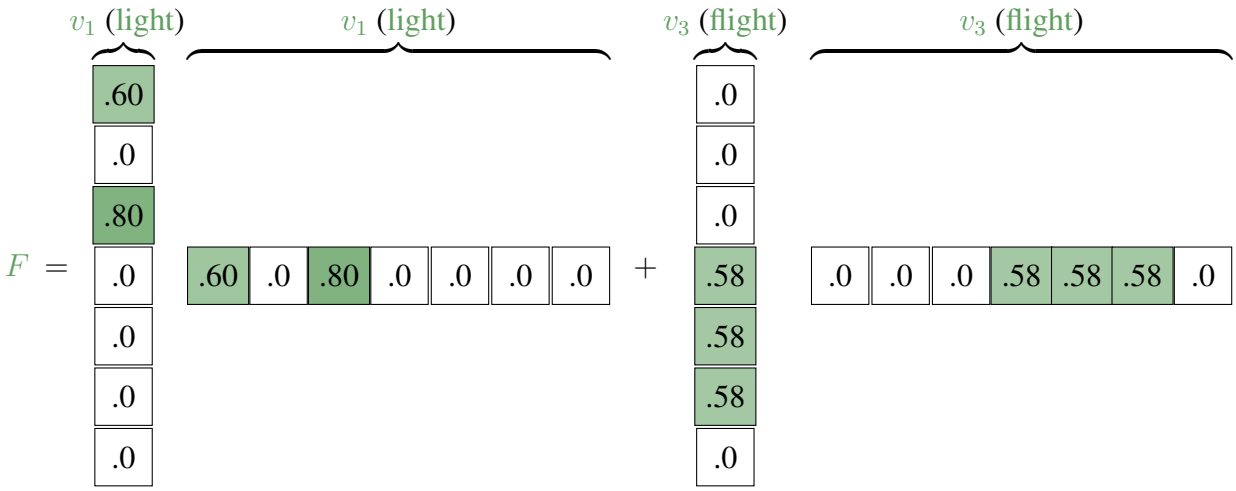


what results from cueing M with a mixture of $.3u_1 + .7u_2$? (You needn't calculate the matrix!)

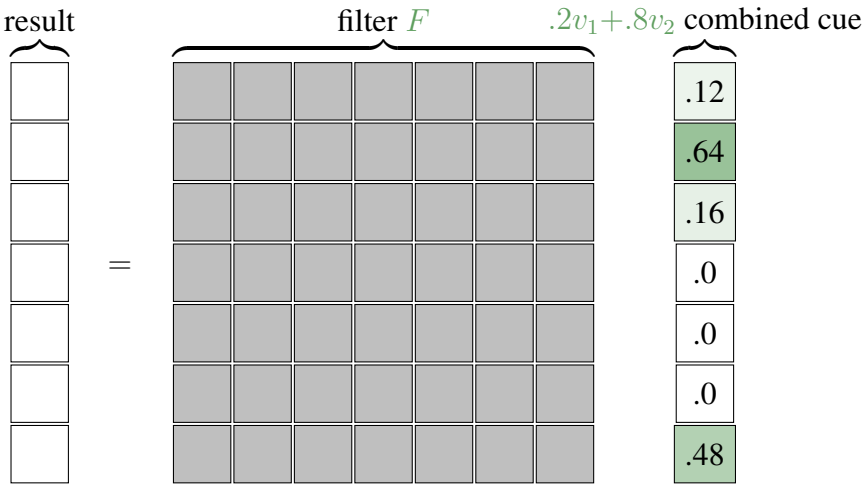


(b) [3 pts.] Describe the result in a sentence in terms of v_1 and v_2.

3. (a) [7 pts.] If a filter F is made from auto-associated vectors v_1 and v_3 (NOTE variable names!):



what is the result of cueing F with a mixture of $.2v_1 + .8v_2$? (You needn't calculate the matrix!)



(b) [3 pts.] Describe the result in a sentence in terms of v_1, v_2 and v_3.

4. (a) [3 pts.] Using the grammar rules defined in the lecture notes on syntax, draw an analysis tree for the sentence *Who will leave?* using the following categories:

- **N-iN** for *Who*
- **V-aN-b(B-aN)** for *will*
- **B-aN** for *leave*

(b) [3 pts.] Label the rules used in your analysis.

5. (a) [3 pts.] Using the grammar rules defined in the lecture notes on syntax, draw an analysis tree for the sentence *Who do you think left?* using the following categories:

   - **N-iN** for *Who*
   - **V-aN-b(B-aN)** for *do*
   - **N** for *you*
   - **B-aN-bV** for *think*
   - **V-aN** for *left*

   (b) [3 pts.] Label the rules used in your analysis.