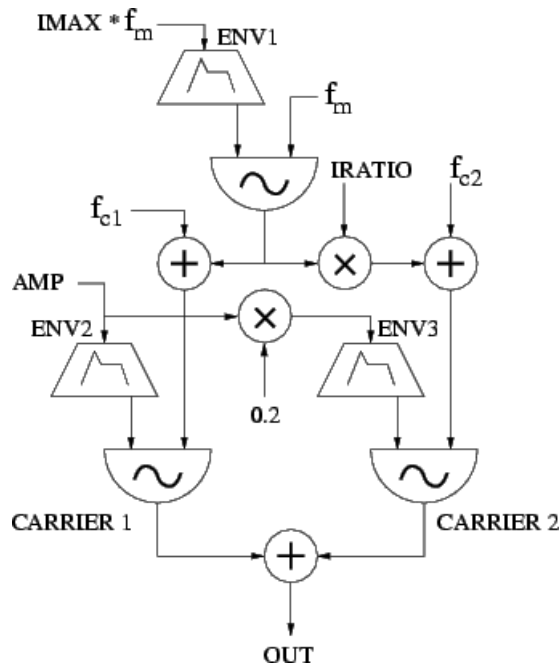


Music 270a: Digital Audio Processing
 Assignment #3
 Due: Monday, November 4, 2019

1. Create a single function in Matlab that, based on input arguments, implements
 - (a) ring modulation (RM),
 - (b) “classic” amplitude modulation (AM),
 - (c) single side band modulation (using your hilbert function from the previous assignment).
2. Implement Dexter Morrill’s double-carrier brass instrument, shown below, as a Matlab function.



Assuming a sampling rate of $f_s = 44100$, the input parameters to your function should be

- (a) the desired sounding frequency (“fundamental” frequency),
- (b) the note duration of note.

If there are other sound characteristics you want to model, nature of the attack, or dynamics, you may try to make them parametric and add them to the inputs. Your function should include envelopes for amplitude and index of modulation.

CHALLENGE: incorporate vibrato to give your instrument a more “natural” sound.

Bring your instrument in class next week.

3. Decide on a topic for your project and write a proposal no more than a paragraph long. Start by looking into the literature and come up with 2-3 related papers.