Some more questions.

1. I have a vague idea what L^1 and L^2 look like, but every other L^p space baffles me. Could you tell me what these spaces look like? Building off of that: why should L^∞ be the thing that we define it to be?

2. I don't actually understand the proof of the Holder inequality given in class; I can follow every step, but it seems strange and weird. Is there a better proof out there that appeals to some deeper fact, or is this simply some strange fact that glues all of the L^p spaces together? If such a proof is inaccessible to me, then could you explain why the Holder inequality should be true in rough terms?

Thanks for dealing with these.
-Max