6 Perspective notes (continued)

6.1 Extra Credit on the “School of Athens”

In our class before Spring Break, we had the opportunity to simulate a visit to a museum. On the walls of the classroom, there were two large posters: one was the School of Athens, a famous painting by Raphael depicting the two titans of western philosophy Plato and Aristotle walking side by side surrounded by a constellation of luminaries from the ancient world; the other, more plebian but perhaps more stunning, was a movie poster for Spiderman with our hero on the side of a skyscraper.

With kebab skewers in hand (to help us locate the “principal” vanishing point and an “accessory” vanishing point) and the viewing distance formula \(d = a \times \frac{D}{Z_1}\) in mind, we were able to find the correct viewing position (directly in front of the vanishing point at the distance \(d\) from it) for each of the posters.

Then I told you that in Raphael’s famous painting there is a huge perspective error. It took a while, but soon you all could see that it was the box in the foreground. Somehow it just doesn’t look right.

**Extra Credit:** Can you explain and show why this box is incorrectly drawn according to the rules of perspective? (Hint: You need to know what the images of lines parallel to the horizontal plane of the ground have in common with the *line of horizon*\(^1\).)

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\(^1\)This is the horizontal line on the picture plane that goes through the principal vanishing point.
6.2 Extra Credit: A Drawing Exercise

Draw your dorm room/bedroom in true one-point perspective. To do so, you need to make sure that all parallel lines not parallel to your picture plane are perpendicular (orthogonal) to the picture plane. Da Vinci describes a most direct way to accomplish this exercise:

Obtain a piece of glass as large as a half sheet of royal folio paper and fasten this securely in front of your eyes, that is between your eye and the thing you want to portray. Next, position yourself with your eye at a distance of two-thirds of a braccio [a unit of measure, approximately one arm's length] from the glass and fix your head with a device so that you cannot move it at all. Then close or cover one eye, and with brush or a piece of finely ground red chalk mark on the glass what you see beyond it.²

Here’s a picture that Dürer made describing a more reasonable version of the process. Note that the artist has a obelisk-shaped object to fix his eye position.

Fig. 2 Albrecht Dürer, Underweysung der Mesung mit dem Zirkel und Richtscheyt (Nuremberg), 1525, Book 3, Figure 67.

²As quoted in Martin Kemp’s, Leonardo on Painting, Yale University Press, New Haven, 1989
6.3 Extra Credit: An Anamorphic Exercise

Using the class handout with the Julian Beever picture *Times Square* (with the cute toddler peering down) and the *Anamorphic formulas*\(^3\) we derived in class, come up with the coordinates (on the sidewalk) that we’d use to draw this thing.

Note: You’re going to have to make some choices such as the viewing distance \(d\) and viewing height \(h\). Also, you need to put a scale on the axes of the picture (probably inches will work best). Actually, I think you might even want to consider enlarging the picture to say \(11 \times 17\). Now you need to pick out key points in the picture and write down their \((x', y')\) coordinates. Once you’ve accomplished this stick this data into an excel spreadsheet program have it calculate the sidewalk coordinates using those formulas.

For those of you with the gumption, we can get permission to draw this thing on campus somewhere. Please see me if there’s several of you interested in giving this a shot. There are some other devices that we can use to help us accomplish this.

\(^3\)These formulas were \(z = \frac{dh}{|y'|} - d\) and \(x = x' \left( \frac{z + d}{|y'|} \right)\). Note first that these formulas make sense: \(z\) represents the distance out and so should depend only on \(y'\); however, \(x\) depends on not just \(x'\) but also \(y'\) and the reason for this is that there is a \(z\) in its formula, which depends on \(y'\).