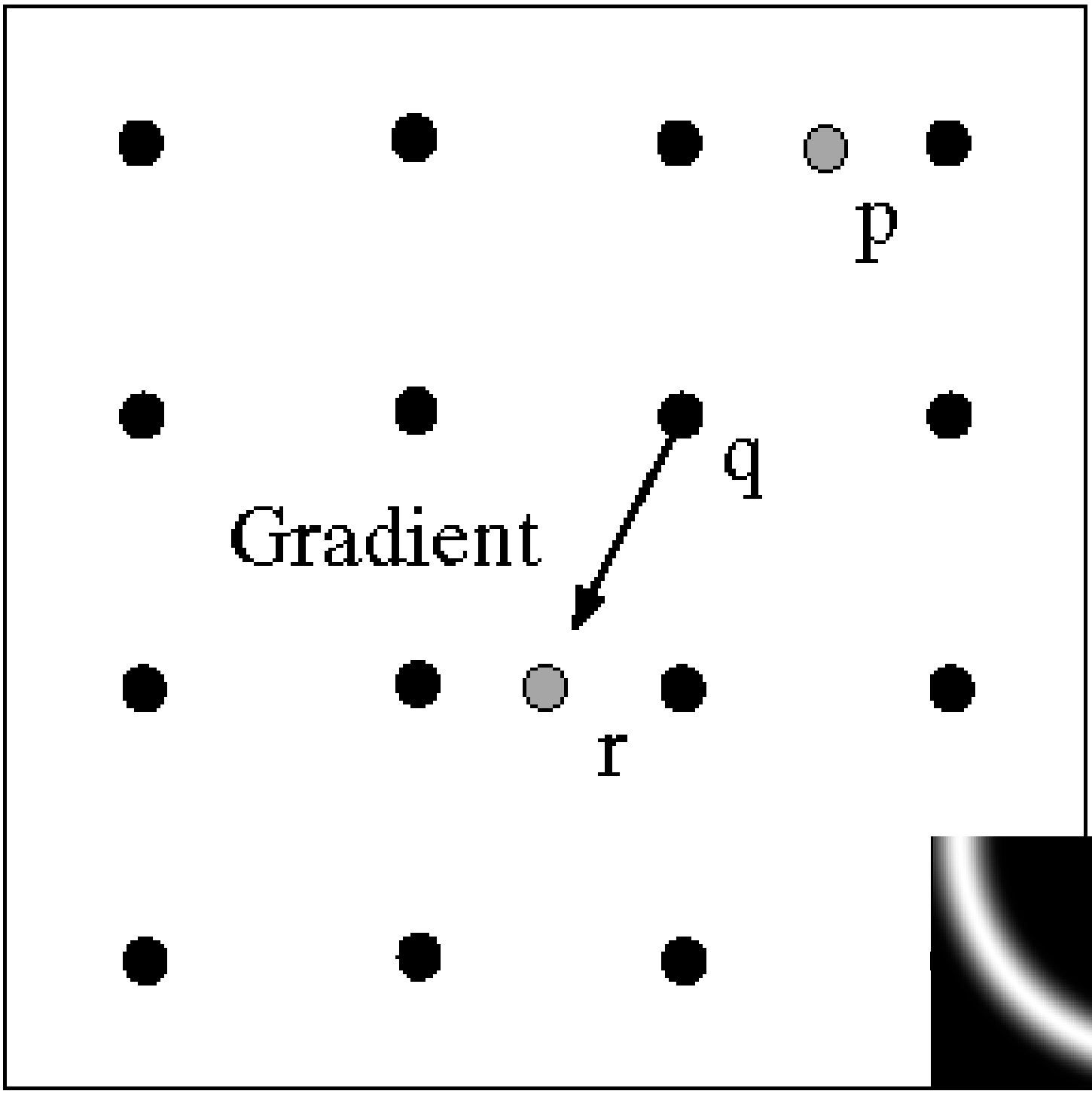
# Administrivia

- Proposed demo slots: Last day of classes, May 11 afternoon, after final (May 13--preferred if stereo wall is involved).
- Assignment 4 available soon.
- If you have not done so, please send me a final project proposal so I have a record of what you are up to.
- Midterm: March 25 (or state your objection soon!).

# Syllabus Notes

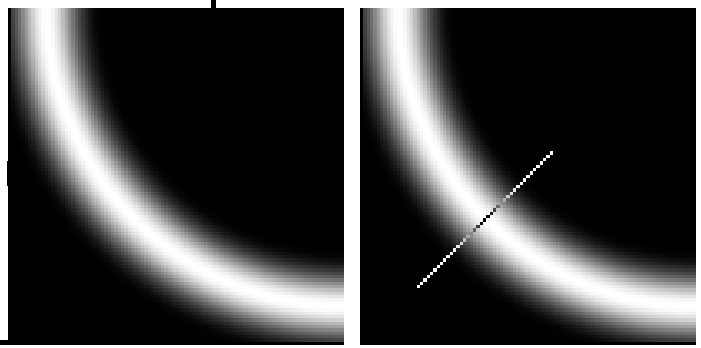
- We are finishing filtering. We will review non-maximal suppression (algorithm 8.2), touch on the Laplacian of Gaussian filter (§8.3.1), and discuss briefly the Fourier transform (7.3.1).

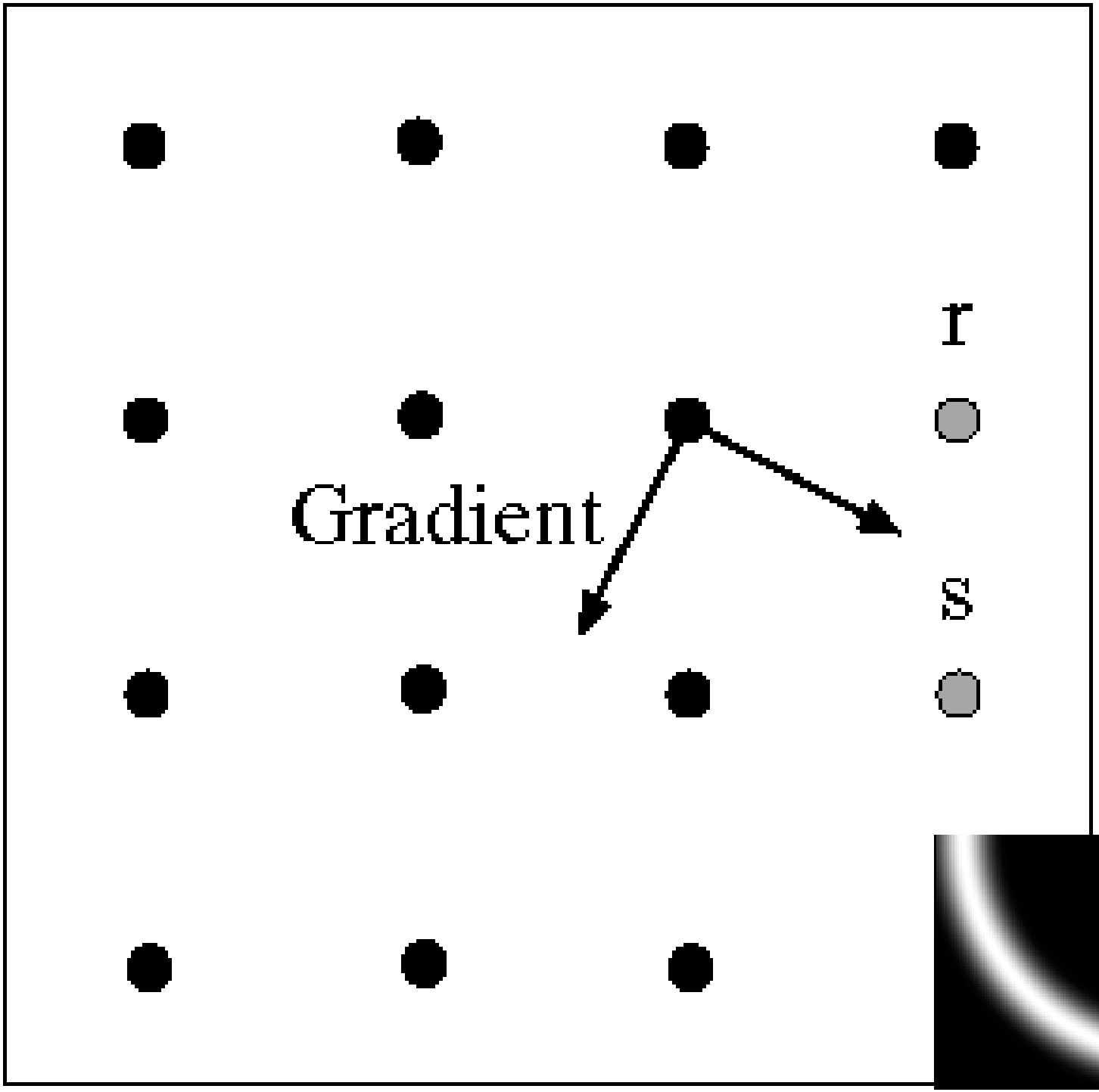
- Recommended optional reading (§7.4)




Non-maximum suppression

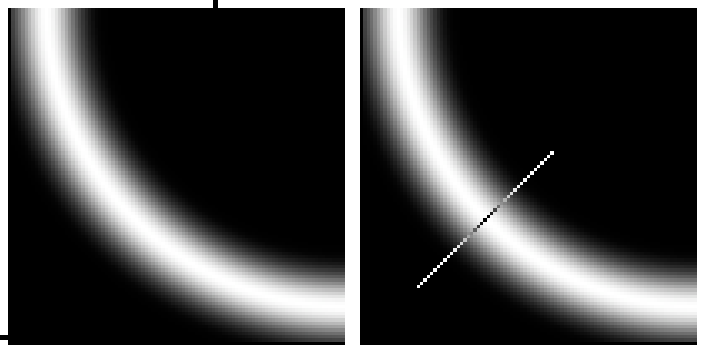
At q, we have a maximum if the value is larger than those at both p and at r. Interpolate to get these values.






## Predicting the next edge point

Assume the marked point is an edge point. Then we construct the tangent to the edge curve (which is normal to the gradient at that point) and use this to predict the next points (here either r or s).



# Non-maximal suppression (alg 8.2)

(See book, page 180)

For non-marked points with sufficiently large gradient

Find a maximum along gradient, marking max as edge point, others as non edge.

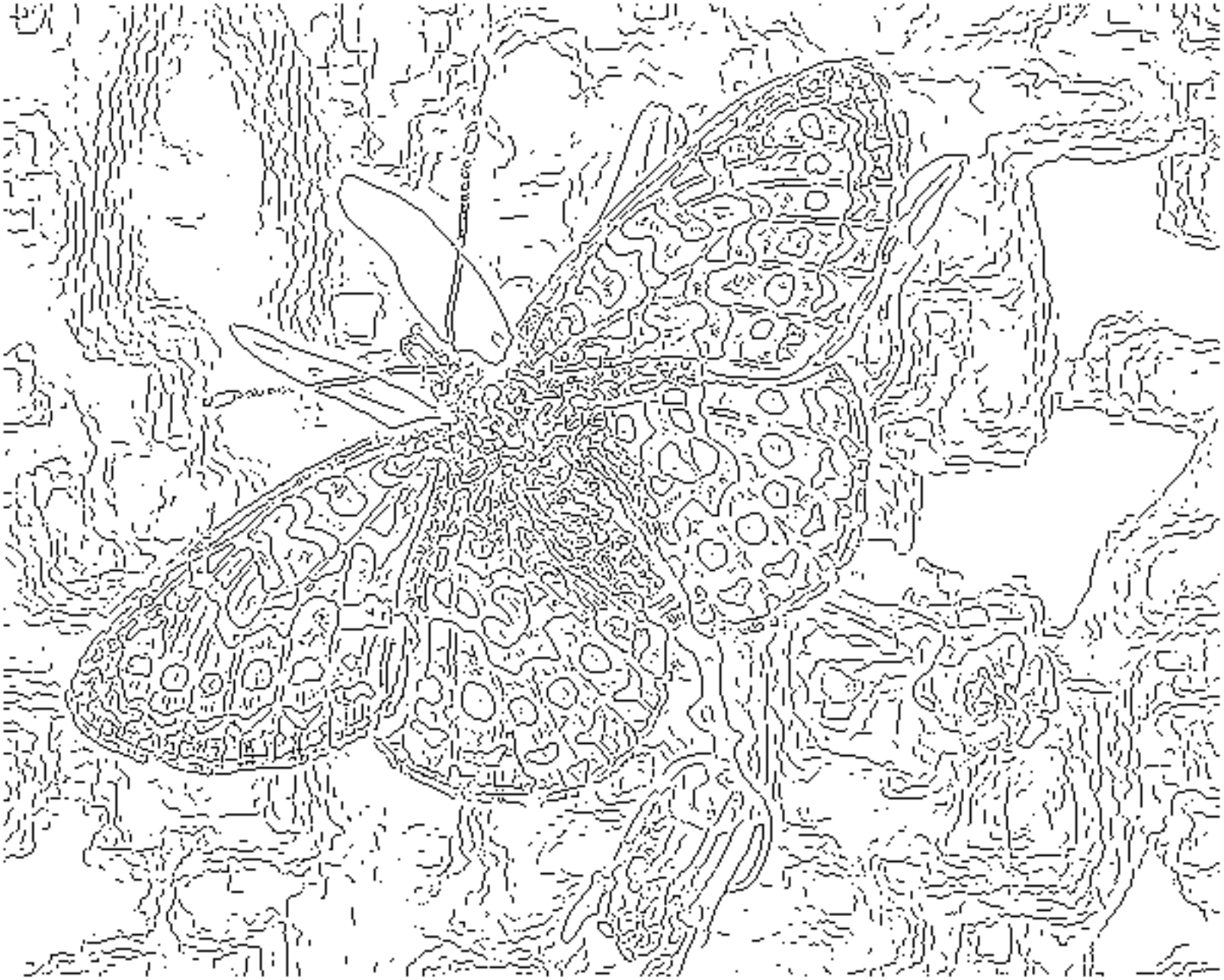
Follow chain by looking perpendicular to gradient for points which are local max in gradient direction, and marking them as edges if their gradient magnitude is big enough, and marking other visited points as non-edge.

# Remaining issues

- Check that maximum value of gradient value is sufficiently large
  - **hysteresis** method
    - use a high threshold to start edge curves and a low threshold to continue them.

# Notice

- Theory does not really match what happens at corners and edge detectors often do badly at them
- Edges aren't bounding contours (this is the hard part!)
- Scale affects contrast. Typically one analyzes images at different scales to find different structures.



fine scale
high
threshold

coarse scale, high threshold


coarse
scale
low
threshold