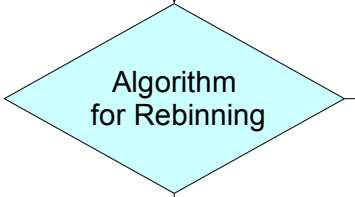


Read parameters
from config file



« gradient »

Compute local
gradient of flux
from input spectrum

see separate diagram
for gradientSpectrum

Part 1

Compute start and end of pixels in chosen coordinates for rebin using the wavelength calibration.

If rebinMethod is « log », correct for heliocentric velocity.

Produces a « **startOfPixels** » and an « **endOfPixels** » array of input shape.

Zero is center of the pixel, -0.5 is the start and +0.5 is the end .

see separate diagram
for wavelengthCalibration

Part 2



<> « noMerge »

= « noMerge »

compute vector **binSize**
with length equal to **numberOfOrders**
containing **sizeOfBin** value

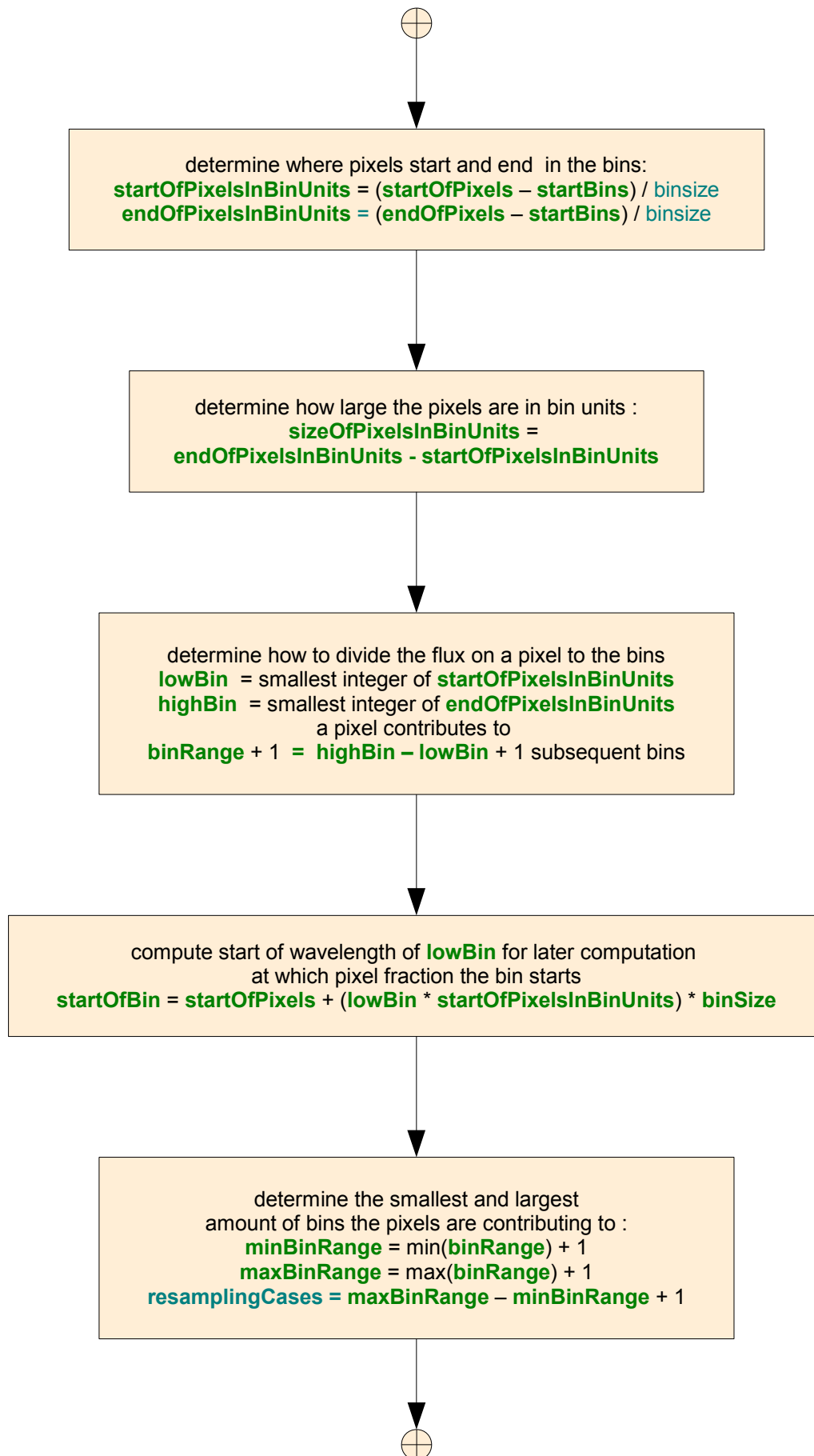
compute vectors **startFirstBin** and **endLastBin**
for lowest and highest of every order such that
the first bin starts, as close as possible, after the start
of the first pixel and the last bin ends, as close as
possible, just before the end of the last pixel.

compute array **numberOfBins**
as $(\text{endLastBin} - \text{startFirstBin}) / \text{sizeOfBin}$.
giving number of bins for each order

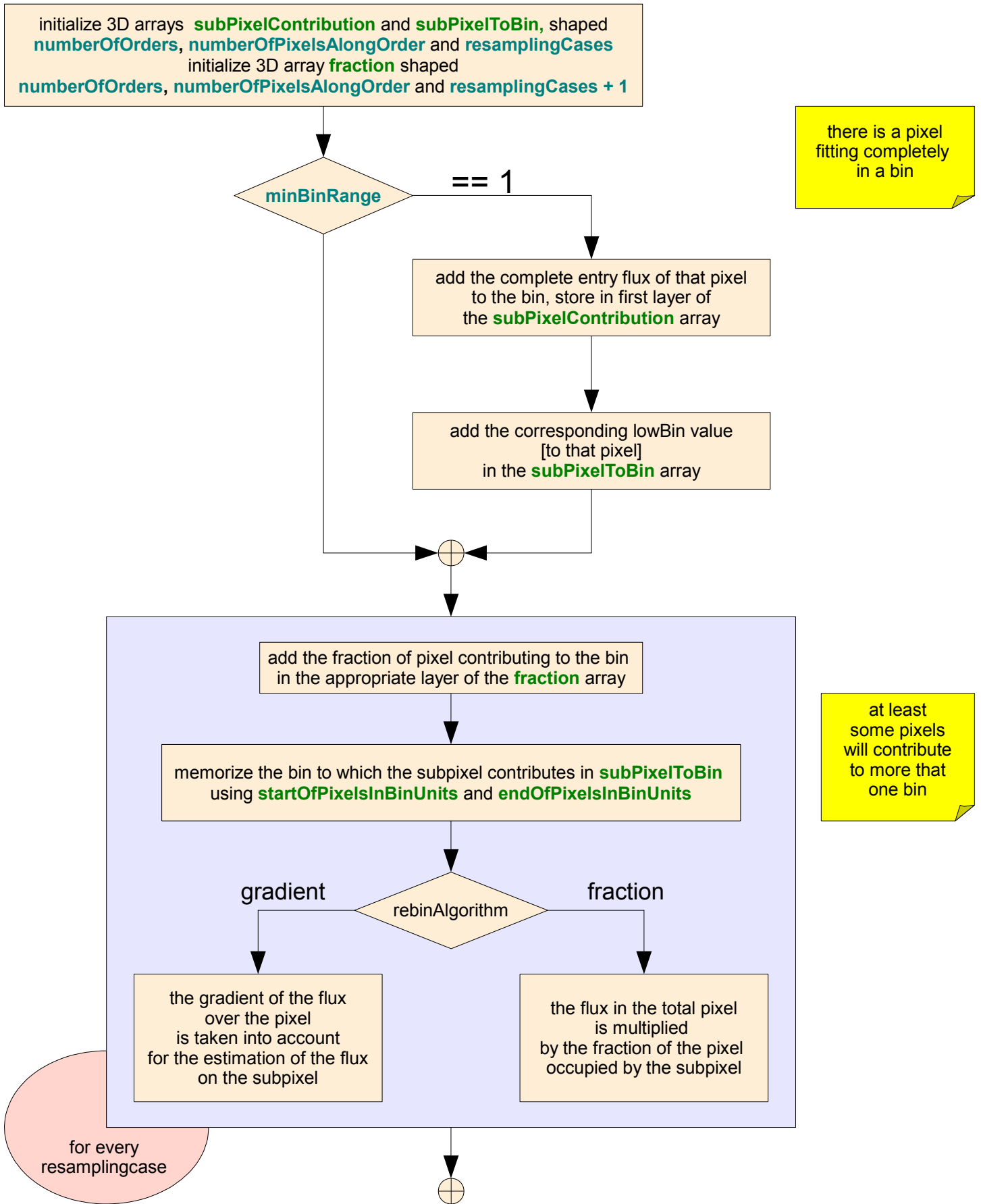
compute array **startBins** containing pixels and
fractions at which the bins start, for every order.

compute vector **binSize** as
latest of **endOfPixels** – first of **StartOfPixels**
divided by **numberOfBins**,
such that there are,
in each spectral order, exactly as many bins
in the resampled spectra as pixels
along the order on the detector.

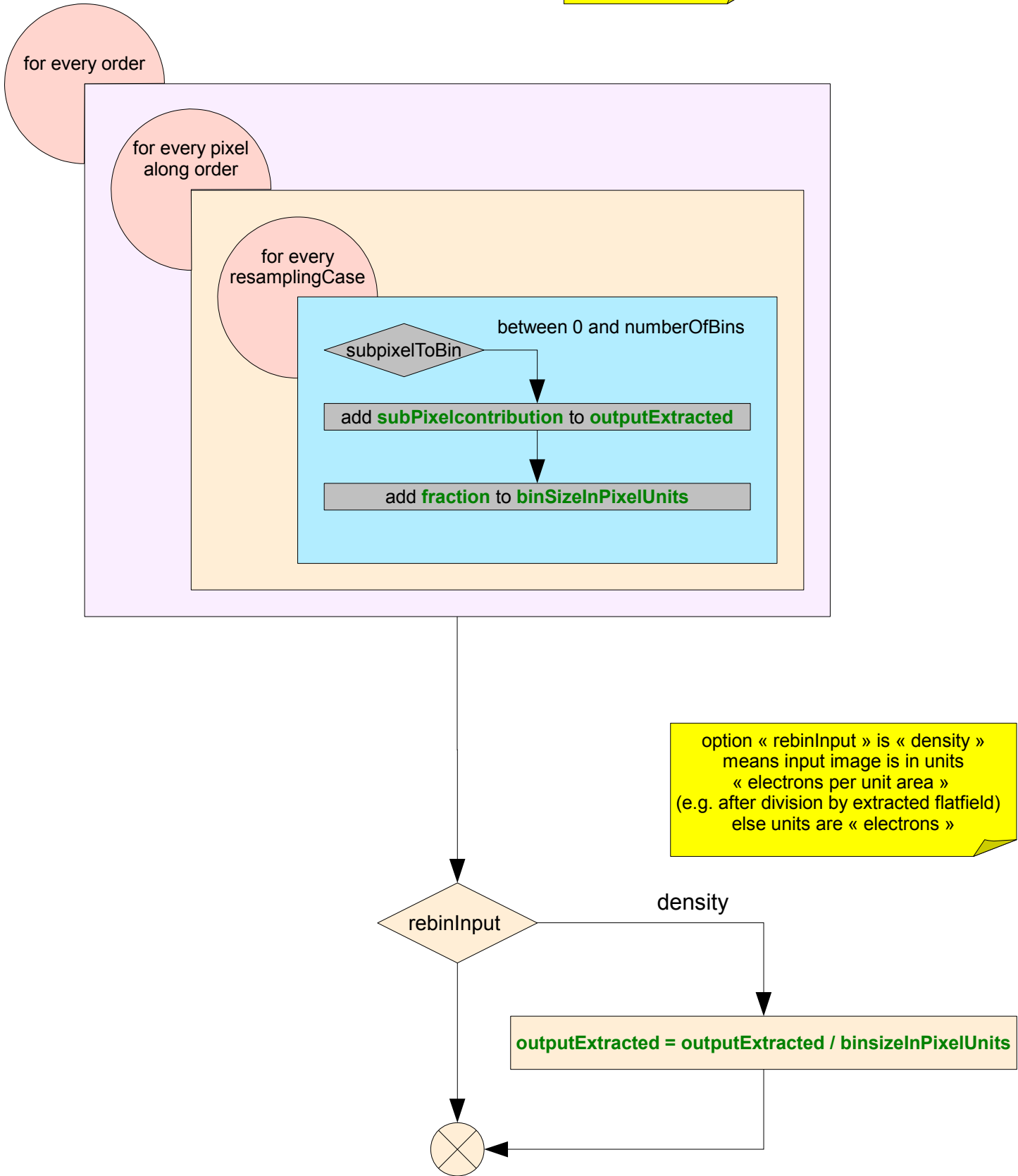
for each order, compute array **startBins** as
a range from first of **startOfPixels** to last of
endOfPixels for **binSize** of that order.



Part 4 : treat the different resampling cases



sum the subpixel contributions in the correct bin



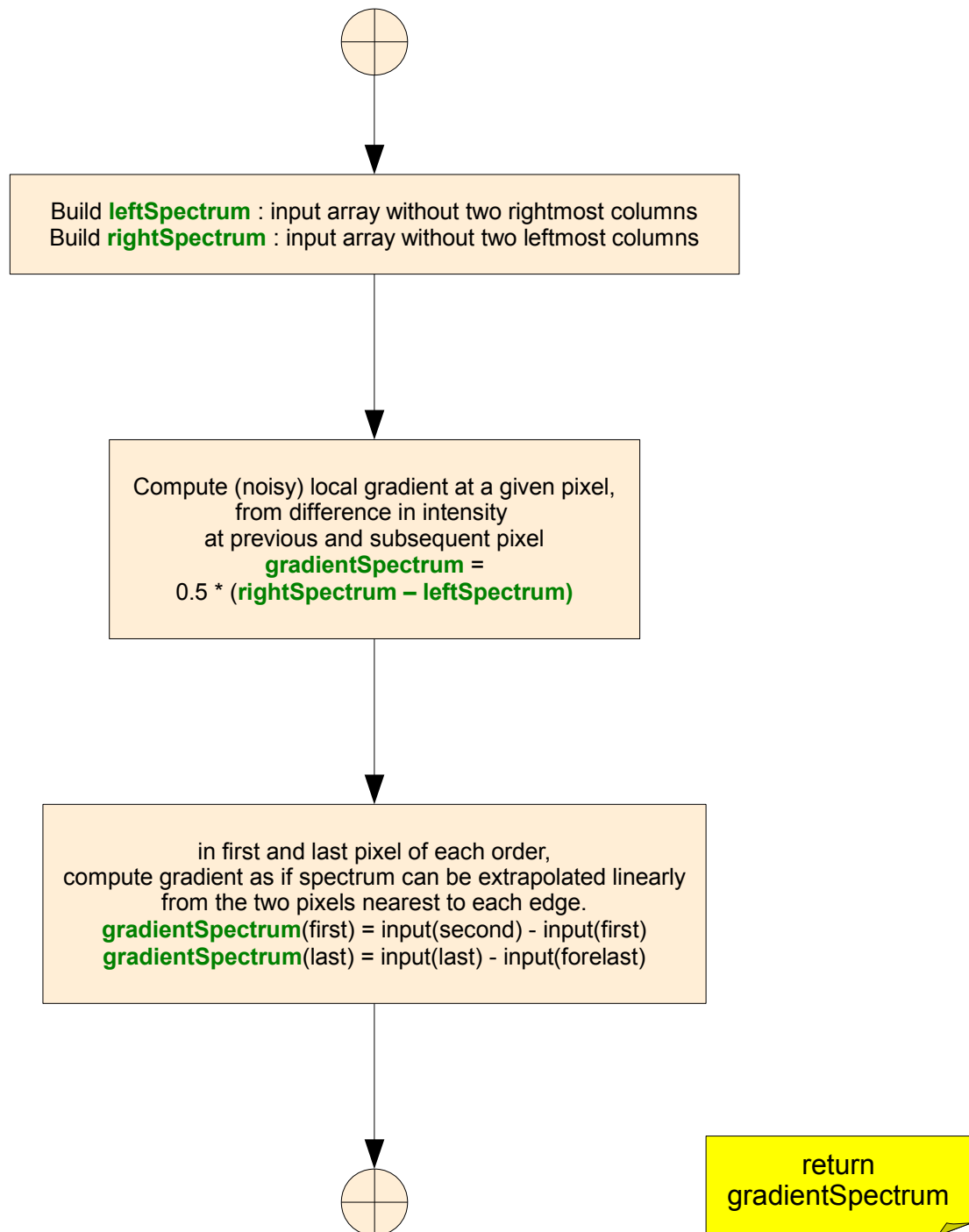
option « rebinInput » is « density » means input image is in units « electrons per unit area » (e.g. after division by extracted flatfield) else units are « electrons »

Write Fits Image

- Array « OutputExtracted »
- BinSize
- StartFirstBin = 0.5 binSize = FirstBin (1 per order)
- instrumentModel
- all test parameters (the « optionDict »)

HIERARCH REBIN START : coordinate of middle of first bin(vector len=numberOfOrders)
HIERARCH REBIN STEP : binSize (vector len=numberOfOrders)
HIERARCH REBIN OPTIONS : the complete optiondict

GradientSpectrum(inputExtracted)



WavelengthCalibration(inputImage, zeroFitAlongOrder, offsetInPixelUnits)

