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### **HW 3: Design Analysis of New Visualization (#2)**

In my second visualization (the single pie graph), line density and color (channels) encodes the annual percentage of change between 2005 and 2010. Area and angles (mark) used to divide the pie chart encode the relative number of deaths due to a given cause. The different colored containment (mark) encodes both the larger categories of causes of death (i.e. diseases/birth problems, injuries, and noncommunicable diseases), but is also used to encode the relative number of people who have died due to cancer within the noncommunicable diseases category. Another less prominent, layered containment (mark) also encodes the cause of death within the broader cause categories.

I use contrast in the form of line density to denote the annual percentage of change – greater density denotes greater change, while color is used to denote the direction of said change (purple for positive, green for negative). Color is also used in conjunction with containment to denote the three major categories for cause of death: diseases/birth problems, injuries, and noncommunicable diseases. Containment and contrast are also used in the blue-outlined part of the pie chart that encodes deaths due to cancer, giving it a special pop-out effect.

In this sketch, I tried to avoid having a large lie factor and maintain graphical integrity by having this chart be 2D, therefore limiting the chance that certain parts of the chart are viewed as being larger/smaller than they actually are. I also tried to slightly lower the amount of chart junk by not including the little blurbs of the original visualization (which were interesting, but ultimately unrelated). I also attempted to

simplify a viewer's perception of the annual percentage change by denoting that with line density rather than color saturation. However, the green lines are hard to distinguish from the purple lines at a glance, so a possible improvement would be to use lines for negative changes, and dots for positive changes. I also feel that I am presenting enough data (assuming the largest pie segments are correctly labeled) to justify the amount of ink used, and thus satisfy the data-ink ratio.