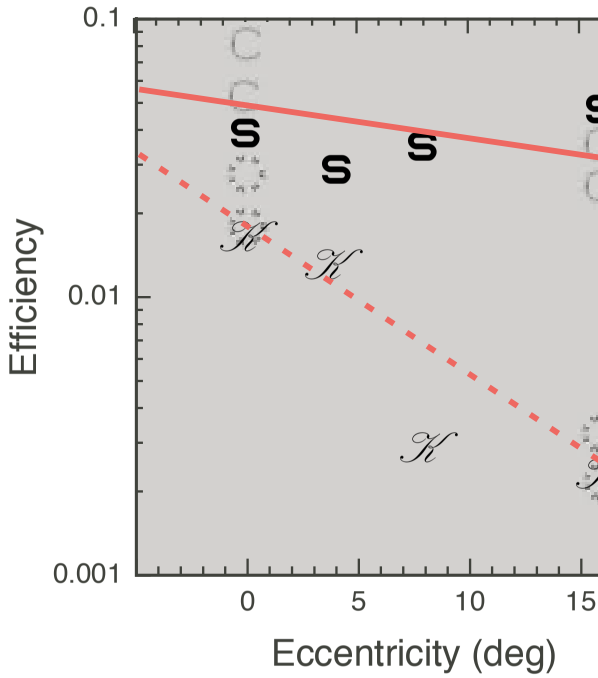
mplexity impairs efficiency in the periphe

luisa Martelli, Samba Silla,* Najib Majaj, and Denis Pelli
blogy and Neural Science at New York University and *Stuyvesant High School

ber row: Two ìsnakeî letters, one made of colinear gabor patches (left), the other made of orthog-patches (right). Fixate on the central square and try to identify the letters. It is easy on the left, but n the right. Lower row: Two letters of different fonts, SLOAN (left) and *Kuenstler* (right). Fix-central square and try to identify the letters. Again, itís easy on the left and hard on the right. All well above acuity. Despite the fact that the simple and complex letters have the same stroke fre-y the complex letters are impaired.

DATA. Efficiency as a function of eccentricity for identifying complex letters (individual data for three observers). For sim peripheral efficiency is half that in the fovea, but for complex one tenth.



': Pelli, Burns, Farell & Moore (2003) show that efficiency E_{ideal}/E^{+} for identifying letters is inversely proportional to their perimetric complexity (perimeter squared over "ink" area), xity is proportional to the number of features in a letter. Here we report a much larger effect of complexity in the periphery. For complex letters, efficiency drops tenfold as eccentricit om 0 to 16 deg. It seems that the feature integration mechanism used to identify complex letters in central vision is absent in the periphery.

s, C.W., Farell B., & Moore D.C. (2003) Identifying letters. Vision Research, in press.

Silla, S., Majaj, N. J., & Pelli, D. G. (2003) Complexity impairs efficiency in the periphery. *Journal of Vision*, in press.