http://heupel.com/eclectic/2003/09/28/can-you-raed-tihs-microsoft-link/ (January 2008)

Can You Raed Tihs? Microsoft Link

In another chapter on the the "Can You Raed Tihs?" story, Microsoft's Kevin Larson, a cognitive psychologist, dissected the main hypotheses on how we read at ATypI's Vancouver Typography conference.

"Kevin supports the 'parallel letter recognition' model. People don't he says, recognise whole-word shapes. Instead the recognise each of the letter components and then make a series of best-guesses on the information returned to assemble, first, phonemes and then words."

In case you are not aware, recently a story spread through various email groups, weblog groups and geek news sites such as Slashdot on this topic. Although there are a few variations one common version of the letter is:

"Aoccdrnig to a rscheearch at an Elingsh uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht frist and lsat ltteer is at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae we do not raed ervey lteter by it slef but the wrod as a wlohe. ceehiro."

The claim is that letter order does not matter in reading, that we can read fine even with the internal letters scrambled. This has been hailed by chronic mis-spellers, but as far as physiology, cognitive psychology and typography go it is meant to be important as a support of one hypothesis of reading method over another. This text would support the hypothesis that Kevin supported in his talk at ATypI: we read all the letter forms of a word simultaneously—in parallel– then assemble those letters into phonemes and words. Interestingly, the internal letter order is randomly scrambled and shorter words are either less scrambled, a function of their length or entirely free from scrambling.

In response to the original story being circulated, the linguistics department at University of British Columbia came up with a counter-example:

"Anidroccg to crad cniyrrag lcitsiugnis planoissefors at an uemannd, utisreviny in Bsitirh Cibmuloa, and crartnoy to the duoibus cmials of the ueticnd rcraeseh, a slpmie, macinahcel ioisrevnn of ianretnl cretcarahs araepps sneiciffut to csufnoe the eadyrevy oekoolnr."

What the UBC Linguistics group did was to apply a highly ordered and drastic rearranging of the internal letters. This counter-example would tend to disprove the parallel letter theory, at least as far as has been openly discussed. Of course to argue or imply that any aspect of human learning and behavior is as simple as has been discussed recently–one model or the other—is to make a gross oversimplification.

I really would like to see a transcript of Kevin's presentation at ATypI, as he supposedly tore down and supported aspects of each of the three most common hypotheses of reading, but he supports the parallel-letter-recognition–phoneme–word model as the accurate one. I want to see if or how he meshes the models, as I feel that that is more likely what is happening for most readers. That he argued against aspects of all three of the predominant hypotheses would suggest to me that he too believes it is a synthesis of the methods.

My personal belief is that reading is an extremely complex function. There are many factors that can affect both the legibility of text and our ability to comprehend and retain the message that the symbols on the page or screen represent. Typography, physiology and psychology have all dealt with these issues as a whole and in isolation for many years. Not only how you learn the language, but also what type of learner (visual vs. auditory vs kinesthetic) you are can have a large impact on how you actually read, recognize and translate the symbols on a page or screen. I do believe that word shape (external outline shape and internal whitespace and contrast) are critical to reading. Of course, my training may prejudice me towards that belief.

In typography there are many techniques that can be employed to destroy legibility of words and passages of text without destroying individual letter legibility. Similarly there are highly effective techniques which subtly (or not so subtly) change the word shape and internal word contrast to force a reader to slow down with an increase in retention.

I don't discount the letter–phoneme recognition hypotheses entirely. My guess would be that we mix those two models by reading the word shape and the letter forms simultaneously. When we recognize the word shape, either by memory or by context, we move on. Otherwise we assemble the letters into phonemes and words, again using context and experience as a guide. If that fails we switch to a serialized reading of the letters of the word, this being most common for extremely long words and completely foreign words.

This theory can be observed by watching young children first learning to read. Having observed my own son, just now learning to read, he has recognized many words well before he had knowledge of the alphabet. He recognized the word by it's shape. His recognition of the words held even when presented with the same word in fonts of diverse style and size. However if the word is presented to him in an ALL CAPS form there was no recognition. This supports the theory of word shape recognition, at least in a pre-spelling child.

As he has learned to spell he is learning the individual letters of the word shapes he already knows. When presented with a series of words—a mix of words he recognized before learning the alphabet and new words—he instantly will read out the known words without pausing to spell it, but he must spell out new words. As these new words have been learned both the shape and the letter form construction are added to his memory, and soon are he is able read them instantly as well. Of course he is still learning.

It appears that he is synthesizing the use of word shape and letter by letter spelling into his reading. As he gains more experience with the spelling and recognition of phonemes and is able to marry that to his initial learning of language–phonemes–the phoneme into word method of reading will replace letter by letter construction as both a more efficient and more "natural" method of reading. Word shapes however will remain as a key part of reading, which makes sense as it arguably appears to be the most efficient method.

One thing that is striking is the fact that no matter which hypothesis or mesh of hypotheses are supported, the one thing we all seem to agree on is the fact that reading is a highly contextual excersise.
Posted by Eric at September 28, 2003 05:15 PM