1   Why Comics Make Sense

2   Comics should be hard to read. Pages are littered with detail and colour, time is
3 represented by space, details are removed, and words and pictures are used simultaneously to
4 communicate information! Despite these apparent challenges, comics are remarkably easy to
5 read, and considered "kiddie fair" by most (McCloud, 1994). Readers effortlessly navigate
6 through heaps of information, immersing themselves in the author's narrative. Perhaps the same
7 perceptual processes allowing us to navigate through the stimulus rich real world are helping us
8 understand comics too.

9   To understand a comic, readers must sort through a pages' numerous panels in the correct
10 order, extract critical information, and piece together a coherent story. A simple application of
11 basic Gestalt laws of pattern perception can explain how readers do this so effortless. The law of
12 closure states that closed rectangular contours will strongly segment the visual field. Viewers
13 naturally segment areas inside and outside the contour into common regions which can act as a
14 strong organizing principle (Palmer, 1992). In addition, viewers tend to naturally fill contours
15 containing gaps. These perceptual tendencies allow the reader to focus on one panel of a comic
16 at a time. Areas inside panels can be perceived as snapshots, while the negative space in between
17 panels can perceived as time. The author also has the artistic freedom to leave some panels open,
18 as readers will naturally close them (Figure 1).

19   Now that readers can declutter a busy page of a comic, they must declutter the
20 information rich image within a panel. McLeod mentions that a powerful tool for promoting
21 audience involvement is placing iconic, simplified characters in near photographic, detailed
22 backgrounds. Style aside, this technique is also making the character easier to attend to. The
23 primary visual cortex contains receptive fields represented by Gabor functions (Barlow, 1972).
24 These Gabor functions process spatial frequency (SF) components of an image. Detailed
25 components of an image are composed of high SF information and coarse components are
26 composed of low SFs. Through the removal of detail, the author is increasing the SF difference
27 between the character and the background. This allows easier delineation between the two
28 because extremes of SFs are much easier to discriminate (Wolfe, 2000). Solomon and Pelli
29 (1994) nicely demonstrated this effect by places letters over visual noise of varying SF (Figure
30 2).

31   Perhaps the most unique aspect of comics is the combination of text with detailed images.
32 Compared to objects, people are much less efficient at processing words (Pelli, Moore, & Farell,
33 2003), so one would assume adding text could take away from the overall understanding of a
34 panel by using up the majority of working memory. However, according to dual coding theory
35 (DCT) readers may be able to process text without sacrificing perception of the rest of the scene.
36 DCT states that there are separate subsystems for processing visual and language information
37 (Paivio, 1987). Once visually processed, text is quickly transferred to the language processing
38 system. This allows the reader to process the text while holding the visual information of the
39 scene in working memory, resulting in an additive relationship between the two.

40   Comics are a fantastic example of how information rich media can be easily understood.
41   By presenting information in a way that takes advantage of simple gestalt principles, utilizes pre-
42   attentive cues, and fills multiple memory stores, comics can be an excellent way to communicate
43   information that isn't just meant for kiddies.

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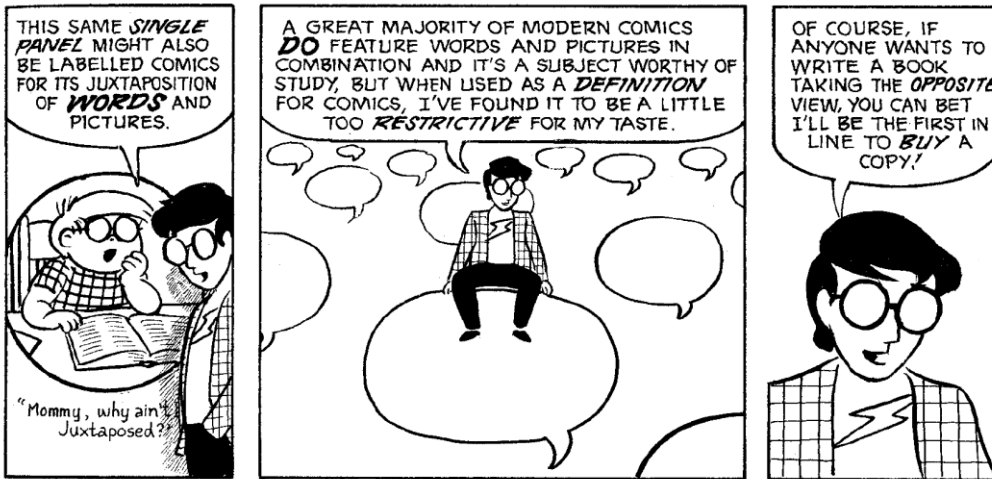
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46   **Figure 1.** The law of closure states that there is a strong perceptual tendency to close contours
47   with gaps in them. The third panel contains 3 corners of a rectangle allowing the reader to easily
48   fill the gaps on either side to perceptually close the panel.
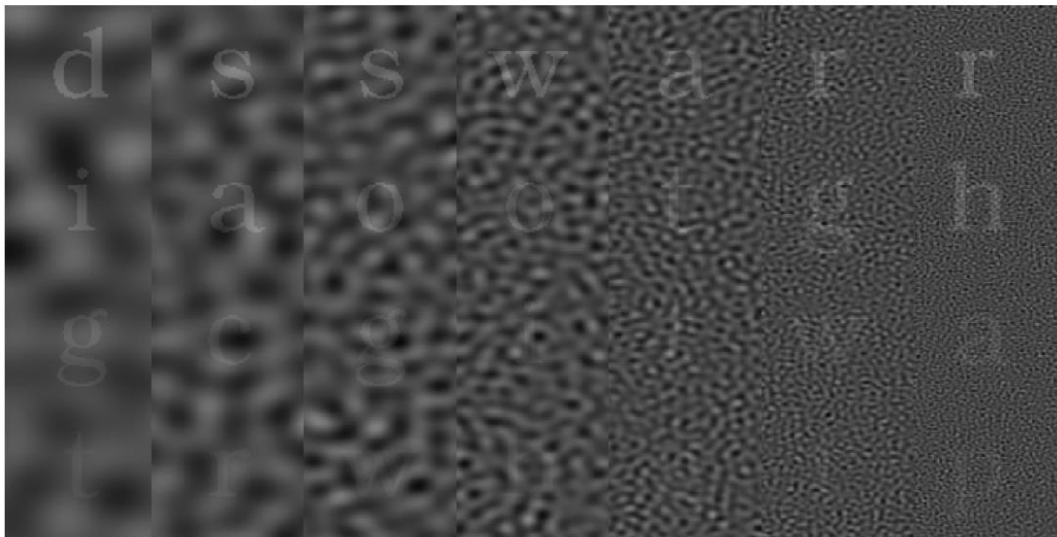
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50   **Figure 2.** Letters are harder to see if they have similar spatial frequency components as the
51   background. Figure from Ware (2012), originally from Solomon and Pelli (1994).

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