Digitally cultivating the accident in urban analysis

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Abstract. *Through the explication of digitally enabled analytical strategies, this paper sets forth the possibility of using deliberately cultivated accidents as a means of analyzing existing urban form.*

"Accident" - the word suggests a failure or breakage, an unfortunate distraction. But accidents also have the capability to open up new ways of seeing the familiar. To consider that accidents might be a *desirable* part of a design process (Hayles and Mulder 1998, 210-212; McLachlan and Coyne 2001) raises the possibility that architects could deliberately set up conditions increasing the likelihood of accidents as productive provocations. I propose the term *cultivated accident* to describe an accident which arises from just such deliberately set conditions. To cultivate accidents in a design process is to prepare oneself for seeing things which aren't expected. *Montage,* or the juxtaposition of disassociated image fragments, is a simple technique for cultivating accidents, even in situations when the source material is taken from a single image (Fig. 1).

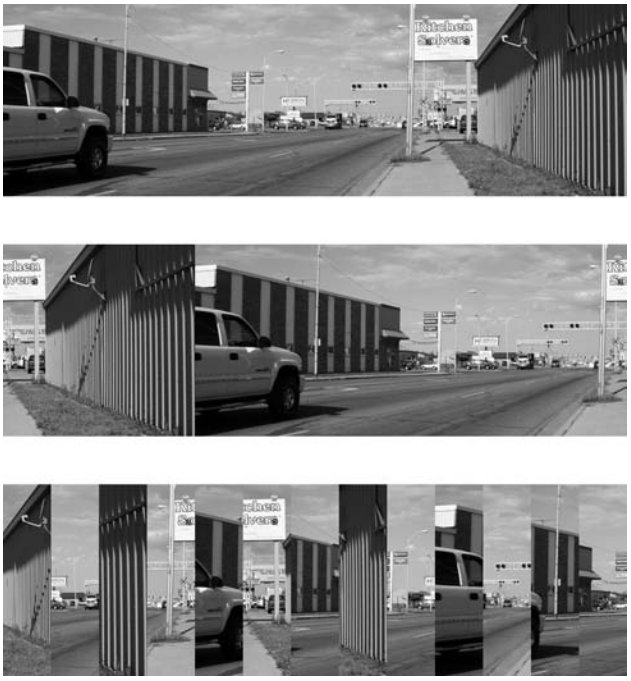


Figure 1. Montage as a cultivated accident. Juxtaposing image fragments is a technique for generating accidental or surprising graphic relationships. The technique can function with multiple or single source images. Here, a single source image is shown at top; successive images show it being internally mixed to produce a montage.

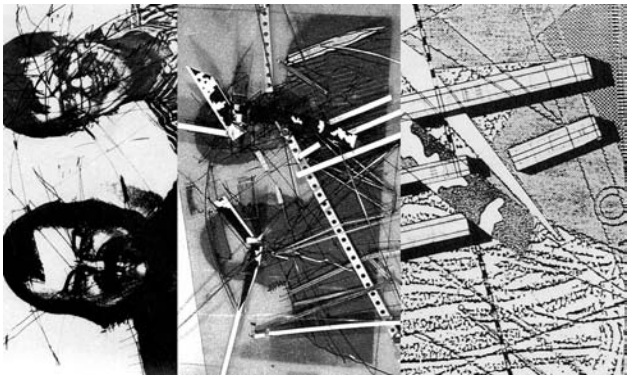


Figure 2. The form-generating accident. Coop Himmelblau's introduction of accidental tactics as provocations on the generation of architectural form. "On a team photo of Coop Himmelblau, we began to see and draw the lines and surfaces of the city ... our shirts [became] site plans." (Coop Himmelblau 1992, 14.)

However, the value of accident to conducting urban or architectural *analysis,* as distinct from *design,* is not obvious. Analysis proposes to find order, not to break it; it seeks to resolve, not to blur. To admit accident as a legitimate tactic in urban analysis is to assume a degree of *tactical identity* between analysis and design. However, the cultivated accident as a component of urban analysis should not be seen as an object of art or a form-generative exercise (Fig. 2); instead, it must emerge as a tactic for unsettling, a disturbance, or a displacement; a tactic for promoting a *fresh interpretation,* not necessarily architectural form.

Urban photographs reveal the montage-like quality of contemporary cities (Fig. 3), a completely characteristic quality which results over time from the juxtaposition of objects and spaces designed by different people at different times for different reasons. To systematically analyze this kind of evidence is a classic example of a "wicked" problem (Rittel and Webber 1973), an observation supported by the ample and divergent attempts over the past fifty years to analyze contemporary urban form (e. g., Lynch 1960, Bacon 1967, Venturi *et al* 1977, Garreau 1991). The work in this paper resulted from asking the question: *could cultivated accidents provide a way of re-seeing the urban familiar?*

Figure 3. Photography reflecting the accidental quality of contemporary cities. "[B]y mechanically reproducing the visual surface pattern of the physical world it [i. e., photography] introduces accident into every one of its products." (Arnheim 1957, 24).

Figure 4. Main Avenue at 23rd Street, Fargo, North Dakota, 2008. Low-density automobile-oriented development typical of Midwestern cities.

If deliberately fragmented and reassembled, images can generate accidental adjacencies on which to base new assertions about the urban condition (Figs. 4-6). Digital models of the city also emerge as potentially rich sources of accidental artifacts (Fig. 7). Whether photograph, map, or model is used as a source, the cultivated accident appears to have the effect of making familiar things visible in new ways.

Although accidents can be *random*, they need not be: montage is a simple example of a non-random accident (Fig. 1). Distinct from the "wild card function" proposed by Daniel Herbert (Herbert 1997, 278-279), cultivated accidents don't necessarily depend on randomization. A *mixing function* (Fig. 6) is an example of a non-random technique which results in accidental juxtapositions between image fragments.

Like the city itself, cultivated accidents result from systematic, rigid, rule-based, and portable designed frameworks. Two critical methodological features are identified: the importance of designing a robust, systematic framework (e. g., a mixing function), and the act of comparing results to original artifacts (for without comparison, there is a risk that the accidental artifact becomes an end-in-itself).

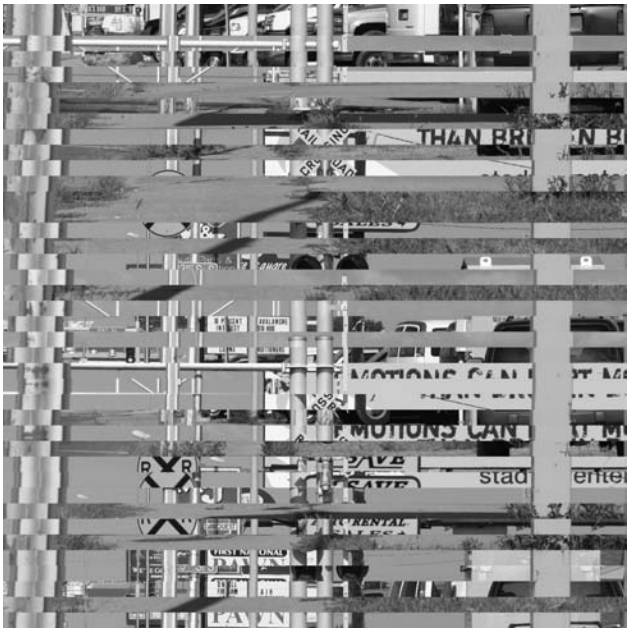
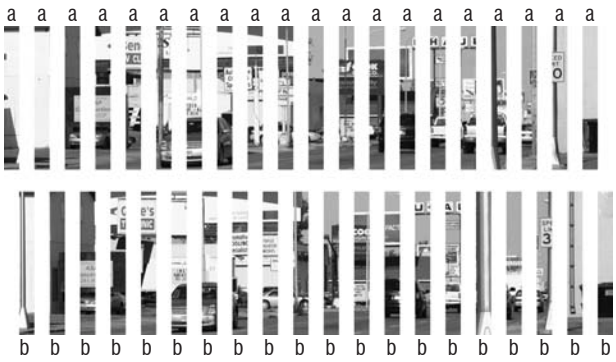


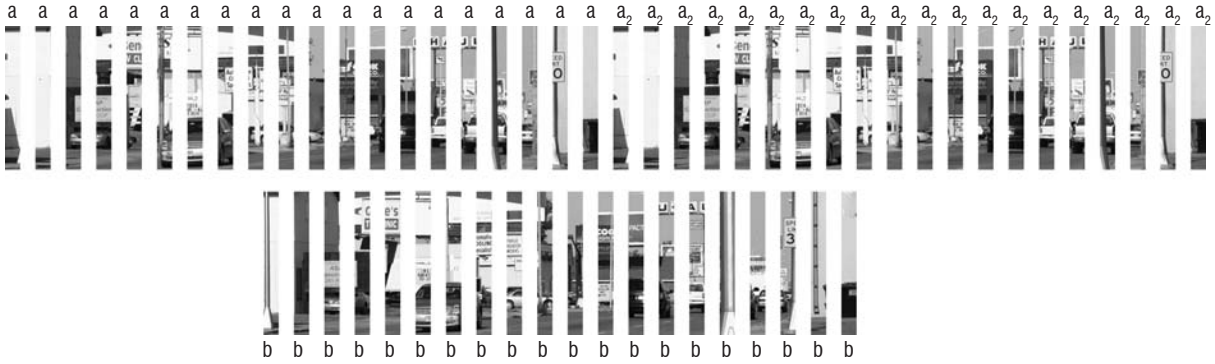
Figure 5. The mixed image. The image in Fig. 5 is subjected to multiple, regular mixing processes (see Fig. 7) as a means of cultivating accident. The resulting image highlights the continuity and presence of vertical elements such as signposts, lightposts, etc., which are not necessarily obvious in the original.

(1)

(2)



(3)



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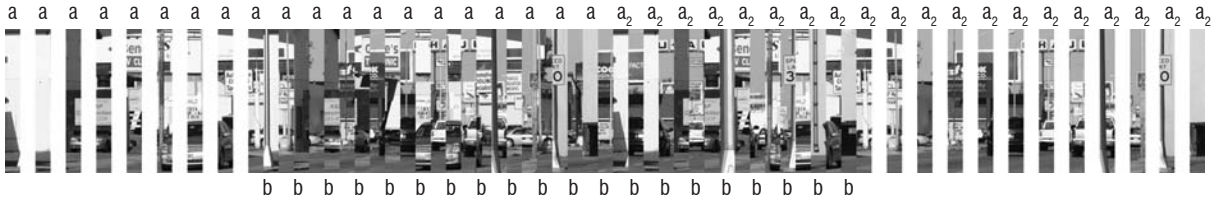
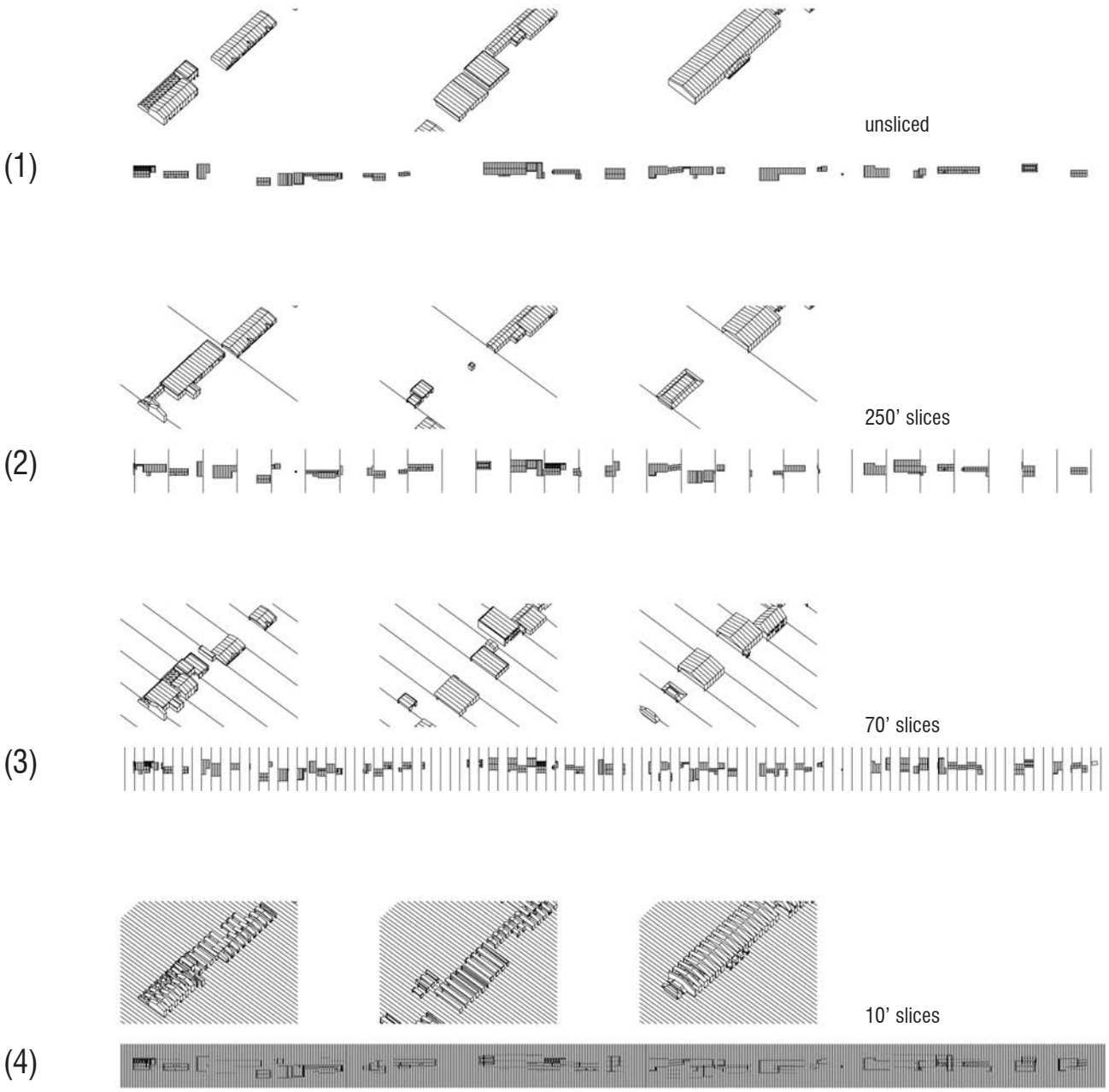


Figure 6. A regular mixing function. A source image (1) is regularly sliced. Slices marked "a" are removed from the image matrix (2). The removed slices are shifted and copied (3), and then re-inserted to the matrix (4). The resulting image contains a multitude of accidental juxtapositions of image fragments, but it is not random. It can be re-mixed using different intervals or starting values.



“There is one means by which accidental agglomerations can acquire organization and meaning, namely, quantity. The larger a random collection of elements is, the more the individual characteristics of the elements and their interrelationships will recede while their common properties will come to the fore.” (Arnheim 1957, 24.)

Figure 7. A regularly mixed digital model. A digital model of Fargo’s Main Avenue from 8th Street to 25th Street is regularly sliced and mixed in a manner like that shown in Fig. 7. In the unsliced model (1), buildings are shown in their actual positions. In the 250’-slice model (2), the entire model is sliced on intervals 250’ in length and then regularly mixed: fragments from one segment of the street are placed next to fragments from a remote segment. The results are also shown for intervals of 70’ (2) and 10’ (3). The question arises *whether there exists a threshold interval below which the model loses its characteristic pattern of solids and voids?* A 10’ slice seems too small, but the 250’-slice model, and to a lesser degree the 70’-slice model, appear to share the massing characteristics of the original. *What is the significance of the threshold interval?*

Cultivated accidents provide a way of transcending logical explanations of the city. The value of a cultivated accident to analysis does not derive from hypothesis verification, but instead from how it makes it possible to re-see the familiar, thereby expanding the range of possible observations. The systematic deformation of images and models – that is, the cultivation of accidents – opens up new possibilities for interpreting contemporary urban environments.

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Notes on Images

Fig. 1. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008. The photograph is regularly mixed using Adobe Photoshop.

Fig. 2. Image of Coop Himmelblau, scanned August 2008, from Coop Himmelblau, 1992.

Fig. 3. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008.

Fig. 4. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008. The image is first blurred (using Adobe Photoshop's Gaussian Blur) and then stratified (using Photoshop's Posterize function set to increasingly large numbers of tones).

Fig. 5. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008.

Fig. 6. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008. The image is repeatedly mixed using successive applications of the author's custom-written selection-and-shifting Actions (macros) in Adobe Photoshop.

Fig. 7. Original photograph of Main Avenue, Fargo, North Dakota, by author, August 2008. The figure illustrates the functioning of a selection-and-shifting Action in Photoshop.

Fig. 8. Digital model of Main Avenue, Fargo, North Dakota, constructed in AutoCAD by the author, August 2008.