The Emergence of Meaning from Observations of Studio Mass Accumulation

JOHN T BULLITT §

Abstract

The work of every artist is to rearrange the materials available in his or her environment in some significant and meaningful way. But if the artist's work boils down to the selective rearrangement of familiar and pedestrian materials, what is it that distinguishes the artist from the non-artist? Are there observable and measurable differences between the ways the artist and the non-artist work? Is it possible to identify objective predictors of artistic creativity through observations of the artist's process?

During a five-month period the artist recorded the weight of everything that entered or exited his studio: art supplies, full soda cans, empty stomachs—in; trash, full bladders, curbside recycling—out. About a dozen mass, time, and lexicographic parameters were defined and calculated from the observed quantities. When presented in a multivariate color foldout chart, these parameters hint at an underlying structure and meaning not immediately apparent from the raw source data.

To maximize the scientific authority of this study, metric units, the passive voice, and specious equations were liberally used.

§ PO Box 441681, Somerville, MA 02144 (john@jtbullitt.com)

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John Bullitt
PO Box 441681
Somerville, MA 02144
USA
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www.jtbullitt.com

Background

The painter squeezes paint from a tube, applies it to a canvas, and hangs the painting on the wall; the multimedia artist takes digital data and edits, mixes, and sculpts it; the performance artist takes a physical gesture and recontextualizes or otherwise alters it so as to evoke a particular response in the participant or audience. The process of creation and expression is all about rearranging the familiar into something new.

One fundamental metric of studio activity is the quantity of matter physically transported into and out of the studio over a given time period. For example, the working artist purchases supplies and carries them into the studio; later he or she carries out finished pieces and trash. The routine movement of mass into and out of the studio is a useful and easily quantified currency by which artistic activity may be monitored. Observations of the weight of the artist as he or she enters and leaves the studio thus provide a first and important step towards assessing the mensurability of creativity itself.

It must be noted that the analysis described in this study is applicable even to artists who work with conceptual or non-physical media—provided that they themselves possess a physical body and a workspace whose boundaries may be clearly defined.

Theory

We consider the studio to be a closed system, apart from a doorway through which the artist freely moves. On a given day, the artist makes n round trips into and out of the studio, during which time he or she carries a total mass m^i into the studio and m^o out. For the purposes of this study, we characterize this mass transfer in several different ways, by considering the sum, difference, and ratio of the in-going and out-going masses.

We define the net transfer of mass, Δm, into the studio on the k^{th} day of the experiment:

$$\Delta m_k = m^i_k - m^o_k \qquad (1)$$

Similarly, we define the daily schleppage ξ_k as the total mass crossing the studio threshold:

$$\xi_k = m^i_k + m^o_k \qquad (2)$$

Likewise, the daily innitude I_k is the ratio of the in-going and out-going masses:

$$I_k = m^i_k / m^o_k \qquad (3)$$

It will also be useful to consider the net mass accumulation, M:

$$M = \Sigma m_k \qquad (4)$$

To quantify the time dependence of mass transfer we must also consider the rate of mass accumulation in the studio. For this, we define the mass flux, Φ', in terms of the mass Δm

Notes

[1] The signs of Φ' and Φ, as here defined, are opposite to that used in the conventional definition of flux, in which positive flux corresponds to mass moving *out* of the reference space (here, the studio).

[2] Taylor Lithium Bathroom Scale, Silvertone/White, model #7324W. Formerly available at Target.

[3] See, for example, *A Database of Paleoecological Records from Neotoma Middens in Western North America*, USGS, US Department of the Interior (http://esp.cr.usgs.gov/data/midden).

References

Roy Pardi, personal communication (2006). See http://www.roypardi.com.

Wallace & Gromit, *The Wrong Trousers* (1993). See http://www.wallaceandgromit.com.

Figure 1 *(opposite, in pocket):* Summary of findings; see p. 138.

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passing through the doorway into the studio during some time interval Δt

$$\Phi' = \Delta m / A \Delta t \qquad (5)$$

where A is the cross-sectional area of the studio doorway.[1] For convenience, we will assign unit area to the doorway, which allows us to drop the prime in (5), yielding

$$\Phi = \Delta m / \Delta t \qquad (6)$$

On productive shopping days, Φ tends to be positive; on trash/recycling days it tends towards negative or small positive values.

We can easily evaluate an average mass flux, ϑ, over the course of the experiment simply by substituting the mass accumulation M from (4) into (6) and taking as Δt the number of days in which measurements were actually made. But because the studio is not in use every calendar day during the experiment, this measure of mass flux may be somewhat misleading: after all, there may be latent creative forces fermenting even in the darkened corners of an unoccupied studio. To take into account those days when no measurements were made, we will also consider an average effective mass flux, η, using the total elapsed (calendar) time of the experiment as the corresponding time interval.

These are the essential metrics needed for accurately describing mass transfer into and out of the studio. It is also instructive to define the per-trip schleppage, $\wp$, as the schleppage, ξ_k, divided by the number of trips on a given day. High values suggest brute strength was at work, rather than creativity. The contributage, χ_k, defined here as the contribution of today's net mass flux as a fraction of the net mass accumulation (most usefully expressed as a percentage), serves as a convenient indicator of days that are marked by unusually high mass flux.

The investigator's written comments, as recorded in the logbook, introduce another dimension for assessment of studio activity. Because words are orthogonal to both mass and time, they provide an additional basis vector with which to construct a creativity metric space. To this end, we introduce the wordiness, $\Re_k$, the number of words present in a given day's comments. High values of $\Re_k$ may either reflect moments of profound inspiration or the tendency to procrastinate by scribbling pointless notes in the logbook. The length of the comments also matters, as indicated by the letteriness Λ_k (the number of letters the investigator actually wrote down). High values of Λ_k reflect either a tendency to write long bursts of brilliant but abbreviated notes, or a tendency towards mercifully brief turgid pedantry. To distinguish between these two cases requires an additional parameter indicative of actual word length. We thus introduce the sesquipedalianicity, $\Im_k$, the average length of words recorded on a given day. Long words are widely accepted as correlating more strongly with concise language than with impulsive bursts of thought. But whether five-dollar words are an indication of creativity is anyone's guess. Finally, the lexicographic vector space is fully spanned with the introduction of the gruntage, Γ:

$$\Gamma_k = \Re_k / \xi_k \qquad (7)$$

Gruntage is high when the artist is able to formulate and write down thoughts even while schlepping piles of junk around the studio. It means either (a) he's in good physical condition; (b) he likes to talk a lot; or (c) both. Given that we can rule out case (a) *a priori*, this leaves (b) as the more plausible case.

We finally arrive at the wellspring of artistic creativity: the obsessivity, Ω, here defined as the fraction of calendar days that the artist was actually in the studio during the course of the experiment. A lazy artist might expect $\Omega \approx 0\text{-}20\%$; an average artist, $\Omega \approx 20\text{-}60\%$; the truly committed one, $\Omega \approx 75\text{-}95\%$. Values of Ω exceeding 95% suggest a departure from the world of art and into something far more sinister.

Methodology

Others (Pardi, 2006) have proposed collecting a continuous mass-time-space dataset by wearing a pair of custom-built digital scale boots connected directly to a data acquisition and analysis system via wireless communications network. Although this idea indeed has its merits, one landmark study has convincingly demonstrated the hazards of automated clothing appliances in day-to-day activities (Wallace & Gromit, 1993). Out of concerns for the investigator's personal safety, and due to the limited time and funding available under our research grant, it was decided to use a consumer-grade digital anthropometric weight display device.[2]

In November 2006 the investigator began recording his weight whenever he entered or exited his studio for any reason. Weight measurements were recorded in a log book. Whether it was to carry a bucketful of river stones back from the rock quarry or to step out to use the restroom, all was weighed and recorded. Data collection concluded on April 14, 2007, in time for Somerville Open Studios in May, 2007.

In keeping with the western scientific canon, the passive voice was used in this experiment wherever possible. Measurements were recorded in metric (MKS) units to further infuse the study with an aura of scientific authority.

Discussion

Day-to-day summaries of the data collected during in this experiment, along with the derived quantities described above, are shown in Fig. 1 (see accompanying fold-out chart). The data largely speak for themselves.

Daily fluctuations in the observed data and their derived parameters manifest as variations in the patterns of color patches. The two-dimensional variegated structure of colored patches hints at the emergence of intentional pattern and design that calls to mind the geometric forms of abstract early modernist art.

For concision, the entries in the artists's logbook that contributed to calculations of the lexicographic parameters $\Re_k$,Λ_k, $\Im_k$, and Γ_k have been omitted from Fig. 1. A sampling from among the more informative and significant entries gives the flavor of the data (Fig. 2):

Day 63: *In:* lunch in bag; *Out:* full bladder; *In:* empty bladder; *Out:* lunch in stomach; *In:* empty bladder.
...
Day 68: *Out:* paper towels soaked with spilled coffee.
...
Day 102: *Out:* coffee cup (to rinse); *In:* clean coffee cup; *Out:* wet trash; *Out:* stepladder; *Out:* iced tea, carrots; *Out:* drill, screws; *In:* stepladder; *Out:* going home.

Figure 2. Typical raw lexicographic source data from the investigator's notebook.

Would similar measurements obtained of a non-artist at his or her workplace, home, or automobile yield comparable results? It seems plausible that this process occurs in every sphere of human activity. Wherever there is transfer of mass (or, equivalently, energy) as a result of human intervention, there is creation (or, yes, destruction). And wherever there is intentional intervention there is art. Art in its broadest and most meaningful sense encompasses all intentional action, wherever it occurs, inside the studio or out. The person who paints a multimillion-dollar masterpiece by day, but who goes home at night to kick the dog and live a corrupt and dissipative private life is, at best, an incomplete artist. So, too, the inexplicably popular artist whose media include dissected farm animals preserved in formaldehyde. The message is clear: choose your actions with care, because all of them add up to your art. No gesture or brushstroke goes unnoticed. Art is verb, not noun; you are as you art.

Conclusions

In this particular studio during the course of this study, the net mass accumulation M was seen to rise almost monotonically with time, a characteristic shared with populations of *Neotoma cinerea*, a ubiquitous resident of the arid southwestern United States.[3] This trend is not, in itself, indicative of creativity. Its measurement, however, is. Prior to this experiment, there were no data. With no data, Fig. 1 would have remained an empty field of implicit possibility. The emergence, however, of a multidimensional structure (projected here as a two-dimensional multicolored form) is an act of creation spawned by the combined intentional processes of observation, measurement, and data analysis. Intention begets measurement. Measurement begets numbers. Numbers beget patterns. Patterns beget art. Measurement in and of itself is a creative gesture.

Intend, act, observe, measure, reflect: art is ubiquitous.