

The Renegade; An Aesthetics of Resolution. Some Thoughts on a Techno-Imaginative Toolbox and its Potential for Art as — and beyond — Critique

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Abstract

This paper traces the semantic field of the term *resolution* and its potential relevance in current techno-political discourse. Based on an artistic project engaged with the forensics of a market crash, I propose an approach – both artistic and political – for a radical material practice to (en)counter the black box of (automated) evaluation and decision-making. With an ambivalent, contingent and marginal figure at its heart – the *renegade* (a traitor inside and an educator outside systems) – it combines the varied meanings of the term *resolution* – from technology and visualization techniques and definitions; knowledge-production and decision-making; to discretionary competence and joint convention – to propose a multi-layered and transdisciplinary practice for re-arranging (acting) against the “box.” By creating narrative instabilities, it works towards *renegade solidarity* that coagulates dissent into insurrection for profound socio-political change.

Keywords

Art, algorithms, black box finance, resolution, renegade, dissent, insurrection, solidarity.

Representational Aesthetics in Finance

The following brief analysis¹ focuses on developments in finance and their impact on wider social realms. However, they are not restricted to markets, as similar schemes appear in other fields as well (such as big data or surveillance programs). These operations combine areas like cybernetics, technology, mathematics, probability theory, data mining, and psychology into schemes of evaluation and decision-making that are increasingly programmed to act autonomously. Autonomy, here, exceeds informed decision and accountability. The concept of cybernetics per se is based on self-regulation by feedback and control; implemented on the level of social relations, it becomes a self-governing force whose automated processes are prone to interfere with (non)human relations and activities.

¹ This paper is based on research that resulted in the video *COUNTERING CAPITULATION. From Automated Participation to Renegade Solidarity* (<https://vimeo.com/channels/aor>) and the text, “Mayhem in Mahwah. The Case of the Flash Crash; or, Forensic Reperformance In Deep Time,” in: *FORENSIS: The Architecture of Public Truth*, ed. Forensic Architecture (Berlin: Sternberg Press, 2014), 125-146.

As regards the subject of this paper, my contribution traces a concrete practice engaged in an aesthetics in the field of consequences. This implies an origin – an event, a course of action, a mode of application – which at first provokes queries, dissent and even scandal before it subsequently leads to analysis and investigation. In the case presented, which draws on the analyses of the Flash Crash on May 6, 2010, finance is the provocation. Not only from an artistic standpoint the provocation is as fundamental as it is opaque: finance is the agency of a power that not only resists the classical forms of representation; rather, it tends to operate by stealth, below the radar of common knowledge, perception and thus public interest; the public is not *informed*. Ironically, this also applies to the industry, as finance whistleblower Haim Bodek remarked: “90 per cent of finance doesn’t know how the US stock market works.”²

Instead, finance reformats representation by *forward activating* it: the (derivative) pricing system calculates myriad trajectories for investing in expected powers to be. Here, representation serves as a professional tool invested in navigating shifting states rather than controlling a fixed state: price is situated in the future, not in the present – the latter’s incremental convergence due to technological armament of algorithmic trading operations notwithstanding. Thus, price discovery has ushered in a surprising turnaround of the notion of risk: risk is less about insuring against than producing the future. In other words, risk is turned from scandal to precondition to quantitatively calibrate volatility (by stochastic calculus or other means), which in turn is the market’s measure of risk. In a sense, prices look back on us, from the future onto the present; derivatives constitute operations nested inside the future as a contingent dictate (a legal contract) to be fulfilled at present. Here, activated representation is virtual (and viral) in the sense that actualization creates a blank, a u-topos, a nowhere; an aniconic present without significance per se.

Hence, the perspective is to reflect on what a political art amounts to – and which tools it demands – by looking behind a veil spun from economics, mathematics, physics, economics and market ideology. In order to work out narratives that counter the ‘invisible’ fictions of financial biopower and to chart passages that take us from mere dis-

² Marije Meerman, *The Wall Street Code*, 2013, 32:00: <https://www.youtube.com/watch?v=GEAGdwHXfLQ>, accessed May 24, 2015.

sent – caused by the provocation – to actual forms of insurrection. The multifaceted semantic field of the term *resolution* and its technological as well as social significance – ranging from visualization, discrimination, and intelligence to intention, purpose, (common) initiative and (joint) decision-making – seems to me to offer a collectivity that presents a conceptual basis for re-thinking socio-political constitutions as well as the conditions that in the name of proprietary and other interests make the ruptures and breaches of social contracts possible. It could thus play a crucial role in the effort to trace aesthetic, ethic as well as political consequences – in other words to move from mere *aesthetics* to a *poietics* (making) of dissent.

At first, the term *resolution* might denote a means to an end in the service of visualization, a detail in the chain of technological operations. At the same time, however, it is a tool that combines technology with supervision, exclusion, and agency. Focusing on resolution is not simply a question of technical specifications or layers of visualization. Rather, resolution techniques embody powerful and ambivalent contraptions of *technowledge*, a term I use to describe the fusion of technology and knowledge in the age of algorithmic automation. For one, resolution serves the construction of enclosures typical for the differentiation machine of information capitalism. It enables the generation of scarcity and allows parceling materials into specific restrictions that belong to a category we have become used to call commodity; and which can be unlocked, i.e. sold and distributed, to consumer classes of varying affluence. By developing artificial senses and at the same time restricting access to their data, resolution techniques are an instrument of power to capitalize on visibility, or, as it were, invisibility – on what we are able, i.e. offered, to see/know; and by implication on what we are not able, i.e. not offered, to see/know. Increasingly, we ‘lose sight’ of what *there is* we ought to *see*, i.e. what we ought to perceive, comprehend and make informed decisions on. The commodification of significant and relevant meaning – something *resolution* practically provides us with in a technological as well as political sense – produces competitive advantage.

Resolution has thus become a *pharmakon*, to borrow Jacques Derrida’s term, a cure and a toxin at the same time. Let’s first address the *poison* before we look at a possible *remedy*. The realm we will look at might seem far removed from art but I hope to make up for this with a radical aesthetics of perception. First, however, let us briefly go back to a beginning when space, and not time, seemed paramount.

From Macro-Space to Micro-Time

Algorithms are not new to markets. They first appeared in the late 1960s and early 1970s in derivatives trading. At that time, the common utopian topos was about colonizing our solar system and the vast stretches of cosmic space. Millions of people watched the Apollo 11 mission and the landing on the moon. *Star Trek*, the *Hitchhiker’s Guide to*

the Galaxy or Stanley Kubrick’s *2001: A Space Odyssey* were popular examples representing imaginations of how we might live in and after the year 2000. Rich in fantastic imagery, such narratives heralded a new age and a desire for new life worlds and habitats.

At that time, however, another project emerged: the economic colonization of micro-time. And with it, a very different utopia emerged, which started to attract brilliant engineers, physicists and mathematicians – and thus the specialists who were supposed to furnish the knowledge and accelerated architectures that should make life on earth easy and take us to the stars in a not so far future. When the Black-Scholes-Merton model for derivative pricing and its algorithm appeared on the scene (1973), it revolutionized financial markets. Together with computation and political, economic and institutional changes, such as the end of the Bretton Woods system or the establishment of the Chicago Board Options Exchange, the formula led to an enormous increase in derivatives trading and the founding of new derivative products and markets. For the first time, conceptual economic modeling changed the way financial markets operate and this, among other things, changed the way capitalism has since operated: from industrial to financial (information) capitalism, from labor and production to debt and credit. Even though the 1987 stock market crash was considered the model’s ‘proof of failure,’ financial markets have proliferated by reverse-engineering Black-Scholes to compute option prices. This has led to a condition in which the pricing regime at the core of global finance does not only define markets but every field in which expectations and anticipations of future outcomes rule.

Such a „technology of the future“ (as the financial engineer and philosopher Elie Ayache calls derivatives) produces the future not simply by anticipating it, that is, by pure prediction. Rather, the derivative pricing of contingent expectations serves as a resolution regime to move along (in parallel with) the uncertainty of the future. Hence, mathematical recalibration computed to render prices for any conceivable outcome, i.e. risk potential, ‘creates’ the future at any present moment of trading. The present as we know it has no bearing here; at the moment when it emerges (every moment), it arrives as price and instantly turns into historic data to enter a new cycle of calculating profit probabilities. The past succumbs to a probabilistic reservoir for the quantification of future events, while the present vaporizes in the actualization of the one price realized from the myriads of virtual prices that “inhabit” these volatile “galaxies” of risk options (to note, these quickly fading “stars” increasingly include a commodity called human capital). Thus, in what I term the *derivative condition* of social relations, not only those contingent futures “collapse” that emerge from subjectivities and their relations; what decays in microseconds is the present as the moment in which subjectivity and agency are born in the first place.

While the derivative markets’ mode of production generates risk options that quasi-materialize every conceivable

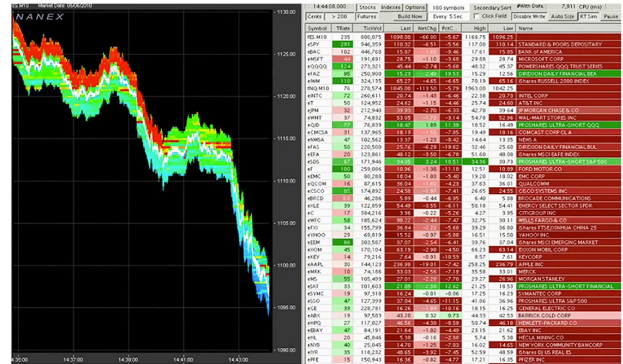
future at present, algorithmic trading, as it originated in the mid-1990s, commenced with an emphasis on automated trading routines and arbitrage opportunities — more or less risk free profits gained from instant price differences between markets and exchanges. Here, depending on strategy, speed and volume matter. As in derivative markets, profound specialist knowledge and intellectual property are the condition sine qua non for capitalizing on these strategies. This has attracted a large number of so-called “quants” (engineers, mathematicians, physicians) that have subsequently substituted open-outcry markets and human market makers (usually of low-income backgrounds) with electronic trading and bots. Hand in hand with the emergence of a new financial elite we witness an increase in electronic resolution methodologies both technically as well as socially. In its wake, the paradigm of resolution shifted from colonizing macro-space to exploiting micro-time; a move that under the auspices of free-market ideology has had a tremendous impact beyond markets on the way we experience agency, security and decision-making in society. Space travel through the vastness of cosmic space remains popular fiction in which we are *unconscious* – in a state of induced low resolution of sense perception. What has become reality, however, is a presence in which we are *unconscious* in the sense that (without resolution-enhancing devices) we are incapable of experiencing a present that evaporates in moments where future and past collide. This is not to say that technological progress is intrinsically corrupt. Nevertheless, self-governing proprietary interests are prone to blur our shared vision of realities that affect us profoundly. As a consequence of such anesthetics, there is urgency to invigorate the notion of resolution across all the term’s semantic registers. In the following, I will briefly address an example, which on the one hand highlights the complexities and intricacies of such an endeavor as well as its achievements and failures. On the other hand, it outlines an instance of artistic practice in the realm of an aesthetics of resolution.

The Forensic Analysis of a Market Crash

The Flash Crash of May 6, 2010 was the biggest one-day decline in the history of financial markets. In less than 5 minutes the Dow Jones Industrial Average plunged by about 1,000 points – 9 per cent of its total value – only to recover the losses almost immediately. When markets hit record lows, shockwaves went through the economic system and CNBC-live – initially debating the Greek austerity crisis – shifted its broadcast to the trading floor of the New York Stock exchange: “what the heck is going on down here? ... I don’t know... this is fear, this is capitulation.”³

Technically, capitulation means panic selling due to pessimism and resignation. But the live TV-coverage and subsequent investigations attested to a much deeper impact. The Flash Crash constitutes a watershed event in markets, as it gave evidence to the fact that algorithmic

trading had taken center-stage and produced a hostile environment for many human traders who not only lost their bearings in the event, as a live-broadcast for professional traders illustrates: “this will blow people out in a big way like you won’t believe.”⁴ Hence and apart from financial losses, capitulation means liquidation of unmediated human perception and collective resolution.



The quote screen on the right analyzes all futures and equities (stock) trading during the Flash Crash. Numbers turning red in the “Low” column indicate that the symbol made a new daily low. Nanex LLC

Figure 1. Gerald Nestler, *Countering Capitulation*, 2014, screenshot. Image: ©Nanex LLC.

The subsequent investigation resulted in a joint official report by the US regulatory authorities, the SEC and the CFTC. It was published a few months after the incident and put the blame on human trading. In contrast, an analysis of the event conducted by a small financial data provider claimed that the crash was in fact caused by orders executed automatically by algorithms. Nanex LLC, a financial service provider, records trading data and was therefore in the position to examine the event on their own account. They soon realized that conventional market data records did not show any material traces of what might have initiated the rupture that tore the intricate fabric of market prices. Therefore, they decided to go deeper and look at shorter time-intervals. Step-by-step, they enhanced the resolution and developed custom-made bots to analyze the Flash Crash at dizzying depths of time. Finally, they noticed material evidence of market activity at fractions of a second. As the founder and CEO of Nanex, Eric Hunsader, stated:

The SEC/CFTC analysts clearly didn’t have the dataset to do it in the first place. One-minute snapshot data, you can’t tell what happened inside of that minute. We didn’t really see the relationship between the trades and the quote rates until we went under a second.⁵

At first glance, it looked like a glitch. But what emerged were the material traces of an elaborate scheme. But although Nanex found evidence of activity, the actuator(s) of

⁴ To qualify, human traders ultimately (a matter of minutes) had to enter the site of devastation and rescue the market and the market place. Algorithmic trades had triggered and intensified selling but did not revert to buying.

⁵ See: <http://www.sify.com/finance/u-s-flash-crash-report-ignores-research-nanex-news-insurance-kkfiEjecij.html>.

³ See: <http://youtu.be/IJae0zw0iyU>.

this spasmodic reaction could not be exposed. In order to support their claim, Nanex had to win access to proprietary and therefore secret trading records to match the data and verify the facts. This unlikely situation arose when Waddell & Reed – the mutual fund that was blamed for the crash – decided (passed the resolution, as it were) to share their trading data for comparison – a remarkable decision, as such an act contravenes the implicit rules of the financial industry. It could shake shareholder confidence – the holy grail of neoliberalism – and jeopardize reputation if done publicly. As a consequence and in contrast to the official report, the forensic analysis exposed that the official culprit could not be held accountable. In their final statement Nanex concluded: “High Frequency Trading caused the Flash Crash. Of this, we are sure.”

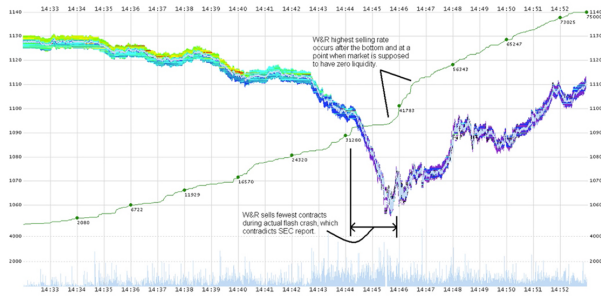


Figure 2. Gerald Nestler, *Countering Capitulation*, 2014, screenshot. Image: ©Nanex LLC.

Artistic Research. An Aesthetics of Resolution

The findings concerning the Flash Crash result in specific consequences of which some are associated with the analysis while others are part of the artistic research.⁶ The former include the fact that even though material traces of before invisible quotes and trades were uncovered and provided evidence they did not open access to knowledge. Only the full disclosure and investigation of secret proprietary data records would allow attribution. Up to this day, the actual catalysts of the Flash Crash are unknown.

The artistic research, in turn, exposed a further disturbing consequence: In the current legal and technological frameworks, which privilege property rights and self-regulation (a premise not only of the law but of cybernetics), an effective analysis of market events depends on insider knowledge. It is contingent on a double figure of the expert witness, when an informant joins the investigation.

Only crisis – a scandal, a counter-provocation – can disrupt affiliations and break the veil of secrecy. What this exposes is an ambivalent, contingent and marginal figure: the *renegade*. A traitor and defector inside systems, she becomes an educator for regulatory authorities and the public at large. Moreover, the renegade in fact constitutes an act that proceeds from mere dissent to concrete insurrection. To give but one example of this figure, the whistle-

⁶ Due to the limitation of space, this research is not further described here. Please see footnote 1 for reference and links.

blower is an expert acting from a point of no return, a risk taker at the point of ultimate crisis who rises up against wrong. By speaking out and sharing proprietary data or classified information, she not only discloses what was excluded from public debate but also manifests noncompliance is an act of civil courage for the greater good. Her renegade act – essentially a violation of current custom, rule or law – produces a host of viable resolution materials across the semantic field ranging from shared visualization, discrimination and cognition to decision-making.

Given the power of capitalist markets over public interests, “investors” are not the only ones affected. Capitulation, the term expressed on CNBC, points to a destination where speculation engulfs political power. Taking action in concert with those who put their reputation (and more) at risk requires the cultivation of *renegade solidarity*,⁷ an activist politics uncovering, transforming and institutionalizing “intelligence, surveillance and reconnaissance” into knowledge and decision-making in the public interest. Consequently, such an approach opens a field for multifaceted, trans-disciplinary practices engaged in unearthing, narrating and visualizing instabilities that coagulate dissent into insurrection. *Re-calibrating, re-assessing, and re-evaluating* concrete but opaque material events and operations – to use both technical and financial terms that denote frequency, depth, and consequence of inquiry – reveals evidence (by constructing and establishing truth as a past for-ever present in the future) that in turn may radically reorient critical discourse and common action.

Acknowledgement

Image material courtesy Nanex LLC, www.nanex.net

Author’s Biography

Gerald Nestler is an artist and writer with a critical focus on what he terms the “derivative condition” of contemporary social relations and life, in which financial narratives shape the present by preconfiguring the future. At the same time, he works and collaborates on “aesthetics of resolution” as potential counter-strategies. Nestler graduated from the Academy of fine arts Vienna (1992) and subsequently conducted artistic fieldwork as broker and trader. He has exhibited internationally since the late 1990s and received the Austrian state scholarship for visual art (2003). Selected publications: *Yx* (on finance as a field of artistic research, Schlebruegge, Editor, Vienna, 2007), *Kunstforum International* issues 200/201 on art and economy (with D. Buchhart, 2010), *Making of Finance* (with A. Avanesian, Merve publishers, Berlin, 2015). He is a PhD candidate at the Centre for Research Architecture, Goldsmiths University of London.

⁷ The urgency of *renegade solidarity* is implied in a recent case of financial whistle-blowing. See: Matt Taibbi, “The \$9 Billion Witness: Meet JP Morgan Chase’s Worst Nightmare,” *The Rolling Stone Magazine*, November 6, 2014, accessed May 24, 2015, <http://www.rollingstone.com/politics/news/the-9-billion-witness-20141106>.