

An Examination of Jackson Pollock's "No. 5, 1948" using Fractal Analysis

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Art is subjective. There are people in the world who stand in front of a Rothko and ask themselves, “This sold for how much?...”, and there are others who find the vibrant hues and simplistic nature of the piece priceless. This to say that the valuation of an art piece has an unfathomable spectrum amongst willing buyers. In 2006, the piece “No. 5, 1948” by Jackson Pollock sold for one hundred and forty million dollars making it, at the time, the most expensive painting in the world. This purchase triggered many controversies in the art world and sparked debate between physicists on the high valuation of the piece in addition to creating issues of verification. In this paper, I will introduce the conversation surrounding Jackson Pollock’s works, specifically taking a look at fractals in addition to his ‘action-painting’ style and how that contributes to the various opinions on the valuation of this piece. The question I’m asking is: How does fractal analysis assist in determining the valuation of art pieces, specifically those of Jackson Pollock? I pose this question as a means to further the discussion on art valuation while utilizing the method of fractal analysis to explain the visual appeal of Pollock’s pieces, ultimately hoping to explain my position on why I believe it is detrimental to rely on fractals to value art pieces rather than ascribing value based on emotional connection and appeal to the painting.

It is important to note that the appearance of fractals in Jackson Pollock’s works are rather uncanny. During his career he was unaware, as was everyone else, about what a fractal even was, because strangely enough, they had not yet been ‘invented’. Thus, unknowingly, Pollock had been creating fractals in his pieces long before research could confirm this. Richard Taylor, a physicist from the University of Oregon, has trailblazed the research that pertains to Pollock’s fractals, first beginning with computer-based analysis in the 1990s. This analysis not

only confirmed the fractal patterns in Pollock's work, but illustrated the connection to the world around us: nature. "Fractal patterns were often found in nature's roughness—in clouds, coastlines, plant leaves, ocean waves, the rise and fall of the Nile River..."¹ Nature became a key component for physicists as they navigated the works of Pollock as it assisted them in determining how these fractals appeal to people both psychologically and neurologically.

Before examining this topic further, it is imperative to understand what fractals are and how they relate to art. Fractals are, in essence, patterns with exact levels of complexity at differing scale sizes within the same image. A portion of a painting can be compared to a larger section with the same dimensions, each appearing the same in complexity, similar to the concept of Russian dolls. In the case of Jackson Pollock, his paintings, oddly enough, contained fractals. The inclusion of said fractals can be attributed to two distinct concepts, both contributing to each other in various aspects. The first is 'fractal expressionism', an art style coined by Richard Taylor, though credited to the works of Pollock. Fractal expressionism aims not to recreate scenery in nature, but uses it as an example to express the patterns on the canvas. "By adopting nature's pattern generation processes, the resulting paintings didn't mimic nature but instead stood as examples of nature."² In observing the qualities of Pollock's paintings, Taylor invented a machine that aimed to create fractals on canvases, essentially mimicking the methods that Pollock used, naming it "The Pollockiser". This contraption was effective in its design and successfully created pieces that could be compared to those of Pollock. "He built a rickety pendulum that splattered paint when the wind blew because he wanted to see how 'nature'

¹ Williams, "Why Fractals are So Soothing", 2017.

² Taylor, "Fractal Analysis of Jackson Pollock's Poured Paintings", 2016.

painted and if it ended up looking like a Pollock.”³ In doing so, Taylor, in some ways, was able to copy the odd technique that Pollock used: plastic automatism.

Plastic automatism is the act of unconsciously creating art, that is, letting your mind free itself from the dependence on structured images. “It is in the transference of the freedom of automatic drawing to automatic painting that Pollock's style is created.”⁴ This allowed Pollock to create his renown works, and developed into a strange method of utilizing his brushes that has since been dubbed “action-painting”. His technique consisted of haphazardly slinging paint of low viscosity around using dried paint brushes, his hands, and even occasionally using the bucket of paint as a tool. This method was highly unusual and even consisted of his canvases being placed on the floor, letting gravity determine the placement of the splatter marks. This resulted in yet another new classification of a method, which was labeled as drip painting. For these reasons, he earned the title, ‘Jack the Dripper’. These new styles assisted Pollock in gaining fame in the art world.

With a better understanding of what a fractal is, as well as background information on how these paintings were created and what methods were utilized, it is easier to comprehend the scientific research conducted. As previously mentioned, Richard Taylor was the first to begin research on Pollock’s works, gaining insight to the fractals that appeared on the canvases. He furthered his research and discovered the emotional connection humans have to fractals, specifically the relaxing properties they contain. By using an MRI and showing subjects fractals, he imaged the portions of the brain that became stimulated upon visual contact. Taylor did so in an effort to determine the *D*-value that humans most enjoyed. *D*-values are dimensions with an

³ Williams, “Why Fractals are So Soothing”, 2017.

⁴ Rose, “Jackson Pollock, Drawing into Painting”, 1980.

index on a scale from one to two. One represents no fractal properties, similar to that of a linear pattern, though a d-value of two would represent a full structure of curved lines. It is worth noting that d-values on both sides of the spectrum are considered to be ‘non-fractals’. Taylor continued his research in determining which d-value best fit Pollock’s paintings. “Interestingly, the value increased over the decade that he made drip paintings, from 1.12 in 1945 up to 1.7 in 1952 and even up to 1.9 in a painting that Pollock destroyed.”⁵ He discovered that the d-values of Pollock’s fractals increased throughout his career, though also came to the realization that human subjects tend to prefer lower to mid-range d-values of fractals. “Participants consistently expressed a preference for D values in the range of 1.3 to 1.5, regardless of the pattern’s origin.”⁶ In addition to preference, fractals also carry positive neurological effects, similar to those that humans listen to music. “These fractals also engage the parahippocampus, which is involved with regulating emotions and is also highly active while listening to music.”⁷ This evidence of neurological human appeal offers possible insight as to why the valuation of Pollock’s work could be drastically higher than others.

Apart from determining certain psychological effects of fractals, this discovery began a long-winded debate between various physicists on the valuation of Pollock’s pieces, with millions of dollars at stake. Katherine Jones-Smith challenged the work of Taylor, stating that fractal analysis was not feasible in confirming whether a painting was from Pollock or another source. Her most compelling piece of evidence from an article is that of a scribble drawing. In an attempt to disprove Taylor’s claim, she used Adobe Photoshop to prepare a drawing of hastily-drawn stars, and illustrated that they contained fractal properties. “I entirely expected

⁵ Taylor, “Order in Pollock’s Chaos”, 2002, 88.

⁶ Taylor, “Order in Pollock’s Chaos”, 2002, 90.

⁷ Williams, “Why Fractals are So Soothing”, 2017.

them not to be fractal,' Ms. Jones-Smith said of her drawings, one of which is composed of hastily scrawled stars."⁸ These stars were, in essence, a mockery to the life's work of Taylor, and became a point of contingency for the valuation of future Pollock pieces. Jones-Smith combats the designation of value to Pollock's pieces using this fractal analysis because she claims that solely relying on d-values takes away from other artist's works. She claims this in defense of the drawing of the stars. "Either our drawing is worth \$40 million or his criteria is wrong."⁹ Taylor has since combatted this statement, claiming that her drawing does not illustrate fractal patterns.

The most notable case of the involvement of fractal analysis occurred in 2006 when a man by the name of Alex Matter claimed to have found multiple Pollock pieces in a storage locker. Fractal analysis was performed by Taylor and his team, and found discrepancies in 6 of the 24 total pieces he analyzed. "Dr. Taylor found "significant differences" between their patterns and those of the known Pollocks he had examined."¹⁰ The confirmation of these pieces as authentic were crucial in determining the valuation, and the uncertainty on computer-generated fractal analysis was an issue at the time. The verification of said pieces remains an issue to this day as art galleries struggle to provide official authentication for Pollock's supposed works, and Matter's supposed Pollock's have not been verified.

In arguing my claim that using fractal analysis cannot efficiently assign value to Pollock's art pieces, I posit two possible outlooks. The first is that previous ownership plays a large factor in how 'valuable' the piece is. The piece "No. 5, 1948" sold for a record-breaking \$140 million dollars in 2006. Prior to this transaction, the Museum of Modern Art in New York

⁸ Kennedy, "The Case of Pollock's Fractals Focuses on Physics", 2006.

⁹ Kennedy, "The Case of Pollock's Fractals Focuses on Physics", 2006.

¹⁰ Kennedy, "The Case of Pollock's Fractals Focuses on Physics", 2006.

had ownership as well as David Geffen, the founder of Dreamworks SKG. The extreme wealth and prestige that both of the previous owners carry, I believe, contributed greatly to the high valuation of this piece. That, in addition to the fact that the piece was sold as a means to gain capital. “It is speculated that Geffen sold the painting, along with two others, to raise enough funds to bid for the Los Angeles Times.”¹¹ This action demeans the piece altogether as it becomes alluded to simply as a pawn, or part of a marketing strategy, rather than recognized as an influential piece of the abstract expressionist movement. It is also worth noting that the majority of higher-valued pieces are of abstract art in general.

Further, the Guggenheim family had placed high importance and praise on Pollock as he emerged into the art world. Peggy Guggenheim had decided in 1943 to give Pollock his first solo exhibition as well as a contract that allowed him to solely focus on his work. Guggenheim’s influence and belief in Pollock went further than just the studio, as she commissioned him to create a mural in her home, which is claimed by many to be his turning point in his career. The change of surrealism in his work at the time to abstract expressionism is best defined by this piece. “Pollock attributed some of these effects to his excitement, but they obviously point the way forward for his art.”¹² The name-brand association that Pollock could claim cemented his place in the art world and provided access to multiple avenues and opportunities in the future. This association also provides a prospective buyer with the knowledge that pieces from Pollock are backed by Guggenheim, which perpetuates the concept of wealth coming from wealth. In addition to this, the lack of circulating works or Pollock’s make it so that the value of those

¹¹ Jackson-pollock.org, “No. 5, 1948”, (n.d.).

¹² Menand, “A Clear Look at Jackson Pollock’s Breakthrough Painting, ‘Mural.’”, 2012.

currently available for purchase are higher. The majority of Pollock's works are kept in collections or are in galleries.

In the case of Jackson Pollock, it can be said that not everyone enjoyed his work. Some, in fact, disliked it to a grand extent. "A Pollock painting, one critic complained, is like 'a mop of tangled hair I have an irresistible urge to comb out.'"¹³ While this is a perfectly viable opinion, the monumental influence Pollock had on the art world should also be recognized as a revolutionary aspect of the 20th century. Though he was unaware of the natural psychological appeal that humans exhibited towards his works, the distilling of nature's greatest concepts into his works is truly fascinating. The use of fractal analysis continues today, along with the debate over how it might be utilized. In determining the valuation of Pollock's pieces, fractal analysis should certainly be considered as an option, though not heavily relied on as it remains unclear on the effectiveness of the method.

¹³ Quillette, "Pollock's Fractals", 2001.

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