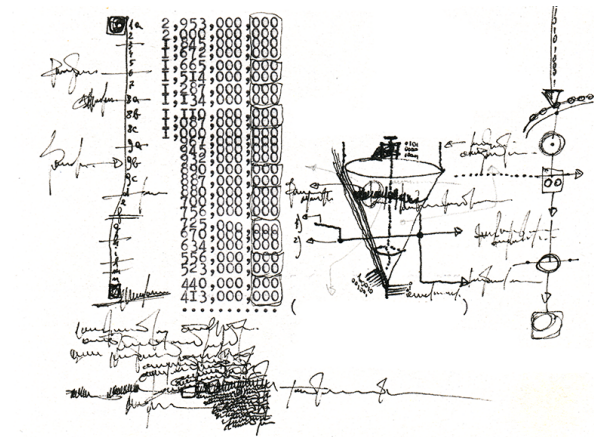




Federico Federici



OBJECT(S) UNDER INVESTIGATION

report | reperti

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THIS IS IT, Dr. Friedrich W. Block curator, Kunsttempel, Kassel 2023.

I have titled this talk “object(s) under investigation” to stress the experimental scientific approach to the problem of medium and, in a broader sense, of mediality. I have chosen the word object (like in the title of the exposition *THIS IS IT*, a neuter reference to whatever) instead of a much more conventional term such as “topic” because it makes one think of something to be physically handled, while not necessarily being a physical object. The unresolved ambiguity between the singular form and the plural one resides in what will be discussed in further details during the talk and it has specifically to do with the inclusive concept of medium that contemporary art works on. Discussing the medium when dealing with broadly intended textual objects is rather challenging. The issue cannot, in fact, be restricted to the invention of a set of unreadable signs apparently disjointed from reality, as in the case of asemic writing, nor to the combination of such signs with alphabets or languages from the most disparate fields, as with other hybrid forms. The process of writing becomes open, yet more intrinsic, and the concept of medium gets reframed. Moreover, since writing is hardly separable from reading, a further and possibly even more complicated field of investigation comes into play: what does it mean to “read” something asemic? Does it make sense to attempt to sequence an asemic pattern? Reflecting upon this as a feasible connection to sound-poetry, you will find in the exhibition a few QR codes¹ pointing to audio samples, as a proposal, among many others, of “reading” aloud asemic/concrete texts.



¹

Part I

contrasting definitions

the issue of *medium* in art

- medium: neuter of *medius* → *middle* | 'what' lies in between [Latin]
- materials and techniques to make a specific kind of art → no longer viable for art if its essence is fully realised [C. Greenberg]
- conventions to be sought, codified, tested in changing circumstances → no implicit teleology, no intrinsic end-point [S. Cavell]
- post-medium: a *medium* 'traditionally' not intended to make art → any medium may [be employed to] bring about art [R. Krauss]

The Latin etymology of *medium* reads *what lies in between*. The two competing polarities of this relationship must hence be investigated. For this purpose, I need three more different definitions of medium, each, in its own way, seminal. Greenberg's appears to be the most conventional one, distinguishing materials from techniques and explicitly stressing the idea that once the essence of any medium is fully realised, the medium itself is no longer viable for art, the realisation being the full accomplishment of all the medium's potentiality. As an example, a still-life painting remains artistically meaningful as long as the combination of techniques and materials modernises any immediate descriptive purpose. Cavell's and Krauss' definitions together help clarify a more modern approach. Both emphasise the relational structures within the medium itself, to be sought and tested in ever changing artistic contexts. The weakening of any hint at a bare materiality allows to broaden the field of what was traditionally considered a medium. That was unavoidable after the advent first of photography and cinema, then of digital devices and the progressive dematerialisation of the amount of information the works of art are ever more asked to deal with and possibly embed in new and meaningful ways. The access to a post-medium condition hence becomes quite straightforward. The necessity of going beyond the pure materiality of the medium, starting from a well-established materiality bias, seems to have had been peculiar in many fields for a long time. A quick review of the issue of ether in Physics may cast a new light on what Rosalind Kraus stated in *The Crisis of the Easel Picture*.

the issue of *medium* in physics | ether

- hypothetical substance (transparent, weightless, frictionless, all-pervading etc.) believed to act as the *medium* for e.m. wave transmission
- M-M experiment (1887) → no motion of Earth through the ether detected
- no reference of absolute rest + Newtonian mechanics → speed of light observer-dependent → incompatible with Maxwell's theory
- no reference of absolute rest + no absolute time → Einstein's spacetime [four-dimensional, non-Euclidean structure] → compatible with Maxwell's theory
- no need of a one of a kind material medium → new metric of *spacetime*
- addressing a work of art beyond traditional materialisation and in the sense of modern physics '[...] dislodges the idea of medium from a set of physical conditions and relocates it within a phenomenological mode and address that can itself function as the support for the medium'²

²R. Krauss, *The Crisis of the Easel Picture*, in *Jackson Pollock: New Approaches*, New York: Museum of Modern Art, 1999, p.169

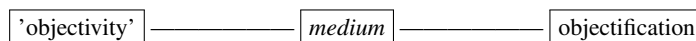
By the end of the 19th century, there was a problem concerning electromagnetic waves traveling across space. To account for the phenomenon, a hypothetical substance (the so called ether), with specific yet quite odd properties (transparent, weightless, frictionless, all pervading etc), was envisaged to act as the medium for this kind of waves. An experiment with light, i.e., an electromagnetic wave, was carried by Michelson and Morley to detect the motion of Earth through the ether. The result was surprising: the motion of Earth did not effect that of light, i.e. the presence of ether could not be detected. The experiment was later on repeated several times, and all confirmed the same. Putting together the absence of such privileged reference frame for the propagation of light and newtonian mechanics, the resulting theory was incompatible with Maxwell's that instead well accounted for electromagnetic phenomena. How to break the deadlock? Einstein ruled out a special material medium and reframed the geometry of the universe according to a four-dimensional non-euclidean structure, dropping the intuitive idea of absolute time. The 'new' medium was, as a matter of fact, a 'new' metric of spacetime. Not something material, but something relational. From an artistic perspective, the tricky but tremendously inspiring point is that these kinds of metric involve phenomena in a broader sense than the material one. If we invoke general relativity, the curved path of light, the very idea of a curved space, must be conceived of as relational fact, not as a physical curvature of the material the space is made of. With this in mind, what Rosalind Krauss writes in "The Crisis of the Easel Picture" becomes even more sound: addressing a work of art beyond traditional materialisation and in the sense of modern physics «[...] dislodges the idea of medium from a set of physical conditions and relocates it within a phenomenological mode and address that can itself function as the support for the medium.»

Part II

a proposal

a sense of *medium*

- element of the extended field of languages | practices whose essence is revealed by the failure of its translation → *medium* as an *idiom*



- *medium*: middle term | tension between 'reality' and reification
- relational metric space | method to work out the cross-breeding of existing practices
- part of the content regardless of how 'real' it may result
- a [phenomenological] process not an inert seat



no fundamental distinction between material(s) | laws subsumed *in* | determined *by* it

- *post-medium* condition: all media form a universal self-contained one
- old: stimulus → artist → *medium* → object | new definition of it
- new: stimulus → *medium* | artist → work of art as an intrinsic relational tension

Adding all these clues together, a working sense of medium may be outlined. A medium is an intrinsic characteristic of the phenomenon under investigation (namely: of the artistic practice), whose essence is revealed by the incompleteness (or even by the failure) of its translation. That is precisely what happened with the negative result of

the above-mentioned Michelson-Morley experiment. From a linguistic point of view, a *medium* partakes as an *idiom* of a particular art practice. It is the trait that cannot thoroughly be translated or transferred to another practice. A medium sets itself as a middle term between 'reality' (whatever one may define by this) and 'reification' or, narrowing the scope, between what an art piece is aimed at ('objectivity') and what it ultimately consists of ('objectification'). It is a 'tension' in both that objectivity and objectification tend to overlap (while hardly or partially actually doing so) and in the sense of the tensor, which defines the metric of the space (mathematical, artistic and so forth) under investigation, i.e., the tools that set out the proper relationships between the 'objects' considered. It is a method (a set of rules or procedures) to work out the cross-breeding of different practices, like the folding of surfaces in abstract geometry. The overpainted photographs by Gerard Richter be an example of such a problematic task. This resembles the idea of *curvature* that Einstein identified as the inherent property of spacetime (space and time as an inseparable entity) 'responsible' for gravity: «matter tells spacetime how to curve and curved spacetime tells matter how to move.» Signification no longer appears as something emanating from particular nodes (words) or well organized clusters of them (lines, sentences) and propagating through the text, but as a feature of the text[ure] itself. If a body's weight on Earth can be ascribed to the fact that it is traveling through a warped spacetime, why not apply the same description to the feeling of detecting signification throughout an asemic field and envision it as a sort of warped textual surface, whose words are possibly elsewhere but not far enough to be neglected? A medium is part of the content inasmuch as it determines its representation, like the mathematical structure of a set of data, regardless of how real it results. As in the case of Einstein's spacetime, it may be hard to picture its underlying relational structure, since one is always tempted to identify any content with a particular and possibly material representation of it. A medium is not an inert seat of miscellaneous elements. It must be addressed as a process, even a phenomenological one in the case of installations or of installation-driven art works. No fundamental distinction exists between the material and the laws subsumed in it or determined by it. Metric and matter are inseparable, just like in the geometry of the universe: matter (or energy) and spacetime are, in a sense, a relational entity. The genuine post-medium condition as envisaged by Rosalind Krauss proves, in this regard, to be quite effective, as it is totally inclusive: *all* media are accessible to art since they form a universal self-contained one, which is not the etherization (in the sense of Physics) of the original idea of medium, but the possibility of a relational metric between different practices, contents, natural processes and so forth that makes them suitable for making art. What about the role of the artist? Well, it somehow resembles that of the scientist in contemporary Physics. In the old scheme, the artist is put forth as a talented demiurge handling some medium to forge the work of art or to re-define something as such. In the new post-medium condition, the role of the artist and that of the medium get somehow flipped. The medium acts as a sort of sensor, a physical and a theoretical device through which the artist is asked to address, sense and record a phenomenon that the medium is often part of or inherently entangled in. The work of art thus embeds and, in some form, expresses this tension. We are faced with a structural field of unprecedented formal possibilities, far beyond the bare material representation of a content, the result being the loss of specificity of the traditional delimitations of making art. Without the proper theoretical background, any approach to post-media art, from the point of view of both the artist and the recipient, becomes pointless. I would now like to discuss a couple of examples, from my exhibition here in Kassel, which epitomise the above discussed framework.

Part III

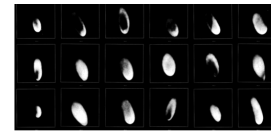
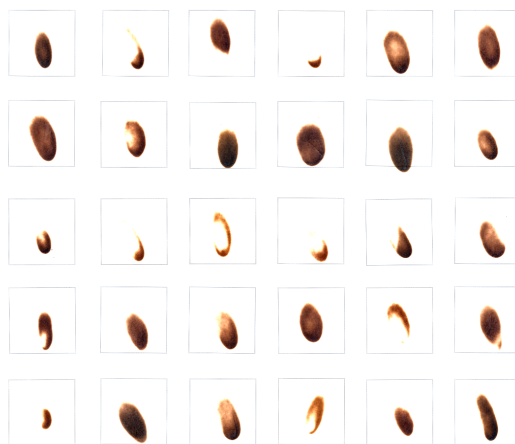


workbook of the universe

science as an artistic practice

- artist's multiple: noisy data from the object-phenomenon to be referred to as the work of art
- phenomenon: energy transfer from a *pinus nigra* needle burning to a set of sheets
- fire as an active agent | combustion as a unique and unrepeatable event
- data progressively weaken their original content → archetype of sign-making | -finding
- data presentation → self-standing 'object' that does not depict the world as expected
- phenomenon and work of art become an inherently glitched dyad
- different techniques merged [digital encoding/processing | montage of frames as video | 3D-object | animated surface] → potential of *post-media* to be metamorphosed *with* or *into* one another
- the *medium* is not the set of fire-impressed sheets | a matrix of pixels
- the *medium* is the set of relational | mathematical structures within the recorded data that determines their representation

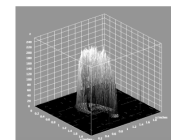
The first is titled *Workbook of the universe*, originally realised for CIVICO 23 magazine in a box in 2022. It outlines a typical practice I turn to when I am asked to create a series of works as artist's multiple. The idea, drawn from my experience as a physicist at University, is that of exploiting some noisy phenomenon or generative stochastic procedures and play with it. In this case, the energy transfer from a *pinus nigra* needle burning to a set of sheets has been tested as a medium to bring about art. Fire triggers the unique and unrepeatable event of combustion that, in turn, depends on several unpredictable variables, such as the tree of origin, its size, age, desiccation, the soil properties during its growth and so forth. A rather detailed video report is projected in a dedicated room of this exhibition. You are also invited to access, through the appropriate QR code, the full archive of the experiment, hosted on the Research Catalogue platform. You will find there the explanation of the project in terms of a creative juxtaposition of Feynman's concept of energy and St. Augustine's famous conception of time. I would now like to discuss a couple of features of the project more specifically connected to my post-medial approach. The experiment roughly consisted of putting a sheet of paper near the burning pine needle for a few seconds, then quickly repeat the procedure with another one until the extinction of the flame. Each sheet thus stored a certain amount of energy documented by the typical sign of burning. The full set of used sheets got then digitally scanned to undergo further processing. The data presentation, organised into mutually completing sections, expresses the attitude of post-media to be metamorphosed with or into one another. Data, originally collected as partially burnt sheets, progressively tend to exhibit their potential as archetype of sign-making and sign-finding while weakening their original scientific scope. This is quite evident in the array I am going to show you in a minute. The medium is not the set of fire-impressed sheets, nor is it the matrix of pixels that their digital images consist of. Its relational and mathematical structures, fed into ImageJ, a tool natively developed for scientific analysis not for artistic purposes, allow different representations (montage of frames as videos and 3D-animated objects or surfaces). By the light of the outlined theoretical framework, the latter hang in the balance between the data attached to an experimental paper and the glitched pictures of the dyad formed by the work of art and the phenomenon.



Montage of the 60 time-frames (8-bit images, Invert LUT) to be processed.



Time series as a three dimensional object (time on the z-axis) reconstructed by means of the averaging projection method. [Volume Viewer, Fire LUT, Image] 134b]



Animated surface plot of pixel intensity (on the z-axis) of the 60 time-frames. [Stack 3D Surface Plot, Image] 134b]

Here is an excerpt from the Research Catalogue archive. From left to right: a collection of “fingerprints” of the fire; a preliminary montage of the same frames as 8-bit images to be rendered as a video; the time series as a three dimensional object in which time is treated as a space dimension on the z-axis; an animated surface plot of pixel intensity. The superposition of such different representations account for how the medium reacted to the physical and artistic stimulus and depict the phenomenon in a non-trivial way.

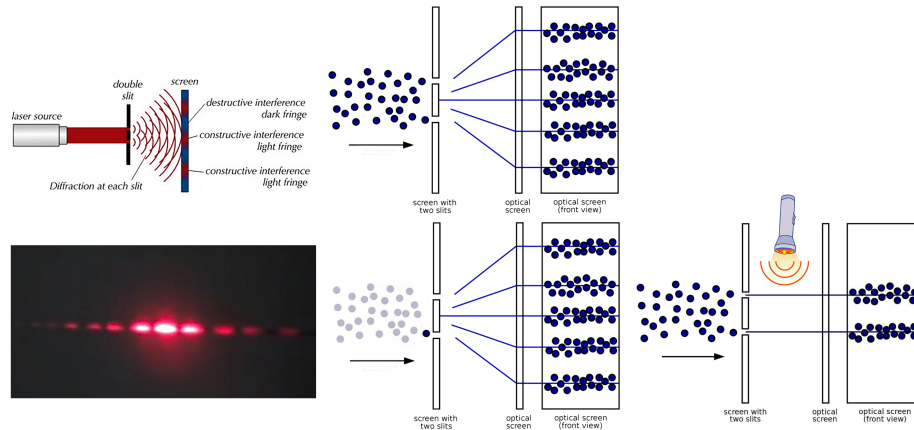
Part IV

sign-word duality

- how does textual *medium* modify throughout the process attempting to focus [it]?
- classical ideas: a word [a particle] is a lump of signification [matter]

In the exhibition, you will find asemic, asemic/concrete pieces, so I think it is worth spending a few words about them, since they put forth the role of mediality in expanding the textual environment. This process is a twofold one: on the one hand, the “text” (whatever it is) modifies itself in the attempt to focus a topic, a phenomenon, the object under investigation), on the other hand, the very process of writing modifies itself in the attempt to come into focus, the two phases being interconnected and inseparable. Does that sound odd? If so, it is because of the conventional approach to languages as a code to articulate and build signification rather than sense. The same would happen in painting if the red color could not in itself be the topic of the painting, but served only to portrait wonderful poppies. Consider what Ad Reinhardt, did in his *Ultimate Monochrome Painting*, consisting of some thirty layers of the same color. He did address painting as a practice ruled by mysticism rather than by aesthetic judgment. This said, quantum mechanics opens up an inspirational way to discuss and develop the word-sign dualism, but before diving into it, a couple of rather acceptable ideas: a word is a lump of signification as much as a particle is a lump of matter; when you observe a sign conventionally identified as a word, you immediately access its signification

a double-slit approach



The puzzling fact about quantum mechanics instead is that if you observe quanta the answer you get depends on how you observe them. Certain classes of measurements lead to the conclusion that they behave like particles, others that they behave like waves. Whether and how you observe them does change the outcome. The double-slit experiment, first performed by Thomas Young in 1801 to investigate the behaviour of light, is crucial in this respect. **[top left]** Think of shining a monochromatic light at a double-slit screen, the distance between the slits being approximately the same as the light's wavelength. The image produced on a screen behind this does not consist of two bright fringes corresponding to the two slits, but of the well known interference pattern that waves do, with bright and dark fringes, corresponding to constructive and destructive interference. Here in the photo you see a central bright fringe, then a dark one, then another bright one and so forth. At first glance, it seems to stand to reason that light produces such pattern because the different "parts" it is made of (whether as a wave, or as a swarm of photons, of quanta of light) might interact with one another, crowding around the two slits to go through either of them. **[top center]** Upon repeating the same experiment with other quantum objects, particle-like ones such as electrons, provided that the distance between the two slits approximately corresponds to the wavelength of the used electrons (without entering into the detail, you have to know that the De Broglie's law tells how to associate a "wavelength" to everything with a momentum) the same interference pattern as light is recorded. Is this the effect of closely interacting particles that get hence scattered out across space? It is not so. **[bottom center]** If one repeats the same experiment firing thousands of electrons one-at-a-time through the slits, hence preventing any interaction between competing electrons, the same interference pattern emerges! Claus Jönsson did this for the first time in 1961, in Tübingen. Can a fundamental particle interfere with itself or go through both slits at once? How can it know which way to go through (and where to go) in order to contribute to building the final pattern? Since all this seems to be counterintuitive and physically impossible, further investigations have been carried to check how each single electron behaves in proximity to the double slit. **[bottom right]** Same experiment set up again, shining a faint beam of light toward the slits, to detect which one the electron goes through. Each electron goes through one, and only one slit but the final result is now surprising: no interference pattern detected! Electrons accumulate in two bright fringes only, like

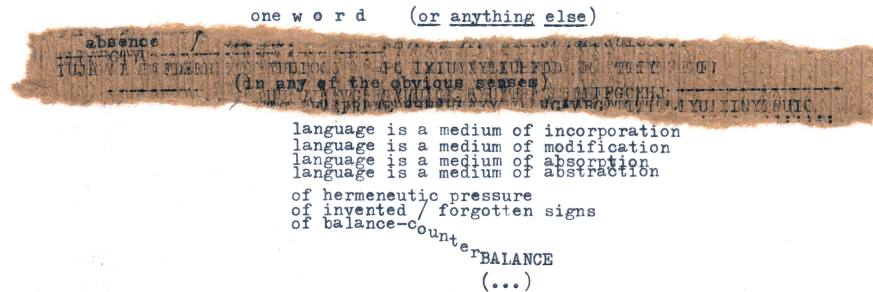
classical particles, as if they had taken two roughly straight line paths behind the slits, which one would expect them to if there were no interference at all. One might dare say that they got disturbed by the presence of light that made them aware of “being detected”, about to perform their weird quantum tricks. The very act of observing a quantum system profoundly affects it. What do we learn from this? Well, that’s the famous particle wave duality of quantum physics: depending on the process of investigation, quanta may behave one way or the other.

- particle|wave duality of quantum objects → something idiomatic
- by analogy: word|asemics duality exists
- a sign behaves like a word when pinpointed | recorded
- interference: signs reinvent | conceal their meaningfulness and go with it into new contexts
- sense no longer word-situated → high textual quality while essentially abstract in expression
- conventional textuality and asemics → linearity of reading | writing vs. nonlinearity of vision
- the ‘writer’ triggers the underlying relational structure for the ‘reader’ to complete | detect further elements of the writing → *disjunctive writing*

Now that you have learnt enough quantum physics to play with it, we can talk about its implications in the asemic and asemic-concrete affair. To begin with, from a strictly linguistic point of view, a duality of the aforementioned kind appears to be something in its kind idiomatic: a wave is not translatable into a particle and a particle is not translatable into a wave, the two features being quite intrinsic. A word, as a lump of signification, recalls a particle (a lump of matter), while an asemic sign evokes a wave. But a word is first and foremost a sign too. To access this quality again, one must first unlearn reading and learn how to see anew. One must, at least in the first place, stop searching for words, in the same way as an effective approach to informalism concentrates upon gestures and materials rather than figures as the basis of communication. A sign exhibits a word-like behaviour when it gets pinpointed, when one attempts to decide which code it refers to and cast light on its signification. As long as its intrinsic multiplicity remains unresolved, a sign behaves like a quantum object that tacitly chooses which slit to go through. The unsupervised superposition of many signs determines a sort of interference pattern of sense. A single sign, like a single electron, “knows”, if not disturbed by signification, how to take part in an arrangement that preserves high textual quality, while being essentially abstract in expression. The ‘writer’ (let’s keep using this term for the artist dealing with a ‘textual’ medium) triggers the underlying relational structure for the ‘reader’ (to use another conventional term) to complete or detect further elements of writing. It is a kind of *disjunctive writing*, since they both separately partake in defining the textual experience. The relational structure is the true essence of the textual medium and includes the metric set by the printed, painted, typewritten, handwritten, generative and so forth signs combined with a variety of materials (papers, cardboards, plastic sheets, glues, et cetera) that potentially enrich and further complicate the linguistic stack. Both the ‘writer’ and the ‘reader’ operate at an experimental level: the writer sets up the experiment, collects some preliminary data that the reader interprets. But the ‘writer’ is, in turn, a ‘reader’, possibly the first, and his role is rather delicate since, in the asemic field, he must avoid disturbing the signs with too much consciousness. His consciousness is to be analytical right before and at the end of the process, not so much in the making of it sign-by-sign, not as a word-by-word writing. Asemic works evoke interference patterns, extended fields of sense whose elements of signification are not word-situated. They are seats of signs that reinvent or conceal their meaningfulness to deliver it into new contexts. The combination of words and asemic signs presents a further degree of complexity since the linearity, first of

writing then of reading, is faced with the nonlinearity of vision. The interaction between strings of words or full sentences and asemic components doubles the experience of a metric. The residual readability of the text with its metrical content and the metric space of the visual arrangement of both words and asemic signs add up and lead to a sort of hermeneutic pressure that the act of 'reading' only partially releases.

- 'the task is no longer to produce another instance of an art, but a new medium within it'³



...hence language is a medium of incorporation, of modification, of absorption, of abstraction and so forth.

³S. Cavell, *The World Viewed*, Harvard University Press, 1979, p.103