

Tacita Dean's 'Buon Fresco': Developing a Digital Atlas on 'The Life of Saint Francis' Fresco Cycle in the Upper Basilica of St Francis of Assisi

Key words: Digital Atlas, Tacita Dean, Transmediality, Linked Data, Intertextuality, Word-and-Image



Tacita Dean, 'Buon Fresco,' MACK, London: 2016.

Introduction

Drawing upon recent scholarship on visual culture and intertextuality, we investigated the British artist Tacita Dean's publication *Buon fresco* by interpreting it as a 'pictorial text', an artificial sign at the basis of thinking which is primarily visual.¹ *Buon Fresco* is a film (2014) and artist book (MACK, London: 2016) composed of close-up details from Giotto's fresco cycle depicting *The Life of Saint Francis* in the Upper Basilica of Saint Francis at Assisi. The work was featured in the mixed-media exhibition "...my English breath in foreign clouds" (March 2 - April 23, 2016), which was inspired by Dean's observations of clouds, as declined in different contexts, specifically in respect to Giotto's frescoes details of cloud faces and doves. The frescoes, however, have been the subjects of various analyses, which have highlighted a multiplicity of meanings. Among them, a recent one by medieval historian Chiara Frugoni uses a similar approach to Dean's, which focuses on close-ups based on techniques of photo-reproduction and enlargement, and gives the viewers an innovative perspective on the work by making them climb virtually onto the medieval scaffolding. Curiously enough, Dean and Frugoni choose analogous fragments but give contrasting readings.

In the context of Dean's and Frugoni's readings of the cycle of *The Life of Saint Francis* at Assisi, through an interdisciplinary approach based on the diverse fields of expertise namely Art History, Literature, Fine Arts and Knowledge Engineering brought upon the writers, our objective is to offer a commentary and a technological aid to create models, semantic annotation, and description systems, with the aim to rationalize the subject's impact on interpretation. We shall commence by analyzing *Buon fresco* in the exhibition space

¹ Cf. W.J. THOMAS MITCHELL, *Iconology: Image, Text, Ideology*, Chicago-London, University of Chicago Press, 1987; W.J. THOMAS MITCHELL, *Picture Theory: Essays on Verbal and Visual Representation*, Chicago, University of Chicago Press, 1994; MICHEL FOUCAULT, *The Order of Things*, New York, Vintagem, 1970; PETER WAGNER, *Icons – Texts – Iconotexts: Essays on Ekphrasis and Intermediality*, Berlin, Walter de Gruyter, 1996; MARIA GIULIA DONDERO, *The Language of Images*, Springer, 2020; JOHANNA DRUCKER, *Visualization and Interpretation: Humanistic Approaches to Display*, Cambridge, Massachusetts, MIT Press, 2020.

in order to uncover Dean's investigative method which identifies recurrent subjects by enhancing and expanding their meaning through the dialogue between different media and approaches. The analysis of the *Life of Saint Francis* cycle and its deriving textual iconographic sources will follow, mainly focusing on the principal biography which informed the paintings: Bonaventure's *Legenda Maior*. We shall then proceed to analyze two scenes in particular, namely the *Stigmatization* and the *Death of Saint Francis*, respectively in Dean's and Frugoni's exegetical analysis, in order to offer a multilayered interpretation. Finally, we will present the digital output of the atlas to foster a deeper understanding of the subjective interpretation of the signifier/significant in the realm of the symbolic.

The polysemic nature of the work can be documented only through the creation of a digital atlas, a representation of the diverse macro and micro readings of the text. This article ultimately explores how digital data can be used to illustrate a pictorial text, making evident the interconnections between the multitude of primary (denotation) and secondary referents, and underlying how differences in cultural sensibility can result in the examination of various facets of a pictorial text as well as in divergent interpretations. Using data (RDF) and standard ontologies in the digital humanities/heritage domain, the digital atlas will encode a new complex form of relationship between reader-interpreter. The outcome is a dynamic knowledge map, a way for the user to explore the semantic connections between the text, its subject, the sources used and portrayed, its illustrative nature as well as its reception and the relevance with respect to the original work and its reinterpretation by Dean.

Buon Fresco in context (GC)

Tacita Dean's *Buon Fresco* was originally born as a 33 minutes film made in 2014 under the commission of the Spanish curator and art historian Gloria Moure to celebrate the figure of Saint Francis on the 800th anniversary of the pilgrimage that he made to Santiago the Compostela. In 2016 the work was featured in the solo exhibition ...*my English breath in foreign clouds* held at Marian Goodman Gallery in New York and the homonymous artist book made from the film stills was published (London: MACK, 2016). Both the film and the book unfold as a sequence of up-close details from Giotto's fresco cycle depicting the life of Saint Francis in the Upper Basilica of Saint Francis at Assisi, and they are exemplary of the British artist's experimental work in film reflecting upon history, time, and place.² By exploiting the way in which the digital (film) and the material (paper) allow for capturing and reconfiguring the world, Dean offers an unusual perspective on the frescoes which enhance and expand the original text's multiple and layered meanings.³

The 2016 exhibition at Marian Goodman is built upon a vision deeply related to *Buon Fresco*, aiming to explore the possible interacting readings of the concept of "cloud," which is a particularly relevant subject in Giotto's fresco cycle duly analyzed by both Dean and Frugoni. ...*my English breath in foreign clouds* is inspired by the observation of the whiteness and variability of Los Angeles clouds as recorded by the artist:

² See ERIKA BALSOM, *A Cinema in the Gallery, A Cinema in Ruins*, «Screen», 50, 4 (2009), pp. 411-427; RINA CARVAJAL, *Tacita Dean: Film Works*, Milano, Charta, 2007; NICHOLAS CULLINAN, *Tacita Dean: Film*, London, Tate Publishing, 2011; TAMARA TRODD, *Lack of fit: Tacita Dean, Modernism, and the Sculptural Film*, «Art History», 31, 3 (2008), pp. 368-386; ANDREAS REITER RAABE, Interview with Tacita Dean, *Film as Painting*, «Spike Art Quarterly», 29 (2011): <https://spikeartmagazine.com/articles/tacita-dean-film-painting>. Accessed 10 October 2021.

³ Cf. DAISY WOODWARD, *Tacita Dean on Filming Frescoes Through a Macro Lens*, «AnOther Magazine» (2016). <https://www.anothermag.com/art-photography/8640/tacita-dean-on-filming-frescoes-through-a-macro-lens>. Accessed 10 October 2021; KEVIN LOTERY, *Tacita Dean. Buon Fresco*. London: MACK, 2016, «CAA.reviews» (2018). <http://dx.doi.org/10.3202/caa.reviews.2018.99>. Accessed 10 October 2021.

«They appeared unconnected to rain, as in Europe, but instead to the imperceptible activity of winds high above the earth's surface».⁴ The contextual, cultural, historical, and geographical differences in cloud manifestations are evident in *A Concordance of Fifty American Clouds* (2015-2016), the work opening the exhibit in the front gallery (**Fig. 1**). Using *A Complete Concordance to Shakespeare* that Dean first came across when clearing her father's studio, she looked up the word "cloud" and found that it richly appeared in the writer's plays. In response to this event, the artist combined Shakespeare's play excerpts on clouds with a collection of drawings on slates and black boards, found postcards, overpainted photographs and hand-drawn lithographs picturing Californian clouds, creating an overlay of textual and visual representations. The following exhibition pieces expand on the "cloud" theme by means of film: *Buon Fresco* includes a series of details focusing precisely on cloud faces and doves, while *Portraits* (2016) shows clouds in the form of cigarette's smoke that surrounds the painter David Hockney while considering his work in the studio.⁵

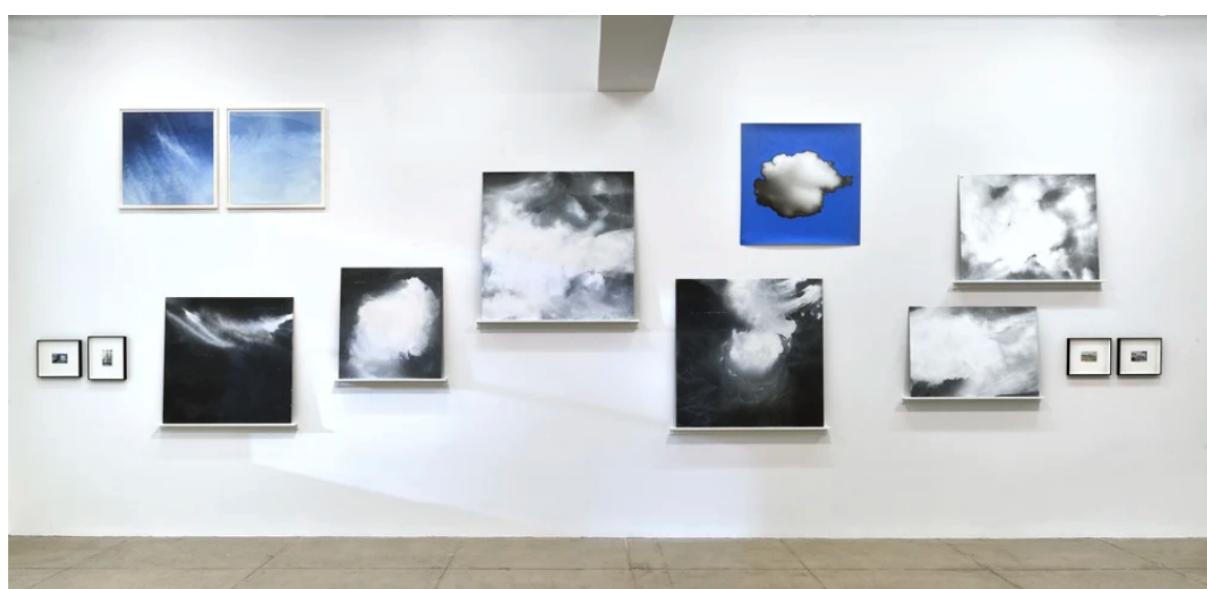


Figure 1. Tacita Dean, '*A Concordance of Fifty American Clouds*', 2015-216. Installation view, 2016. New York, Marian Goodman.

The studio's perspective and the shift of mediums—from word and pictures, to painting and films—characterizing the works presented in the main gallery introduce another important theme, protagonist of the two last pieces located, respectively, in the South Gallery and on the third floor of the exhibition space. *GAETA 2015 – fifty photographs, plus one* (2015) gathers photographs taken in 2008 in Cy Twombly's house and studio in Gaeta. These were first part of a photo essay publication (Vienna: MUMOK, 2009) created in collaboration with Twombly, and later a photographic series showing various photochemical processes typical of Cibachrome paper (disappearing archival color photographs made photochemically from

⁴ TACITA DEAN, ...*my English breath in foreign clouds*, Press release, New York, Marian Goodman Gallery, 2016. https://www.mariangoodman.com/usr/documents/exhibitions/press_release_url/66/dean-2016-ny-press-release.pdf. Accessed 10 October 2021.

⁵ Cf. EMMALEA RUSSO, *Smoke, Clouds, Breath: Tacita Dean at Marian Goodman*, «Artcritical» (2016). <https://artcritical.com/2016/03/17/emmalea-russo-on-tacita-dean/>. Accessed 10 October 2021; SOPHIE KITCHING, *New York, Tacita Dean: 'My English Breath in Foreign Clouds' at Marian Goodman, New York, Through April 23, 2016*, «Art Observed» (2016). <http://artobserved.com/2016/04/new-york-tacita-dean-my-english-breath-in-foreign-clouds-at-marian-goodman-new-york-through-april-23-2016/>. Accessed 10 October 2021.

transparency). *GAETA* acts parallel to Hockney's video portrait as it links Twombly's studio with the poetics of his thinking process and, born as a photo essay to become a photo series, follows a creative process inverse to *Buon Fresco*, that went from still image to book edition. Dean's investigation of studio practice and artistic processes is brought even further in *Event for a stage* (2015), where she experiences for the first time working with an actor. The 50 minutes film was commissioned as a four-night live performance for the 2014 Sydney Biennial in which the artist and the actor Stephen Dillane struggled to understand each other's disciplines and find a converging point in their practices. The sequence of the works in the exhibition space illustrates Dean's gradual self-reflection upon her own artistic process which is exposed to the audience by dramatizing the role of the medium and examining the nature of both the actor and the artist herself on a stage.

The observation of artists and their practice is a recurrent feature in the work of Dean, who portrayed, among the others, Mario Mertz (*Mario Mertz*, 2002) and Giorgio Morandi (*Day for Night*, and *Still life*, 2009) to investigate their artistic space and process, thinking and considering.⁶ In ...*my English breath in foreign clouds* Dean's exploration of art and their practitioners follows a unique thread that unites recurrent subjects and various mediums in an uninterrupted flow questioning the boundaries between textual, visual and performing arts. Dean focuses on the work on a thematic level by featuring Shakespeare and Giotto utilizing clouds, respectively, as a play writer and as a painter; then she lingers on the artist studio represented by Hockney's video portrait and Twombly's photo series. The exploration of mediums ranges from writing, theater, radio, and performance (Shakespeare, and Dillane) to painting, video, and archival photography (Giotto, Hockney, and Twombly), by crossing times and epochs, from the early modern (Giotto, and Shakespeare) to the contemporary age (Twombly, Hockney, and Dillane). Dean finally suggests the intimate links between these manifestations by creating a ring composition that uses as a title for one of her initial slate drawings the line «*Sans bound*» derived from Shakespeare's *Tempest* and declaimed by Dillane in the video performance that closes the exhibit.

The examination of *Buon Fresco* enlightens Dean's multilayered method of research as reflected in the staging of the exhibit where the work was displayed. As it is often the case, the art piece originated from Dean's personal experience that brought the artist to mature a deep affection to Saint Francis at the age of 11, when she was sent to a Methodist school as a Catholic and started to attend every Sunday the Franciscan study center of the University of Kent. Being fascinated by the humanity of the Saint, Dean associated the moment in which Saint Francis humanizes sainthood to Giotto's introduction of naturalism in Early Modern painting. According to her, *The Life of Saint Francis* cycle in Assisi encapsulates this very moment, which she decides to record by taking the normally impossible perspective of the painter himself. In the works dealing with artists' studios Dean establishes a privileged relationship with their objects, their positioning in the space, and the physical bond with the artworks; similarly, in *Buon Fresco* she finds herself nose to nose with Giotto's pictorial material (**Fig. 2**).⁷

⁶ Other artists portrayed by Dean are: Merce Cunningham (*Merce Cunningham performs STILLNESS*, 2007), Claes Oldenburg (*Manhattan Mouse Museum*, 2011), and Robert Smithson (*JG*, 2013); cf. HANS ULRICH OBRIST, *Tacita Dean: The Conversation Series*, Köln, Verlag der Buchhandlung Walther König, 2012.

⁷ *Tacita Dean in conversation with Massimiliano Gioni*, Center for Italian Modern Art, New York, 2016; PIER PAOLO TAMBURELLI, *Giotto, or Beauty in Space*, «San Rocco»13 (2016), pp. 32-53.



Figure 2. Tacita Dean, 'Buon Fresco', 2014. Installation view, 2016. New York, Marian Goodman.

Fragmentation and Redemption: the fragment as a conveyor of truth (AF)

While this article wishes to draw upon the multivocal interpretation of the readings of the cycle *The Life of Saint Francis*, allegedly by Giotto, in the Upper Church of the Basilica dedicated to the Saint at Assisi, it also offers a commentary on the analysis between text and image, ultimately to inform the relationship between signifier and signified; sender and receiver.⁸ The Basilica represents one of the most celebrated examples of Gothic art and architecture in Italy. Started soon after the death of the Saint in 1228 to house his body and become the Mother Church of the Franciscan Order, the site was transformed into a massive enterprise of two superimposed churches - referred to as the Lower and the Upper Church - adjacent to the conventional buildings known as the *Sacro Convento*. The frescoes are the product of an intense political campaign undertaken by Nicolas IV (1227-1292), the first Franciscan pope, at the end of the thirteenth century. They are divided into twenty-eight scenes and are mainly inspired by the *Legenda Maior* (1263) by Bonaventure of Bagnoregio (1221-1274).⁹ There are, however, several citations and subtle references to other works too, and these shall be duly examined in the single scenes. This was the official political manifesto of the Franciscans,

⁸ DONAL COOPER and JANET ROBSON, *The Making of Assisi*, New Haven, Yale University Press, 2013; CHIARA FRUGONI, *Quale Francesco? Il messaggio nascosto negli affreschi della Basilica superiore ad Assisi*, Milan, Einaudi, 2015, pp. 46-51; ALESSANDRO VICENZI, *La Basilica di San Francesco ad Assisi*, Modena, Franco Cosimo Panini, 2015, p. 149.

⁹ JAY M. HAMMOND, *Bonaventure's Legenda Major*, in *A Companion to Bonaventure*, Leiden, Brill 2014, pp. 453-507; *Fontes Franciscani*, ed. ENRICO MENESTÒ and STEFANO BRUFANI, Assisi, Ed. Porziuncola, 1995, pp. 777-977; *Francis of Assisi: early documents*, vol. 2: *The Founder*, ed. REGIS ARMSTRONG, WAYNE HELLMANN, and WILLIAM SHORT, New York, New City Press, 2000; JOHN RENNER, *Bonaventure and the Maestro di San Francesco*, in *Aesthetic Theology in the Franciscan Tradition*, London, Routledge, 2019, pp. 20-48.

a unified regularized Order sanctified and approved by Rome. Or at least this was the intended macro message, set forth not only by the cycle but also by the massive construction site undertaken after Francis' death (**Fig. 3**). Over the centuries the paintings have been scrutinized and interpreted in often contrasting ways, sometimes generating polarities of meanings and readings.¹⁰ Based on the means of photo reproduction and enlargement, Dean and Frugoni have offered through the same technique of analysis, contrasting interpretations and meanings to the paintings. This ultimately testifies towards the rejection of a single all encompassing gaze and to the transformation of textual and iconographic meanings through subjective recipients.¹¹

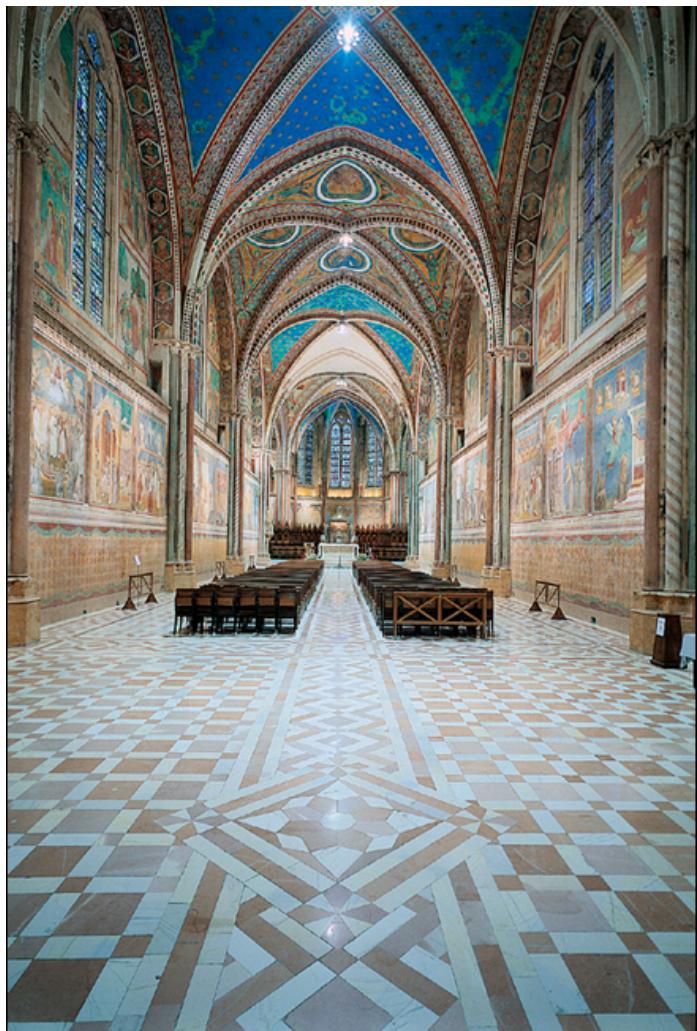


Figure 3. Interior of the Basilica of Saint Francis, Assisi.

Painted between 1298-1304 the *Saint Francis* cycle unfolds along the walls of the nave of the Upper church, and follows the chronological order of the hagiographic narrative.¹² On the north wall at the crossing with the transept the pictorial frieze opens with the *Homage to a Simple Man* and terminates on the juncture of

¹⁰ COSIMO SCORDATO, *Ed Ecco io Sono con Voi. Dall'Eucarestia il Complesso Basilicale di San Francesco*, «Miscellanea Francescana», 119 (2019), pp. 1-3.

¹¹ MICHEL FOUCAULT, *The Birth of the Clinic*, London, Routledge, 2003; PAULIN MORIN, *Foucault and Lacan: The Gaze and its Operation within Historiography*, 89 ACSA Annual Meeting Proceedings, 2001, p. 323

¹² Cf. COOPER and ROBSON, *The making of Assisi*, pp. 92-97.

the nave on the left transept with the *Liberation of the Heretic Peter*. The twenty eight scenes which make up the cycle are selected from the ninety seven stations of the Saint's life described by Bonaventure, identified in the fresco through inscriptions. As previously mentioned, these broadly follow a chronological order, except for the ones present in the counter facade which depict the *Sermon to the birds* and the *Miracle at the spring*.¹³ These are meant to be read in unison with the New Testament scenes directly above and follow a complex intertextual cross-reference of signs and meanings. Francis was a controversial character both during his lifetime and after his death, the frescoes therefore need to be understood as a powerful political machine orchestrated by the papal Curia and the Minister of the Order to establish a single, univocal image of the Saint.¹⁴ One Saint, one Legend, one shared exegesis. The choice of Bonaventure's *Legenda Maior* both as a source text for the frescoes and as the single official biography, contributed to the destruction of all previous lives including the *Vita Beati Francisci* (1229) and the *Memoriale Desiderio Anima de Gestis et Verbis Sanctissimi Patris Nostri Francisci* (1247) by Tommaso da Celano (1185-1265). According to Frugoni the need to "tame" the message of the *poverello* involved the implementation by the Curia of a series of countermeasures that would defuse the truly incendiary force of his teachings, a power that the images have in their ideologically oriented use.¹⁵ Analysis of data through primary sources and historical accounts naturally sheds light on a different Francis, one that did not find a place in official biographies, but nonetheless informs us on an alternative 'truth' around the Saint's *persona*. This was a lesser tame character, one that did not find a place amongst these walls and that testified to his disdain for money, observance of strict asceticism, distrust of books and association with women.¹⁶ Donal Cooper maintains that although the principal text to inform the frescoes was the *Legenda Maior*, the survival of fragments of the *Vita secunda* (1247) by Tommaso da Celano and a copy of his hagiography in verse by Henri d'Avranches (d. 1260) based on Celano's *Vita prima*, were preserved in the library of the *Sacro Convento*; the older friars would have been familiar with Celano's biography and likely although these manuscripts might have not been consulted in the creation of the scenes, they would have played a role in the overall iconographic plan.¹⁷ The nave frescoes were undoubtedly the product of an intense exchange between Bonaventure's *Legend*, pre Bonaventurian texts, oral traditions, and eyewitness accounts all in all to counteract the problematic spiritual branch of the Order and present Francis as an *alter Christus*.¹⁸

It is without a doubt that these frescoes unfold a polysemic interpretation, one that may not be neatly circumscribed in a single unified exegesis. Both Dean and Frugoni attempt to unlock this symphony of meanings by using the analogous method of photo reproduction and enlargement, to virtually take a place on the medieval scaffolding and embrace the painter's perspective. This method is not new to the History of Art, with pioneers like Giovanni Morelli (1816-1891) using his own drawings and photography at the end of the 19th century to assign authorship to artistic *oeuvres*. As an art historian, Morelli developed the "Morellian technique" of scholarship, identifying the characteristic 'hands' of artists through analysis of minor details that exposed the painter's technique and practices for portraying, for example, ears, eyes, fingers - negligible

¹³ A complex eschatological reason lies behind this choice, duly examined in FRUGONI, *Quale Francesco?*, pp. 328-341.

¹⁴ Cf. FRUGONI, *Quale Francesco?*, pp. 9-11.

¹⁵ Cf. FRUGONI, *Quale Francesco?*, pp. 14-15; Cooper and Robson, *The making of Assisi*, pp. 97-103.

¹⁶ JACQUES DALARUN, *The misadventures of Saint Francis: towards a historical use of Franciscan legends*, trans. EDWARD HAGMAN, New York, St Bonaventure, 2002, p. 249; ANDRÉ VAUCHEZ, *Francesco d'Assisi*, ed. GIOVANNI MERLO, Torino, Einaudi, 2010.

¹⁷ Cf. COOPER and ROBSON, *The making of Assisi*, p.99; FRUGONI, *Quale Francesco?*, pp. 38-41.

¹⁸ Cf. VAUCHEZ, *San Francesco*, pp. 214-215; FRUGONI, *Quale Francesco?*, pp. 32-33; 44-48.

details that could certify authorship (**Fig. 4**).¹⁹ We may notice a forceful attempt to shift the point of view of the reader from passive recipient of a predetermined story, to active craftsman of meaning. Indeed, it appears that Dean and Frugoni wish to short circuit the sign, signifier, signified equation and ascribe new meaning to the paintings as fresh creators of content. Both also shift from the macro context to the micro detail in order to inform the greater meaning of the paintings. While Dean apparently uses the sign out of context, Frugoni uses the sign to inform the context, curiously choosing analogous fragments but giving contrasting readings. Through these different interpretations we witness a juxtaposition of referents, symbols and exegesis which become apparent in the examined scenes.

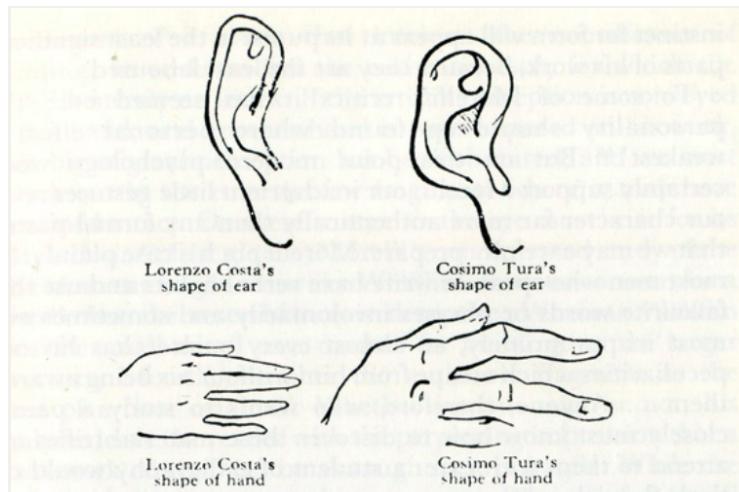


Figure 4. *The Morellian method.*

Scrutinizing The Life of Saint Francis frescoes: senses and nature (GC)

The peculiarity of Dean's approach resides in filming *The Life of Saint Francis*'s details at extremely close quarter using a macro lens and scissor lift with the aim to show the radicality and expressiveness of Giotto's technique enclosed in the depiction of carnal and natural elements, together with the ingenuity of the brushstrokes and unwanted marks left on the surface. Among the episodes represented in the Upper Basilica cycle, *Saint Francis receiving the stigmata* and the *Death of Saint Francis* are the most productive scenes in Dean's investigation. These panels, which are also at the core of Frugoni's analysis, offer an invaluable repertoire to be explored in different contexts. An important group of details analyzed by Dean focus on flesh and blood, mainly represented by the recurrent subject of the stigmata which is shown as pervading the entire cycle. Other subjects belonging to this group are extremely enlarged views of crow's feet, hands and feet showing signs of corrosion, opened mouths, and red and brown stains in general.

The first image appearing in the artist book is a detail of the trompe l'oeil located at the bottom of each fresco that exhibits in the middle a reddish transparent stain recalling a drop of blood. On the facing page we see a detail of a finger pointing out Saint Francis's stigmata from the *Death of Saint Francis*. A coincidental small drop of brown paint on the finger not only visually connects the two details but also corresponds in shape, color, and composition to the mark of the stigmata (**Fig. 5**). Dean's associations reiterate the motif of wound and sufferance characterizing the historical account of Saint Francis's death communicated by the

¹⁹ JAYNE ANDERSON, *La vita di Giovanni Morelli*, Rome, Officina Libraria, 2019.

Franciscan Fr. Elia together with the stigmata prodigy. The friar describes the Saint as crucified, bringing on his body the five sores which were Christ's stigmata:

«His hands and his feet appeared pierced by black nails that crossed the flesh on both parts leaving black scars. His side, hit by a spear, seemed to emit drops of blood». ²⁰

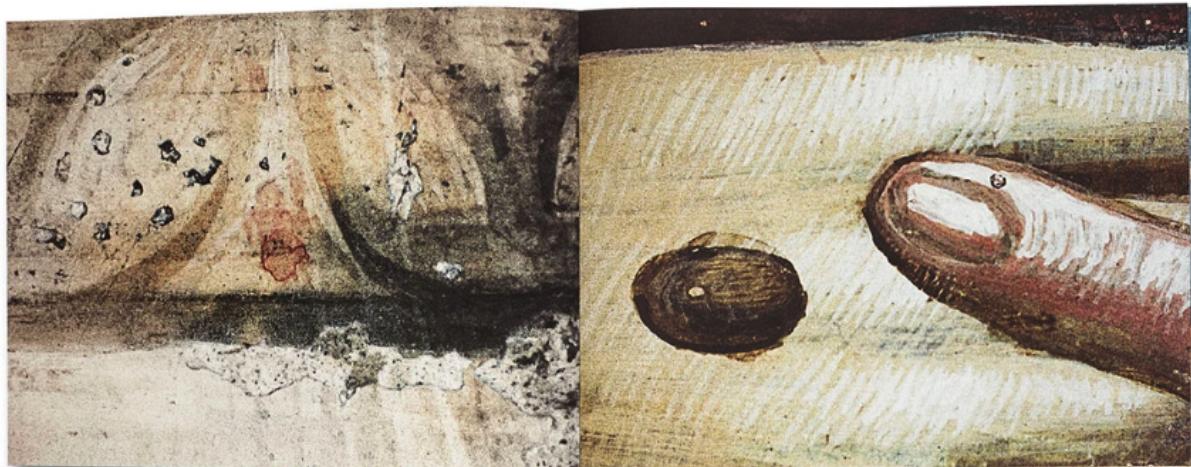


Figure 5. Tacita Dean, *Paint drops and finger pointing the stigmata*. 'Buon Fresco,' MACK, London: 2016.

This narration is perfectly aligned with Dean's insistence on flesh that recurs in the details of opened mouths of friars singing taken from the *Institution of the Crib at Greccio*. Dean isolates the details and inverts their original order of apparition in the fresco by transforming an ascetic expression such as that of singing to God into a carnal manifestation of the senses recalling the subversive paintings of Francis Bacon (**Fig. 6**).

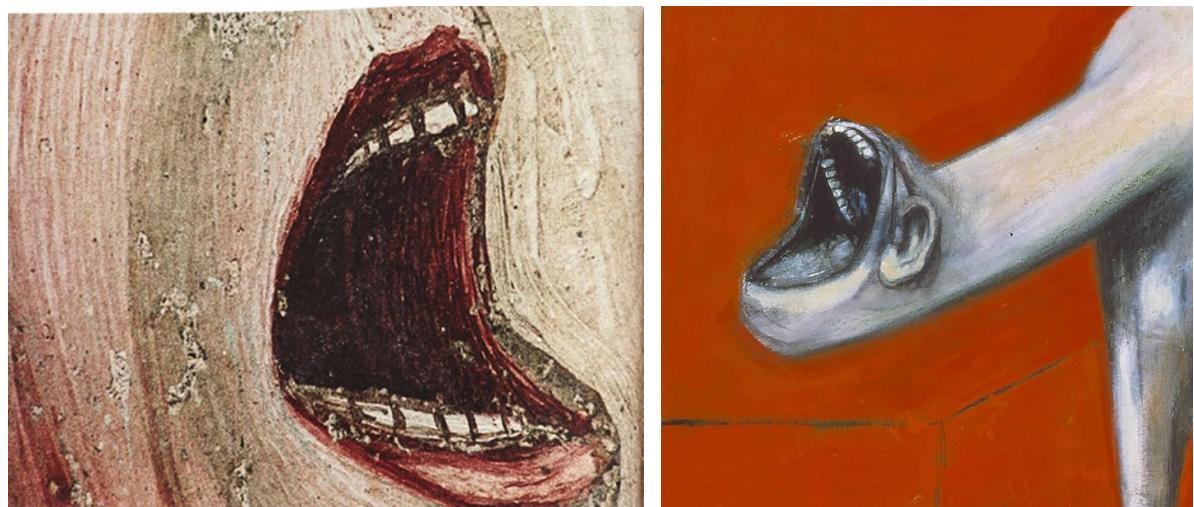


Figure 6. Tacita Dean, *Opened mouth*. 'Buon Fresco,' MACK, London: 2016; Francis Bacon, *Three Studies for Figures at the Base of a Crucifixion*, detail, 1944. London, Tate Britain.

²⁰ «Nam manus eius et pedes quasi puncturas clavorum habuerunt, ex utraque parte confixas, reservantes cicatrices et clavorum nugredinem ostendentes. Latus vero eius lanceatum apparuit et saepe sanguinem evaporavit» (FRATES HELIAS, *Epistola encyclica de transitu s. Francisci*, AF X, pp. 523-528, p. 526; FF, pp. 397-400, p. 399; FRUGONI, *Quale Francesco?*, pp. 353, 566).

The earthly dimension of the frescoes also emerges in a series of natural details that, by creating a delicate ornamental counterpoint to the violence of those focusing on the human figure, evoke the divine relationship established by the Saint with every creature. This passage is perfectly represented by the red stains falling from the flower's stalk that appear as blood tears representing the pain connected with the stigmata in the *Stigmatization of Saint Francis*. Among the natural details pervading Dean's narratives, we encounter fragments of stalks and leaves of plants and flowers, rocks, mountains, clouds, and birds and angels' wings. In this context, the detail of the cloud smiling in the *Death of Saint Francis* episode, identified by Frugoni as a representation of the devil (see figure on the title page), recalls instead the serene assimilation of the Saint with the spirit of nature, by creating a sequential narrative with the details of doves from the *Sermon to the birds* panel, the doves becoming clouds in the *Ascension*, and the white corroded mark covering an ancient statue of an angel from *Saint Francis before the Sultan* (**Fig. 7**).²¹



Figure 7. Tacita Dean, *Ancient statue of an angel and dove. 'Buon Fresco,'* MACK, London: 2016; Detail of doves becoming clouds from the 'Ascension' in Frugoni's 'Quale Francesco?'

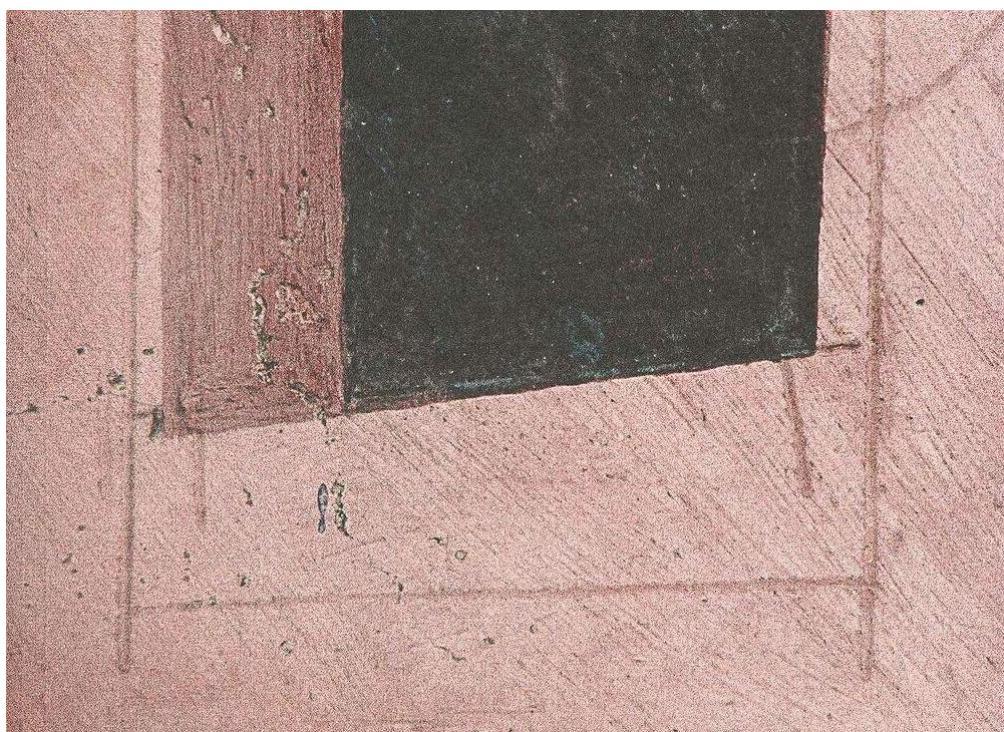
Fragments as a story of contrasting views: marks, strokes, and corrosion (GC)

Dean's reading not only offers a sensory and naturalistic interpretation of the frescoes focusing on the humanity of the Saint and on his relationship with nature, but also brings forward her discussion on the artistic process at the center of the Marian Goodman exhibition. According to her, when visitors stand in the Basilica and look up to see the frescoes, these become a unified story in which painting lies hidden in the background. However, what interests Dean the most is precisely painting: the aspects that primarily inform her narrative are, therefore, the details and marks which underlie the creative thinking of the artist. Accordingly, the book begins by coupling elements belonging to the same panel or theme which are reproduced in the original inclination. Then, towards the end, unrelated subjects featured in varied positions are gradually associated by means of analogy and visually connected by their shape, color, strokes' direction, or degree of corrosion. In *Buon Fresco*, the transformation of clouds into living creatures introduced by Giotto is brought to an extreme: not only clouds are assimilated to doves, but also the ancient statue of an angel is a dove, its wing is a mountain, and the shingles of a roof are the feathers of a Seraphin. Dean's narrative uses the medium specificity to enrich the Franciscan message by suggesting the link between microcosm and macrocosm, and between God and its creation.²²

²¹ See FRUGONI, *Quale Francesco?*, pp. 332-341, 366-367.

²² CULLINAN, *Tacita Dean*, p. 16.

The book cover in particular is both representative of the unseen and unwanted marks, strokes, and signs of corrosion which builds up the painting, and of the peculiar path that Dean wants us to undertake.²³ The detail featured on the front shows a black squared hole placed on a pink background that represents a windowsill cut on the top taken from the *Renunciation of Worldly Goods* panel (**Fig. 8**). By evoking the privileged point of view offered by Dean on Giotto's frescoes, it functions as a threshold to the work. Groovy lines stick out from the windowsill's margins and repeat the squared hole shape enlarged on the bottom. These are Giotto's *pentimenti* brought to light together with the minute hatching of the brushstrokes toward the right, and the signs of the plaster's erosion. The cover detail belongs to the series of pink buildings that punctuate the cycle's narrative by appearing in each panel and, therefore, is among the most difficult subjects to trace back to the original fresco. It is precisely because of their repetitive quality that details like this remain overlooked to the most attentive viewer. For this reason, Dean chooses them as representative of her own micro visual stories which run parallel to the one recounted in the frescoes and, simultaneously, both illuminate and hinder traditional exegeses. Dean's rewriting of details with different mediums and relocation out of their original context creates a novel multilayered narrative in which fragments are connected by various means to suggest multiple possible readings. These do not contrast historical analyses such as Frugoni's, but enhance and expand them to the successive generations of interpreters.²⁴



²³ Cf. BEATRICE VON BISMARCK, *Studio, Storage, Legend. The Work of Hiding in Tacita Dean's «Section Cinema (Homage to Marcel Broodthaers)»*, in *Hiding Making Showing Creation: The Studio from Turner to Tacita Dean*, edited by Rachel Esner, Sandra Kisters and Ann-Sophie Lehmann, Amsterdam, Amsterdam University Press, 2013, pp. 176-187.

²⁴ Cf. JENNIFER PETERSON, *The Life Cycle of an Analog Medium: Tacita Dean's Film*, in *New Silent Cinema*, edited by Paul Flair, and Katherine Groo, New York, Routledge, 2015; ROBERT ZWIJNENBERG and CLAIRE FARAGO, *Art History after Aesthetics: A provocative Introduction*, in *Compelling Visuality: The Work of Art in and out of History*, edited by Robert Zwijnenberg and Claire Farago, Minneapolis, Minnesota, University of Minnesota Press, vii-xiv, 45-48.

Figure 8. Tacita Dean, Windowsill. 'Buon Fresco,' MACK, London: 2016.

Stigmatization and Death, two nodal points of analysis (AF)

The case studies presented for this section - explored in depth by Dean in *Buon Fresco* - represent two amongst the most emotionally and theologically charged episodes from the *Saint Francis cycle*, namely the *Stigmatization of Saint Francis* and the *Death of Saint Francis*. This section will primarily focus on an iconographic and descriptive analysis of the paintings and a critical reading of Frugoni's interpretation. This will hopefully offer a historical backbone to Dean's atlas and a comparative framework against her multivocal contemporary reading of the cycle.

Saint Francis receiving the stigmata is the last scene from the Saint's hagiography. Located on the eastern portion of the southern transept, it is the closing representation to the Saint's life. The narrative unfolds against an ominous mountainous backdrop representing the sanctuary of La Verna on Mount Penna above Chiusi della Verna in the Tuscan province of Arezzo. According to Cooper and Robson, citing the incidents of Christ's Transfiguration at Mount Tabor as well as Moses on Mount Sinai and Elijah ascending on his chariot from Mount Carmel, Old and New Testament scriptures use mountains as places of revelations.²⁵ Francis is represented barefoot kneeling before a seraphim with Christ's resemblance displaying a majestic set of tantalizing red wings. Beams of light portrayed in the form of white filaments puncture Francis's body on his feet, hands and side (**Fig. 9**).

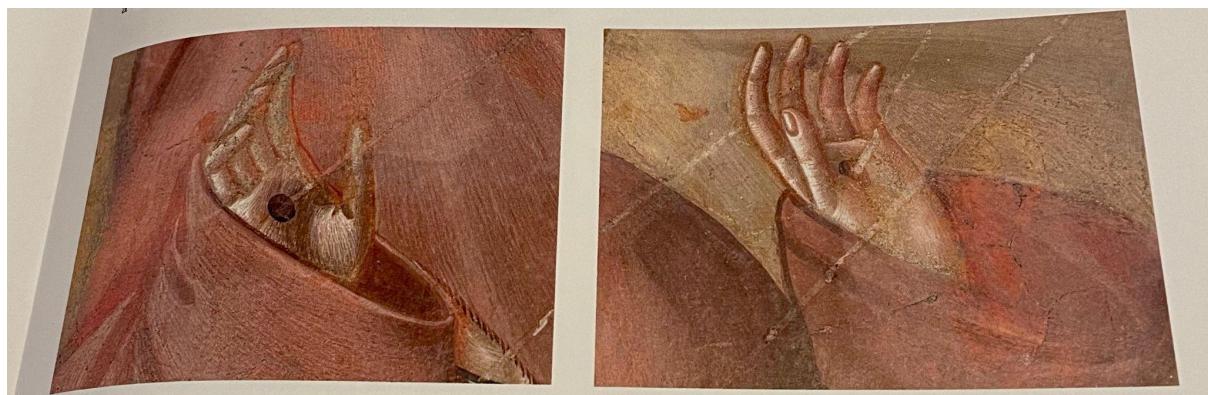


Figure 9. Details from the 'Stigmatization of St Francis' in Frugoni's 'Quale Francesco?'

On the lower right portion of the scene the viewer may witness a friar, likely Leo, who we know through Celano's and Bonaventure's accounts was the only one present during the miracle. Friar Leo is represented reading a passage from the New Testament, the manuscript is characterized by a pseudo Arabic script with an illuminated M. The scene is unanimously accepted and interpreted as a manifestation of Francis as an *alter-Christus*. Indeed, he is portrayed not looking directly at the angel but towards the scene positioned diagonally to his eyesight: that of the *Crucifixion*. According to Frugoni the *Christus-Francis* tandem (to invoke Luciano Bellosi ndr) had a precise political message, one that wanted to underscore the figure of the Saint not as an achievable role model for current believers but as a distant evocation of Christian supernatural divine power.²⁶

²⁵ Cf. COOPER and ROBSON, *The making of Assisi*, pp.127-129.

²⁶ Cf. FRUGONI, *Quale Francesco?*, p. 357; COOPER and ROBSON, *The making of Assisi*, all Chapter 5; LUCIANO BELLOSI, *The function of the Rucellai Madonna in the Church of Santa Maria Novella*, in *Italian Panel Painting of the Duecento and Trecento*, ed. VICTOR SCHMIDT, Washington, National Gallery of Art, 2002, pp. 146-159; Vauchez, *Francesco d'Assisi*, p. 178.

Both Bonaventure and Celano describe the opening of the Gospel three times in a rite referred to as *sortes apostolorum*; the decision to represent brother Leo reading, wearing sandals and without a beard strikes a chord towards the representation of an Order characterized by the presence of clergymen with Francis singled out as the exception (barefoot, bearded, ‘wounded’ by the seraphim). The magnified detail of the Gospel in Dean’s atlas appears as an unknowing reminder of this. Having said this, the real focus of the scene are the stigmata. While Frugoni highlights the difference between the representations of the Saint’s hands in this scene and in the *Death of Saint Francis*, to stress the transformation of the wounds into nails of flesh, Dean chooses analogous fragments to underscore the uncanny, seemingly disturbing reality concealed in the frescoes’ details. According to Frugoni, the *Ascension* but the *Death* scene especially were

«obviously considered by the commissioners of the cycle a nodal point of great engagement because it is from this moment that Francis is officially a saint even if the formalization will take place four scenes later with his official proclamation by Gregory IX».²⁷

Several details appear to justify the historian’s interpretation. The fresco strongly recalls the iconography of the *Lamentation over the dead Christ*, with the figures of Mary, the Magdalen and Saint John substituted by Francis’ companions. As in the *Confirmation of the Rule before Pope Honorius III* there are twelve (including Francis) friars, contributing to the evangelical analogies between Christ and the apostles and Francis and his companions.²⁸ In reality the scene combines and condenses two separate moments, namely the death of the Saint and his ascension. Frugoni aptly chooses to dwell on one of those details which testifies towards this ‘sacred’ moment.²⁹ The ascent of Francis’ soul is caught by one of the friars who suddenly interrupts his lament and meditation. He raises his outstretched face, supported by his hands previously joined in prayer, because he catches - as described by Bonaventure - the soul of Francis in a very bright star (**Fig. 10**).³⁰ Another particularly striking detail which both Frugoni and Dean select is the humanized figure in profile discernible in the clouds that carries Francis’ soul to heaven. The detail is unmissable and could not have been coincidental. Through an elaborate exegesis of Pietro Lombardo’s *Sententiae* (1150-1152) and Bonaventure’s text, the historian identifies this as a portrait of a devil ‘insolitamente bello’, likely a representation of Lucifer (please refer to figure on the title page).³¹ As in the *Stigmatization of Saint Francis* there appears to be an underlying sentiment that a bigger, larger, less accessible truth dwells in the details. This brings to mind seemingly unrelated voyeuristic practices anticipated in the field of psychoanalysis or in unlikely contexts, for example Michelangelo Antonioni’s 1996 movie *Blow Up*. These two scenes exemplify the adopted methodology and account for the particularly charged collection of symbols present in the cycle, and for their multivocal and often contrasting reading the contemporary viewer is bound to give them.

²⁷ Cf. FRUGONI, *Quale Francesco?*, p. 362.

²⁸ Cf. FRUGONI, *Quale Francesco?*, p. 365

²⁹ Cf. FRUGONI, *Quale Francesco?*, pp. 364-365.

³⁰ Cf. FRUGONI, *Quale Francesco?*, p. 362.

³¹ CHIARA FRUGONI, *Playing with Clouds*, «The Burlington Magazine» 153 (1301), (2011), pp. 518-520.



Figure 10. Detail of *adoring friar* from the 'Death of Saint Francis' panel from Chiara Frugoni's 'Quale Francesco?'

Viewers, recipient and truth (AF)

Through the analysis of single case studies focusing on two exemplificative scenes from the *Saint Francis Life Cycle* fresco in the Upper Basilica at Assisi, we have demonstrated the inseparable bond that exists between texts and images. During the Middle Ages the exegetical quality of representations was unquestionably heightened by the need to provide an effective text through images, one that could impart a moral standard to believers and clergy alike. To a certain extent this is an innate quality we find in all studies pertaining to the fields of aesthetics. The question one begs to ask is:

Is there a hidden meaning, an underlying text, an unbiased image?

The answer is to be sought after in the viewer's fruition through chosen standards and selected technologies. Both Frugoni and Dean read the text using the technique of photo reproduction and enlargement, changing the intended point of view of fruition. In contrast to Dean, who ascribes a contemporary meaning/symbol/signifier to the fragments tied to a naturalistic ecological interpretation which reflects upon the artistic process, Frugoni infuses the fragments with a dense exegetical reading of medieval sources. Having said this, these hidden texts would have been intelligible only to an extremely sophisticated and most importantly attentive viewer. Ultimately, both the underlying theory behind *Quale Francesco?* and Tacita's contemporary exegetical readings are compelling. In *The Analytic Attitude* psychoanalyst Roy Schafer suggests that in the realm of analysis coincidences do not exist, *nihil fit sine causa*.³² In this regard, how should we interpret the selection of analogous fragments by the two viewers? This is bound to be an open question, one which falls in the symbolic order, and ultimately reinforces the importance of the use of technology to aid the creation of models, semantic annotation and description systems, to rationalize the subject's impact on interpretation.

³² ROY SCHAFER, *The Analytic Attitude*, London, Routledge, 1983, p. 57

Encoding diversity (NC)

The analysis of the process of significations, the transformation of unintelligible media and information into intelligible and computable data, together with the mediation (through modelisation) among multiple viewpoints, has been a long-term challenge of the symbolic AI/knowledge representation domain, and specifically of the Semantic Web/Linked Data community. Within these domains, research about the semantification of information and its hypothetical completeness, has driven the creation of frameworks for the interconnections of contrasting and semantically ambiguous statements. While part of such type of research is not mature enough yet³³, it is a clear indication that the development of a method for framing the interpretations of a text should be formulated using knowledge representation techniques.

Concept and techniques (NC)

Before diving into the methodologies and processes used for representing the complexity for multiple readings of texts and images, as well as presenting our case study in more detail, it is crucial, for the reader less acquainted with knowledge representation (KR) techniques and tools, to provide a brief summary of what KR exactly is. According to Sowa³⁴

«knowledge representation is the application of logic and ontology to the task of constructing computable model of some domain».

The purpose of using KR is, therefore, to provide a universal reusable abstraction of the interactions happening within a domain, making possible to speak, group and analyse real-world entities (material or immaterial entities which are subject of discourse in the world) using a formal computational model. For such reason, a large part of the research in the discipline has been focusing on an answer to the famous question posed by Quine³⁵: «What is there?». Researchers in Knowledge Representation have answered the question with the identification and formalisation of the kind of entities we have knowledge about in a domain, as well as the type of possible interactions (expressed as properties) between such entities. The result of such a process

³³DANIEL HERNÁNDEZ, AIDAN HOGAN, MARKUS KRÖTZSCH, *Reifying RDF: What works well with wikidata?* in *Proceedings of the 11th International Workshop on Scalable Semantic Web Knowledge Base Systems*, edited by Thorsten Liebig and Achille Fokoue, CEUR Workshop Proceedings, 2015, pp. 32-47

BOB KASENCHAK, AHREN LEHNERT AND GENE LOH, *Use Case: Ontologies and RDF-Star for Knowledge Management*, in *The Semantic Web: ESWC 2021 Satellite Events. ESWC 2021. Lecture Notes in Computer Science*, edited by Verborgh R. et al., Cham, Springer, 2021.

³⁴JOHN F. SOWA, *Knowledge representation: logical, philosophical and computational foundations*, Pacific Grove, Brooks/Cole Publishing Co., 1999.

³⁵WILLARD VAN ORMAN QUINE, *On what There is*, «The Review of Metaphysics», II, 5, 1948, pp. 21–38.

is a model of a domain approximated using formal and computable means: an ontology. According to Guarino³⁶ a formal ontology is a

«logical theory accounting for the intended meaning of a formal vocabulary, i.e. its ontological commitment to a particular conceptualization of the world».

The purpose of an ontology is a functional one³⁷, as it aims to describe a particular view over a set of semantically relevant information and develop a model capable of accounting real-world entities, and their exchanges and interconnections within a specific scenario or domain. Formal ontologies have been widely used within the Semantic Web/Linked Data community for formalising, sharing and linking data together, as data are always a collection of one or multiple statements (in the form of attribute-value) about a specific subject. Ontologies give a user the possibilities to semantically describe and cluster information about these subjects, making possible their collection, retrieval and analysis. Within the Digital Humanities and Digital Cultural Heritage there are a number of widely known ontologies that can be brought to bear, however, the one which has the widest and official acceptance is CIDOC-CRM (CIDOC - Conceptual Reference Model). The latter is an empirically developed and non-prescriptive ontology focused on the cultural heritage domain. Aimed at the documentation of heritage objects, CRM records events in relation to objects and agents, organizing the information as outcomes of activities of diverse nature. The historical interactions are grounded in time, enabling a flexible definition of the diverse roles assigned to each entity which participate in an event. A great advantage of CIDOC-CRM is its reliability as well as its flexibility. The ontology is the result of twenty years of development under the aegis of the International Council of Museums (ICOM) and has been recognized as an ISO (International Organization for Standardization) standard. Standard, however, does not mean lack of flexibility. While the core remains stable, the ontology itself has been developed to be easily expanded to cover new findings and disciplines³⁸. This mechanism has produced many diverse extensions, most specifically VIR (Visual Representation),³⁹ an ontology that extends CRM introducing new ways to sustain relationships between the physical and visual domain and it enables users to annotate the diverse visual elements present in a pictorial representation on the basis of their interpretation. However, before discussing the model itself, and the reference ontologies chosen, it is paramount to clarify which entities operate within the analyzed domain.

³⁶ NICOLA GUARINO, *Formal ontology in information systems: Proceedings of the first international conference*, (Trento, 6-8 June 1998), edited by Amsterdam, IOS press, 1998.

³⁷ GLORIA L. ZÚÑIGA, *Ontology: Its transformation from philosophy to information systems*, in *Proceedings of the international conference on Formal Ontology in Information Systems*, edited by Nicola Guarino, Barry Smith and Christopher Welty, New York, ACM Press, 2001

³⁸ GEORGE BRUSEKER, NICOLA CARBONI, AND ANAÏS GUILLEM, *Cultural heritage data management: the role of formal ontology and CIDOC CRM*, in *Heritage and Archaeology in the Digital Age*, edited by Matthew L. Vincent et al, Cham, Springer, 2017 pp. 93-131.

³⁹ NICOLA CARBONI AND LIVIO DE LUCA, *An ontological approach to the description of visual and iconographical representations*, «Heritage», II, 2, 2019, pp. 1191-1210.

Data analysis (NC)

The very first step, in order to build a computable model for interconnecting the data related to the case studies described above, is to understand what entities and processes it is necessary to formalize in respect to an interpretation. As detailed above, we choose to analyze both *Quale Francesco?* and *Buon Fresco*. In these books, a scholar and an artist, through written and visual media, discuss and interpret the same visual work from two different perspectives. The authors, while referring to the same visual object, argue about the symbolic reference encoded in the panels of the Scenes of *The Life of Saint Francis*. We have, therefore, two different stances by Frugoni and Dean, where each of them argue in reference to the same part of the visual work, but their argumentation results into two different cultural units, which highlights the diversity of the reading (**Fig 11**).

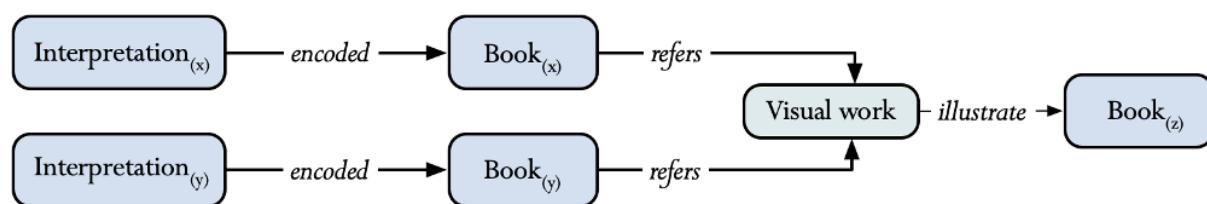


Figure 11. A basic schema of the domain. Two interpretations encode statements about a visual work which in itself is an illustration of another textual object.

The relationship between visual work and textual interpretation (and therefore perception, classification, formalization) is supplemented by the presence of another instance of correlation between textual-visual. The Scenes from The Life of Saint Francis in the Upper Basilica of Saint Francis of Assisi are, in fact, the testimony and illustration of the life of the saint according to one of his biographers, Bonaventure's Legenda Maior Sancti Francisci. The scenes are, therefore, grounded on a text, which they illustrate with a visual narrative of the elements described by the text. Hence, the importance of the details presented in each panel, which can help reconstruct the narrative shrouded by the artist(s).

The analysis of the domain urges us to build a model comprising the following requirements: (i) able to differentiate between object space and conceptual space (ii), comprising temporal parts (activities) and with the presence of an interconnected set of entities: person, act of interpretation, subject of the interpretation and result of the interpretation (whatever form may assume). We previously mentioned the existence of a formal ontology developed for encoding humanities and cultural heritage information: CIDOC-CRM⁴⁰. The CRM is an event-grounded model which encodes one class useful to encode the act of interpretations (E13 Attribute Assignment) and it is structured with a built-in differentiation between material object and its abstractions. While this is already a great baseline to fully interconnect text and image, CRM can be coupled with another extension, VIR, to sustain relationships between the physical and visual domain, as well

⁴⁰MARTIN DOERR, *The CIDOC conceptual reference module: an ontological approach to semantic interoperability of metadata*, «AI magazine», XXIV, 3, 2003, pp. 75-75.

as in-between textual and visual resources. Given the possibilities opened by the combination of the two ontologies, we decided to adopt both CIDOC-CRM and VIR, and make use of some of their formalized concepts, specifically the one of symbolic content and of references to encode our model.

Data model (NC)

The successful creation of networks of interpretations necessitates the modelling of the underlying information structure. Driven by the requirements outlined in the chapter above, we developed a conceptual model (presented, in its gist, in **Fig. 12**) formalising the connections between diverse interpretations over a visual work. The model is a graphical representation of the underlying formalism, made to provide to the reader an example of the applications of the developed information framework. For spatial reasons, it does include only the most important semantic patterns adopted for our case study.

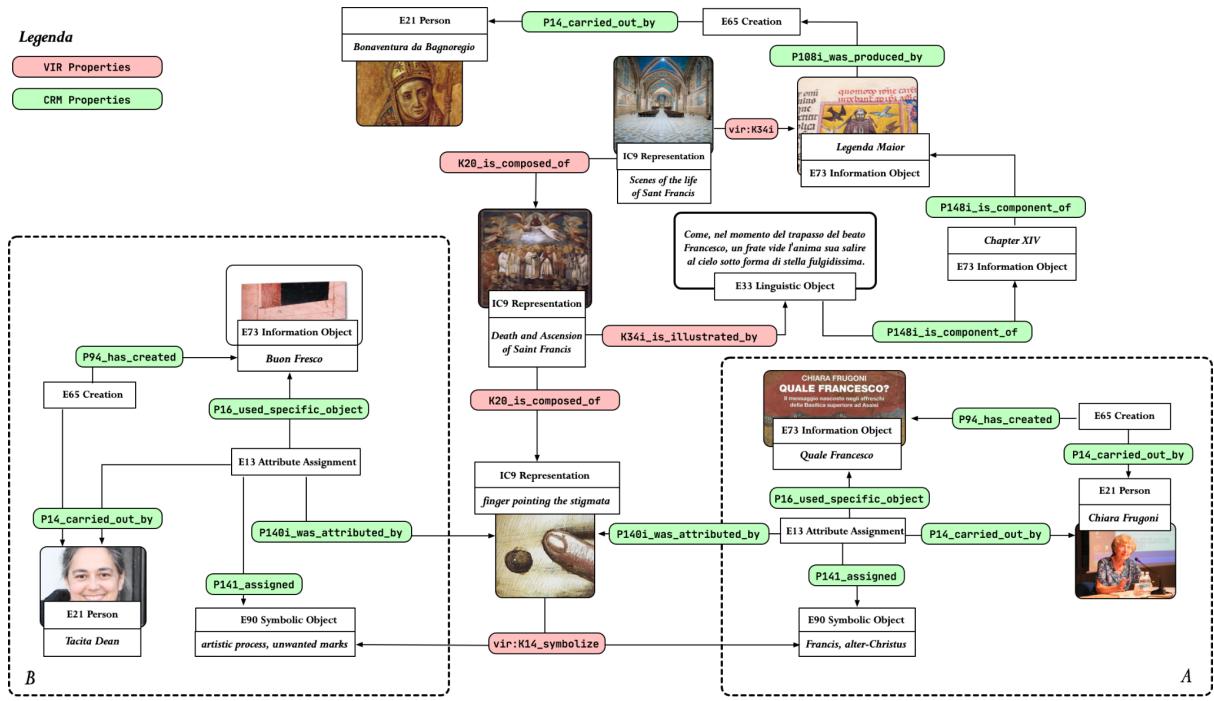


Figure 12. Modelling using CIDOC-CRM and VIR of the diverse interpretations over a single visual object.

Following the requirements, the core of the model is centered around the interactions (expressed as activities with the class ‘E65 Creation’ and ‘E13 Attribute Assignment’) of three main entities: visual representation (expressed as ‘IC9 Representation’), textual object (expressed using the classes ‘E33 Linguistic Object’ and ‘E73 Information Object’), and person (expressed as ‘E21 Person’). The role of a person as agent carrying out an activity is quite a standard one, so we will focus mainly on the other two entities, which we will analyse separately.

Visual representations are defined, within the context of the model, as a tripartite object consisting of three interconnected layers, the full cycle, a single panel, and a detail/macro of the panel, which stand in a partwhole relationship with the others. Each of these layers have their own semantic identity and each of them can be the recipient of diverse statements, which range from a simple description, to more complex interpretations or iconographical readings. This subdivision is due to the presence of (i) information regarding the full cycle, (ii) textual description for each panel, and (iii) the focus given by both Tacita Dean and Chiara Frugoni over the interpretation of single parts (as identifiable units) of the panels. The resulting partwhole structure is, therefore, necessary to take into account the complexity of their findings over such complex work of art. However, it is important to underline that while flexible and adaptable to novel cases, such subdivision is not a necessary component to encode interpretations over visual representations, but its presence depends on the use case under scrutiny.

The relationship between visual and text is a more complex one. Visual representations, in this context, are both illustratory devices and recipients of multiple interpretations. As specified above, in fact, one of the major functions of the fresco is to illustrate the life of the Saint, therefore, each panel is modelled in relation and linked with the story it reflects using the binary property ‘K34 is illustrated by,’ which encode a direct link between visual and text. In this instance, the link is given by specific passages of the *Legenda Maior* and the corresponding panel. The passage itself is linked with entities representing respectively the containing chapter and the overall work, making evident (and computable) both the link with specific parts of the text as well as the overall text itself. Such subdivision is necessary in order to group information in respect to the analysed textual level, as it makes it possible to cluster and retrieve statements both in respect to the whole text as well as in respect to its parts.

While the illustratory function of the text can be encoded with a binary relationship, that is not the case with the concept of interpretation. In this instance, in fact, it is necessary to encode each author’s perspective over the visual as a single interpretative act. This necessity is given by the fact that interpretations exist in time, they can mutate, expand and diverge over time, and be sustained by a dynamic number of sources. In order to give account to such complex processes it is necessary first and foremost to model interpretations as temporal entities, able to be retrieved and analysed in time, but also to be linked to novel evolution of the same interpretation that can emerge over time. Moreover, the interpretations cannot be simply encoded as a binary relationship in-between two texts, but they require at least a quadripartite relationship between the author (agent), the visual work (subject), the interpretation itself and its textual explanation (argumentation). The model formalizes such types of complex relationships (see **Fig. 12** parts A and B) linking the diverse symbolic reference identified by Dean and Frugoni with the part of the visual work

under scrutiny. Both the authors, in fact, by looking at the same content, perceive and classify two different cultural units, each of them entailing very different denotative and connotative meanings. In the case of Frugoni, ‘the finger pointing at the stigmata’ symbolizes the vision of Saint Francis as alter-Christus, while for Dean it refers to the artistic process of the unwanted marks. Using the model outlined above, it is possible to record and relate the assumption and interpretation of both artists, framing them as interpretational acts about the same visual object.

The formalised model in **Fig. 12** respects the outlined requirements and for such reasons have been used to drive the mapping and transformation of the data in RDF (Resource Description Framework), a standard format for publishing semantic graph data in the web⁴¹. The transformation into graph data has ensured the possibility to encode the resulting networks of interpretations and ingest it into a semantic graph database (Researchspace), making possible the exploration of the results (**Fig. 13**) as well as to proceed with further quantitative analysis.

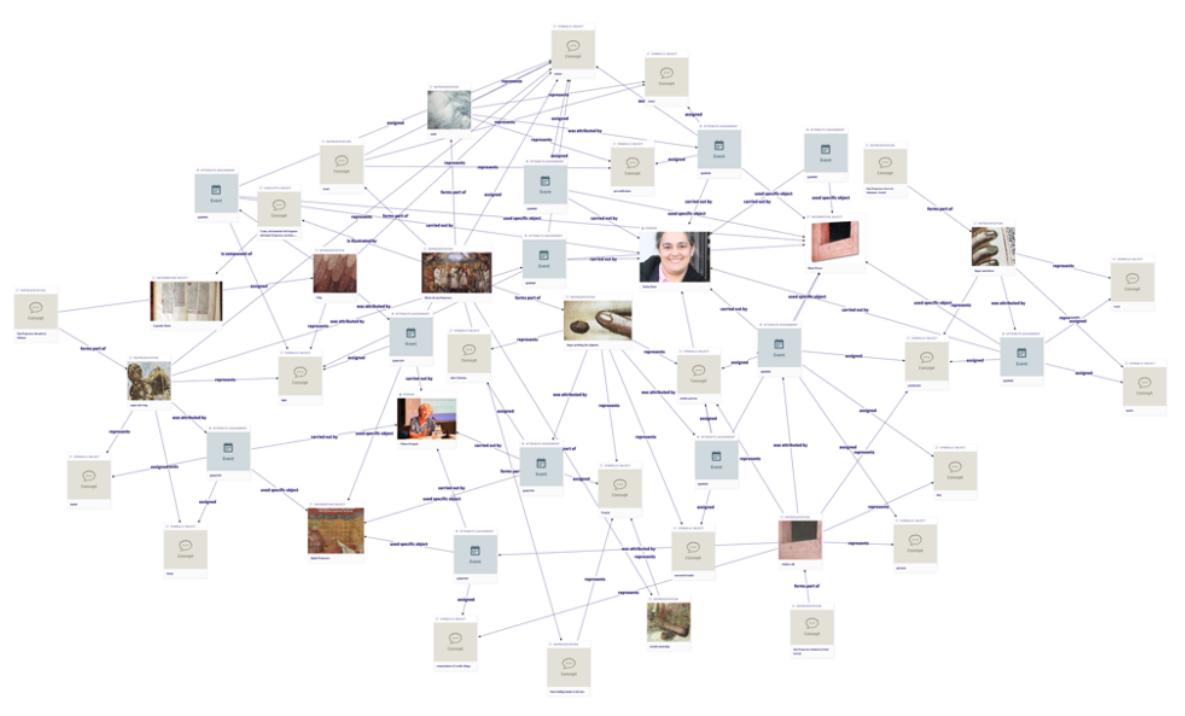


Fig 13. Knowledge map obtained from the data in the ResearchSpace platform reflecting parts of the interconnections between diverse interpretations about the panel ‘Death and Ascension of Saint Francis’. A larger version of the image and the underlying data are available at: <https://github.com/ncarboni/BuonFresco>.

Perspectives

⁴¹ JAMES HENDLER, FABIEN GANDON AND DEAN ALLEMANG, *Semantic Web for the Working Ontologist: Effective Modeling for Linked Data, RDFS, and OWL*, San Rafael, Morgan & Claypool, 2020

The use of knowledge representation techniques to formalise, semantify and aggregate the data has helped us shed some lights at a macro and micro scale. Each single visual detail can now be explored as part of a network of interconnections between the authors, making evident the diversity in interpretations between each pictorial unit and creating dynamic indexes of reference in respect to each visual-interpretation pair. Moreover, the possibility to dynamically interconnect the data with external knowledge bases, thanks to the RDF query language SPARQL, can help contextualise the recorded information in time and space. However, an even greater benefit is opened by the possibility to use SPARQL to cluster and quantitatively analyse the data. Thanks to the above model (**Fig. 12**) it is, in fact, possible to cluster diverse interpretations and interpretants for each single identified pictorial unit, having a clear perspective of the overlaps in interpretations in-between scholars. Quantitatively, it is possible to use SPARQL built-in functions (e.g., COUNT) to compute the overlap between authors in respect to the subject (panel or pictorial unit) of one or multiple interpretations. It is also possible to calculate the relevancy of interpretation within the corpus finding, as well as measuring, what has not been interpreted or how much interpretations refer to the same object or use the same source. This type of overlap can be computed not purely in respect to the subject of interpretations, but also in respect to the result, measuring how many interpretations diverge in respect to their findings in-between authors.

It is also important to underline that the computational method proposed in the article can be further advanced and specialised by its use in combination with other tools and methods for network analysis and semantic proximity.

Methods from graph analytics can help computing the importance of each interpretation in respect to a pictorial unit (PageRank) or detect close grouping of interpretations within the network (Louvain)⁴². As the data currently reside in a semantic graph database, it can be easily interconnected with software specialised in graph analysis (e.g., networkX), and the current results can be re-classified based on diverse quantitative metrics. The closeness of the resulting interpretation can be further analysed by computing the semantic similarity across each recorded reading, making evident the divergence in assigned meaning. Such a type of approach can be particularly helpful in searching the knowledge base, but even more so in detecting and signaling records that can be further analysed singularly. Examples of such approach have used customisations of the word2vec algorithm⁴³ to measure the distance between the recorded lexical units within the graph, or the Levenshtein algorithm to compute similarity between the two different texts.

⁴² V.A. TRAAG, L. WALTMAN AND N.J VAN ECK, *From Louvain to Leiden: guaranteeing well-connected communities*, «Sci Rep», IX, 5233, 2019

⁴³ HASSAN EL-HAJJ AND MATTEO VALLERIANI, *CIDOC2VEC: Extracting Information from Atomized CIDOC-CRM Humanities Knowledge Graphs*, «Information» XII, 12, 2021; MAXAT KULMANOV et al., *Vec2SPARQL: integrating SPARQL queries and knowledge graph embeddings*, pre-print available at <https://www.biorxiv.org/content/10.1101/463778v1.full> Accessed 12 December 2021.

Conclusion (NC)

The paper outlined the necessary research and outcome for the construction of a Digital Atlas, a knowledge graph that reproduces and maps an explorable series of interpretations over visual objects, making evident their divergences in readings. The authors, in fact, have chosen to use the work of Chiara Frugoni and Tacita Dean over the *The Life of Saint Francis* in the Upper Church of the Basilica of Saint Francis of Assisi to present the reader with two very distant approaches to the same work, underlining how computational methods can help transform such reading into an intelligible data structure usable to analyse the divergences and convergences in interpretations.

The digital methodology developed within this work relies on the formalisation of the data in RDF, a web-based graph format, according to a CIDOC-CRM/VIR model (i) able to differentiate between object space and conceptual space (ii), comprising temporal parts (activities) and with the presence of an interconnected set of entities: person, act of interpretation, subject of the interpretation and result of the interpretation. The resulting model can be easily replicated and the method applied to different case studies, making it possible to both navigate and analyse large networks of interpretations, giving account to their dynamicity (change over time), sources used (as both textual and material object) and outcomes. The result of such a type of work will greatly help in perceiving the overarching and interconnected discussion over a subject, providing new ways to examine it at both macro and micro scale.

In order to make such a result even more evident, the project aims to increase the number of sources studied, incrementing the documentation of the information related to *The Life of Saint Francis*, by both continuing the development of the corpus as well as by using open knowledge base to contextualise and enrich the current information. Parallelly, as the overall model is now stable, it is crucial to investigate (i) novel methods to interrelate interpretations, and (ii) automatic ways to extract/locate interpretations.

With respect to the interrelation of interpretation, it is necessary to test existing algorithms to compute similarities across interpretations (as mentioned in the chapter “Perspective” above), as well as defining novel ways to measure distances in-between the recorded data. Research about the creation of a similarity index linking diverse readings over a work of art, should be paired with the investigation of methods to semi-automatically locate such readings. Possibilities are given by the use of novel HDR applications for the detection of page-structures, possibly performed together with topic modelling techniques.

