“PLAYING WITH THE EVIDENCE”

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Early in his review of *Galileo Courtier*, Michael Shank claims that I “play with the evidence.”¹ Shortly after, he adds that:

Reasonable people will no doubt disagree about the relative success of Biagioli’s explanatory models. Unfortunately, his attitude toward historical evidence falls into another category altogether. His handling of textual and iconographical evidence and his inference from these sources not only leave some of his most original claims without a foundation, but often disregard the basic values of the historian’s craft.²

Such strong-worded allegations leave me with no choice but to ask for the readers’ patience so that I may present and discuss the evidence whose interpretation or existence is being questioned. An empirical refutation of what Shank presents as his three most serious accusations will be followed by an analysis of his interpretive framework. I plan to show that an a priori rejection of my claims about the importance of the social legitimation of scientific claims and professional roles has lead him to believe that, if my arguments about the relationship between Galileo’s social and cognitive legitimation seem credible, it must be because I have played with the evidence.

1. *Cosimo, Jupiter, and Saturn*

The pivotal point of Shank’s review is that, contrary to my claims, there is no evidence of a link between Jupiter and Cosimo I (the grandfather of Cosimo II, Galileo’s patron) in the mythological narratives developed by the Medici about the allegedly divine connections of their family and the legitimacy of their power. I have argued that the link between Cosimo I and Jupiter was important to Galileo’s dedication of his discovery of the satellites of Jupiter to the Medici, and that it contributed to convincing them that

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² Shank, “Galileo’s Day,” 239.
Galileo was worthy of a court position in Florence, despite the fact that, at the time, the status of his discoveries and of his telescope were still problematic in the minds of many.

The evidence for my claims comes from Giorgio Vasari's mythological iconography which decorated the Apartments of the Elements and the Apartments of Leo X in Palazzo Vecchio—the first Medici court palace.\(^5\) The project, started in the late 1550s, was closely monitored by Duke Cosimo I himself and represented an articulate statement of the legitimacy of the Medici's recently established dynasty.\(^4\) I was introduced to this remarkable iconographical apparatus by the standard work by Allegri and Cecchi on the Medici's restructuring of Palazzo Vecchio. According to these two art historians:

This celebrative and encomiastic project couples Cosimo il Vecchio with Ceres, Lorenzo il Magnifico with Ops, Cosimo I with Jupiter, Giovanni dalle Bande Nere with Hercules, Clement VII with Saturn, and Leo X with the Elements.\(^5\)

Further,

The conception of the iconographical and encomiastic themes shaped by Vasari and Bartoli for the Apartments of the Elements and of Leo X is in constant counterpoint and finds its focal point in the Rooms of Jupiter and of Duke Cosimo, around which spreads the pictorial structure of the palace aimed at carrying the theme of the celebration of the duke who aspires to become the king of all the princes of the world, like the divine Jupiter was the lord of the celestial gods.\(^6\)

My own reading of the iconography and of Vasari's description of the project (published in his *Ragionamenti*) led me to agree


\(^4\) I discuss Cosimo's knowledge of the specific mythological narratives later on in the text. On Cosimo I's direct involvement in the plan for the restructuring of the Palazzo Vecchio, see Giorgio Vasari, *Autobiografia*, reprinted in Paola Barocchi, *Vasari pittore* (Milan, 1964), 105–7. Letters in Vasari's correspondence show that Cosimo was involved even in the minutiae of the work in the apartments, such as ordering special slabs of stone from Milan, asking Vasari and Bartoli for the exact measures of the doors and fireplaces, so that he could provide the material (*Der literarische Nachlass*, 436). Vasari also gave him detailed progress reports about the specific paintings being worked at as well as about the technical details of the infrastructures he was setting up, the masonry work, the woodwork, the problems he was having with certain arches and stairs, and so on. (Ibid., 443–4).


\(^6\) Allegri and Cecchi, *Palazzo Vecchio*, 91 (translation and emphasis mine).
with their claims about the importance of the Jupiter-Cosimo connection, one which Shank dismisses as groundless:

Biagioli infers this Jupiter mythology from the position of the Jupiter Room above the Room of Cosimo I in the Palazzo Vecchio, and from a statement in Giorgio Vasari’s *Ragionamenti* (1558) about the painting upstairs corresponding to those downstairs. But elsewhere in the *Ragionamenti*, Vasari names Saturn as Cosimo I’s planet. Moreover, in this dialogue, far from playing into a preexistent dynastic mythology based on Jupiter, Vasari walks through the Palazzo Vecchio teaching iconography and mythology to Cosimo’s son, Grand Duke Ferdinand, who has no idea what he is seeing when he enters the Jupiter Room. Vasari says nothing about Jupiter when describing the Room of Cosimo I, and nothing relevant about Cosimo I in the Room of Jupiter.7

Shank’s claims seem to follow those of Robert Westman who, in a footnote to a recent article, has also criticized my interpretation of this mythological imagery by stating that,

> The alleged connections between Jupiter and Cosimo I, however, are at best tenuous and at worst nonexistent. *Saturn*, not Jupiter, was Cosimo I’s special planet, as Giorgio Vasari himself states...8

1.1. *The structure and meaning of the Apartments*

Let me begin by analyzing the first part of Shank’s critique where he tries to minimize my evidence about a link between Jupiter and Cosimo by questioning the significance I place on the relationship between the two apartments. Shank claims that all the evidence I have comes from their position and from *one* statement by Vasari. Let me turn to Vasari himself, assuming that Shank will agree with me that we should try to settle our differences only through the primary sources.

At the beginning of the *Ragionamenti*, Prince Francesco walks into the Room of the Elements and exclaims:

> When I remember the unattractive, poorly planned rooms which used to be upstairs and downstairs here, and then see how well you have accommodated these old walls, I am amazed. But when are you going to keep your promise and explain to me the inventions of all these stories which you painted in the upper and lower rooms? Although at times I have heard them discussed in bits and pieces, I would really like one day to hear you, the painter, explain this intricate program in an orderly fashion since, as I have

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he said by the duke my lord, there is an elaborate composition and grand imaginative invention to the work as a whole.\textsuperscript{9}

Vasari responds with a lengthy discussion of how the restructuring of these two apartments epitomizes the very process through which the Medici have reformed the old, decaying, and disorganized Florence into a coherent and content political body. He concludes,

In several places apartments and other useful, lavish quarters were rebuilt according to a new order upon these old bones; and the scattered limbs of these old rooms were converted into a single body. Consistent with the stories painted in the rooms and halls, they were named for the celestial gods upstairs and for the illustrious men of the Medici house downstairs.\textsuperscript{10}

The unity of the project and the structural relation between the two levels is repeated at the beginning of the description of the Apartments of Leo X:

\textit{Vasari}: Since you've come to pass the time looking at the stories painted in the halls and rooms downstairs about the terrestrial gods of the illustrious house of Medici, it seems to me (if it please Your Excellency) that before we go further with our discourse I must explain why we put high up in these rooms the origin and stories of the celestial gods, along with the properties they display according to their nature. It is because those in the downstairs rooms are to follow the very same plan. \textit{There is nothing painted above which does not correspond to what is here below.}

\textit{Francesco}: Do you mean by these stories, then, that the ancestors of our house also partook of the qualities of the celestial gods, as you showed me regarding the duke my lord? This would indeed by a double scheme and I should have thought it sufficient were they to serve only one purpose, let alone many! Certainly, it will be quite an accomplishment. [...]\textsuperscript{11}

\textit{Vasari}: What I am saying is that the uppermost rooms, located near heaven and depicting today the origin of the celestial gods, represent (and, in fact, are) the ultimate heaven of this palace [...] Those who through heavenly gifts have a great effect upon mortals on earth, are called Terrestrial Gods, just as those up in heaven have been called Celestial Gods. We have made every room above correspond in size, plan, and position, to the ones here, as Your Excellency can see from this one, in which all the stories of the Magnificent Cosimo Vecchio de' Medici are painted. In the room above are executed the paintings of Mother Ceres, who is symbolic of Cosimo [il Vecchio] ...\textsuperscript{11}

Vasari then reiterates the point while discussing the decorations of the Room of Lorenzo:

\textsuperscript{9} Vasari, \textit{Ragionamenti} in the English translation provided by Jerry Lee Draper in his \textit{Vasari's Decoration in the Palazzo Vecchio} (PhD. Dissertation, University of North Carolina at Chapel Hill, 1973), 84-5, emphasis mine. Occasionally, I have corrected Draper’s translation.

\textsuperscript{10} Draper, \textit{Vasari's Decoration}, 92.

\textsuperscript{11} Draper, \textit{Vasari's Decoration}, 199–200.
[...] concerning these rooms, you must always keep in mind that everything I did in the rooms upstairs corresponds to what I have done down here. I have organized it this way so that my design should be visible throughout. Each time you enter one of these rooms, Your Excellency, remember this even though I did not first tell you about the stories which are painted in the room above, as I did at the beginning of our discussion of the Room of Cosimo il Vecchio.\textsuperscript{12}

Therefore, not only Vasari’s text provides much more than “a statement about the painting upstairs corresponding to those downstairs,” but it also shows that, according to his grand plan, the correspondence between the rooms of specific gods and specific Medici “heroes” (and thus between Cosimo I and Jupiter) was far from being accidental.\textsuperscript{13}

1.2. Mythologies and competences

Shank then claims that because Vasari’s interlocutor does not seem to be aware of the mythological iconography presented by the painter, these narratives, far from being commonly known, were not familiar even to the Medici themselves. A simple chronology is sufficient to answer Shank’s criticism.

Vasari began to write the \textit{Ragionamenti} around 1558, but the text was completed and published by his nephew in 1588, after the painter’s death. Vasari’s nephew dedicated it to Ferdinand, who was then a cardinal and soon to become Grand Duke Ferdinand I and the father of Cosimo II. However, as shown by the very title of the \textit{Ragionamenti}, Vasari’s interlocutor was not Grand Duke Ferdinand (as Shank alleges) but his brother, Prince Francesco.\textsuperscript{14}

If we couple this piece of information with Vasari’s claim (contained in the same text) that the dialogue took place in 1558, it turns out that Prince Francesco was only seventeen years old at that time.\textsuperscript{15} No wonder he was not familiar with Vasari’s stories!

\textsuperscript{12} Draper, \textit{Vasari’s Decoration}, 253–4. He also makes a related point in his autobiography: “While the rooms upstairs were being painted, the others, which are on the same level of the Grand Hall, were being restructured [murate], and are in a plumb-line relationship to those [above],” Vasari, \textit{Autobiografia}, 106 (translation mine).

\textsuperscript{13} On the gaps between Vasari’s plan and actual performance see Draper, \textit{Vasari’s Decoration}, 30–3.

\textsuperscript{14} The full translation of the title of the book is “Discussions of Giorgio Vasari painter and architect of Arezzo on the inventions painted by him in the palace of Their Most Serene Highness in Florence with the Most Illustrious and Most Excellent Don Francesco Medici then prince of Florence.”

\textsuperscript{15} Draper, \textit{Vasari’s Decoration}, 128.
As made explicit at the very beginning of Vasari’s *Ragionamenti*, the dialogue is between the mature painter and the young prince who, unable to take his afternoon nap because of the heat, entertains himself by checking out what his father’s painters and architects are doing in those cooler rooms.16

Furthermore, had Shank read Vasari’s correspondence, he would have known that Cosimo I was well aware of these mythological narratives. Not only was he meticulously informed by Vasari on the details of the work and the paintings being produced, but there also is evidence that he may have reviewed sections of Vasari’s *Ragionamenti* in draft form.17 In fact, on December 14, 1558, Vasari wrote Bartoli asking him for comments on the draft of the *Ragionamenti* dealing with the rooms of Saturn and Jupiter because he needed to send them to Duke Cosimo.18 A few weeks later, Vasari wrote Cosimo: “I have arranged for a transcription of the dialogue about the rooms upstairs which I wrote in draft form so that Your Excellency could, following your judgment, delete from or add to it.”19 But even without reading Vasari’s letters, Shank could have noticed that Prince Francesco himself, in the second page of the *Ragionamenti*, reports that his father had told him that “there is an elaborate composition and grand, imaginative invention to the work as a whole,” thus confirming the duke’s familiarity with the grand narrative being laid out.20

Shank also has missed the important fact (widely discussed in the literature) that the *Ragionamenti* is a fictional account of a visit that, quite likely, never happened. Vasari organized the narrative around a well-known form of dialogue: that between the inexperienced pupil and his wise teacher. This genre allowed Vasari to sing his own praises by having the young prince express his surprise at and appreciation of the skills and iconographic virtuosity of the painter, thus confirming his desired status as the great Medici “media advisor.” Therefore, even if the real Francesco had

16 Draper, *Vasari’s Decoration*, 84.
17 See note 4.
20 Draper, *Vasari’s Decoration*, 85.
known something about those narratives and had actually discussed them with the painter (which I strongly doubt), Vasari might still have represented him as being ignorant.

1.3. Cosimo and Jupiter

Shank continues by stating that my claim about a link between Jupiter and Cosimo is unfounded because Vasari says “nothing relevant about Cosimo I in the Room of Jupiter." Let’s see if Vasari agrees.

The description of the room starts with Jupiter being born of Ops and Saturn, and with Ops’s successful attempt to hide baby Jupiter from Saturn who (symbolizing the passing of time) had the innate tendency to devour his offspring. While Cosimo’s name is not connected to Jupiter in this first instance, the link is made explicit in the description of the same story in the Terrace of Saturn. There, Vasari argues that Ops,

in order to preserve as long as possible the generation of this most illustrious house, has renewed it until recently in the males of the line of Cosimo il Vecchio, but seeing that none were left in the first branch, she undertook new vigor in the second. Dressed again in the most vivid and clearest of her own colors, she became happily pregnant by Saturn and gave birth to Jupiter, who is likened in these stories, as is appropriate, to the duke our lord [Cosimo I]. After giving birth to Jupiter, Ops gave Saturn a stone instead of Jupiter so that he might not be eaten, which denotes that she had generated something stable and eternal. [...] In the same way our duke, lashed by events unfavorable to his government, endures with the constancy and virtue of his soul, resolving with moderation every dangerous misfortune.

Back in the Room of Jupiter, the narrative continues with the story of baby Jupiter reared by two nymphs, Melissa and Amalthea. According to Vasari, “Melissa stands for Wisdom and Amalthea for Providence, the nurses of our duke.”

The homology between Jupiter and Cosimo I continues with the story of how Jupiter added Capricorn to the zodiacal signs in gratitude to Amalthea (depicted as the goat that nourished him):

[Jupiter] included the goat among the twelve signs of the zodiac, joining to its middle the form of a fish’s tail, with the benignity of the seven stars over its horns [Capricorn was Cosimo’s sign and his most used symbol]. These denote the seven gifts of the Spirit of God which care for the duke, and also the three theological and four moral virtues which he loves so well... Toward

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22 Draper, Vasari’s Decoration, 126–7, emphasis mine.
23 Draper, Vasari’s Decoration, 168, emphasis mine.
these stars also incline the seven planets, which are supporters of the seven liberal arts in which His Excellency takes such delight.24

The rest of Vasari’s text speaks for itself:

Vasari: [...] They have given it the name Capricorn, the sign bestowed by astrologers as appropriate to the greatness of illustrious princes and their descendents. As it was for Augustus, so it is again for our duke Cosimo with the same seven stars. Just as it affected Augustus’s reign over all the world, it is also seen working daily in His Excellency, magnifying him so that he grows in greatness and is all but King of Tuscany. It happened that, against the will and thinking of some individuals, he was made Duke of Florence. In that instance he made use not only of his sign, or animal, but of all forty-eight signs of heaven, that is, the forty-eight citizens who elected him Prince and Duke of Florence after the death of Duke Alessandro.

Francesco: These are indeed great meanings and miracles of God. But what of the shepherd and the oak? Explain their significance.

Vasari: The shepherd represents the good prince [Cosimo], who takes care that his people are well led and governed. As the good shepherd defends his flocks from wolves, so too this prince protects his people from corrupt judges and evil men. The oak as I mentioned stands for strength, since this prince has made the whole state very strong today and makes it more so day by day. Just as Jupiter provided grain for those who were living on acorns, so the duke provides for us today who live with so many pleasures. For this we must give thanks to our great God, who favors us for being obedient to this prince, so that in all times his bees drip honey on us, which comes from the bees born of the oak, as I have painted here. I said above that Jupiter drove his fathers who wanted to kill him from his kingdom. The duke also, helped by the goodness of God, has scattered from his realm the false wolves who have tried to hinder his government, striking the giants, that is, the proud, with lightning. And that they might not move, he buried them under mountains of good works in the greatness of his glory [this is a reference to Jupiter’s defeat of the Titans]. He has constructed grand fortresses throughout his dominion, not only for servants, who derive benefit and honor from living in them. He has always called men of talent to his country, rewarding generously those brave in battle; and he has formed the Order of the Bands for the people of his state, teaching the uninitiated the art of war. He has shown hospitality to all the great lords who have come to visit Florence. He has firmly decided disputes. Those who have brought some innovation or benefit to his city through their industry he has rewarded, and he too has invented many useful things for his people. Indeed he is the ultimate father of all virtue. He has taken the eagle of Jupiter as a sign and omen for destroying his enemies, and it has accompanied his path and embraced his flag, affirming his state and enlarging it greatly.25

(Compare this to what Vasari says about Jupiter early on: “[Jupiter] received as guests all the kings and princes of the people. All those who had disputes came to him, and they were justly decided. He greatly rewarded and cherished those who by their talent invented useful things for mankind. He too was an unequalled inventor for the health and benefit of his people.”26)

26 Draper, Vasari’s Decoration, 166.
Eventually, a pleased but somewhat overwhelmed Francesco interrupts Vasari’s narration to ask about the wedding of Jupiter and Juno, whom Vasari compares to Cosimo I’s wife, Eleanor of Toledo:

Francesco: Tell me the meaning of these six stories. How are they relevant to His Excellency, just as they profited Jupiter?

Vasari: The wedding of Jupiter and Juno, who were born of the same seed so that she was both his wife and his sister, refers to the many marriages which Juno has effected between members of the house of Medici and noble ladies of celebrated houses of equal greatness. From them were born heroes ... and finally the offspring of our duke in a family so honored and beautiful that surely the sons and daughters are models of celestial figures.

Francesco: [...] Let’s turn to the discussion of Europa.

Vasari: I’ll be happy to, my lord. Mercury driving the flocks from the countryside refers to the clever mind of duke Cosimo who took possession of Piombino and did away with the old governments. Then, [Jupiter] having fallen in love with Europa and changed into a bull (that is, as a fierce, spirited, and helpful animal in its maturity), he swam through the sea (that is, through the waves of difficulty) and journeyed with his ships and Europa (that is, with his mind pregnant of ideas) [this refers to Cosimo’s takeover of the Isle of Elba] in order to give birth in that place to the common good, not only for his state, but for the security of those seas and dominion, building there the city of Cosmopolii [Portoferraio].

Francesco: Very good, please go on.

Vasari: Next is Jupiter’s division of the sky, in which he took the greatest realm of the three. Similarly, our duke has taken the government of the state of Florence in order to make you prince and duke over it, so that after him you may show the virtue of your soul worthy of so honored and rich a present. That you may begin soon, he will give you dominion over Siena. By that grace which rains from heaven, ecclesiastical matters will be sustained by Don Giovanni, those of the sea by Don Garzia. And the rest of the kingdoms which are acquired will be bestowed upon your illustrious brothers. Much as Jupiter gave other reigns to his relatives and friends, your great father, no less virtuous, has been similarly generous in giving away many places to his friends....

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27 Draper, Vasari’s Decoration, 171.
*Francesco:* Everything you say is quite true. Now return to the story of Danae.

*Vasari:* The reference here, my lord, is to those who are persuaded to do the duke’s will by the kindness and the generosity he shows through gifts and gold.

*Francesco:* What is the meaning of the sacrifice which follows?

*Vasari:* It refers to the public sacrifices which our duke makes to acknowledge and thank God after victory in war.28

These passages are not from the description of the Room of Cosimo I, but from that of the Room of Jupiter. Please recall that, according to Shank, Vasari says “nothing relevant about Cosimo I in the Room of Jupiter.”29

The connection between Jupiter and Cosimo continues in Vasari’s description of the Terrace of Juno, which Shank has also overlooked. Juno was the wife of Jupiter, and Vasari explicitly associates her with Cosimo I’s wife, Eleanor of Toledo, whose room is right below the Terrace of Juno. As they enter the room, Vasari explains to Prince Francesco that he is looking at “a beautiful statue of Juno. It is she who provides the subject for this terrace, a subject which could not be left out because, to begin with, now that we have dealt with Jove, symbolizing our duke, we must next deal with Jove’s wife symbolizing our very illustrious duchess.”30

Vasari then reinforces the link between Eleanor and Juno:

As you know, Your Excellency, Ops and Saturn gave birth to Jove and Juno, who was both sister and wife to Jove. This may be applied to the like spirits of the duke your father and the illustrious duchess your mother. Like Juno, goddess of air, riches, kingdoms, and weddings there was never a lady among the mortals more serene.31

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29 Shank, “Galileo’s Day,” 240. I agree with Shank’s claim about the lack of explicit references to Jupiter in the Room of Cosimo I. However, what Shank has noticed is a pattern displayed by all the rooms downstairs, not just Cosimo’s. In fact, while there are many references to Medici “heroes” in the rooms of gods related to them, the opposite is seldomly true. Of course, this does not mean that the two apartments were unrelated, as Vasari tells Francesco that “concerning these rooms, you must always keep in mind that everything I did in the rooms upstairs corresponds to what I have done down here. I have organized it this way so that my design should be visible throughout. Each time you enter one of these rooms, Your Excellency, remember this even though I did not first tell you about the stories which are painted in the room above…” (Draper, *Vasari’s Decoration*, 253–4). Simply, Vasari used the apartment upstairs as providing the background mythological referent to the historical narratives below.
31 Draper, *Vasari’s Decoration*, 181. Vasari continues to compare Eleanor and Juno and claims that “… Her Excellency seems to be Juno in person.” Ibid., 182. See also pp. 183, 185.
1.4. Cosimo and Saturn

According to Shank, the link between Jupiter and Cosimo is unsupported by the evidence I have just presented, and that, instead, "Vasari names Saturn as Cosimo I's planet."32 Both Shank and Westman cite the same line from Vasari: "I say that because Saturn is the planet of Duke Cosimo..."33 However, they forget the rest of the sentence. If we resurrect the missing section, the whole passage reads: "I say that because Saturn is the planet of Duke Cosimo (as previously stated) and the father of Jupiter, it follows that Ops is His Excellency's [Cosimo I's] mother, as he [Saturn] is his father as Time..."34 Rather than refuting my argument, Vasari's passage, if left unedited, says that Saturn is Cosimo I's planet in the specific sense that he is his father qua Time—a statement that strengthens the analogy between Jupiter and Cosimo as the two are presented as having the same father and mother.

Furthermore, the one passage cited by my critics does not propose a relationship of analogy between Cosimo I and Saturn, but simply refers to an important feature of Cosimo's horoscope: Saturn was the lord of the Capricorn ascendant in Cosimo's natal horoscope.35 The rest of this section of the Ragionamenti (which is about Ops) says nothing about Cosimo being Saturn-like, but actually says that Cosimo's well-known proclivity to help his people reminds one of his mother's (Ops's) virtues.36

That Cosimo was associated with Saturn by a somewhat tense genealogical connection rather than by a relationship of analogy is confirmed by the story of the birth of Jupiter of Ops and Saturn cited earlier.37 There, you may recall, Vasari described how Saturn

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33 Shank, "Galileo's Day," 242, note 4; Westman, "Two Cultures," 103. The translation is mine as both Shank and Westman leave the quote in the original Italian: "Dico che essendo Saturno pianeta del duca Cosimo..."
34 Milanesi, Le opere, 8:46 (translation mine). The original Italian reads: "VASARI: Dico che essendo Saturno pianeta del duca Cosimo, come s'e' gia' detto, e padre di Giove, viene cosi' come Opi e' madre di S.E., cosi' lui per il tempo padre...."
35 Janet Cox-Rearick, Dynasy and Destiny in Medici Art (Princeton, 1984), 276.
36 Draper, Vasari's Decoration, 138.
37 "Dressed again in the most vivid and clearest of her own colors, she [Ops] became happily pregnant by Saturn and gave birth to Jove, who is likened in these stories, as is appropriate to the duke our lord [Cosimo I]. After giving birth to Jove, Ops gave Saturn a stone instead of Jove so that he might not be eaten, which denote that she had generated something stable and eternal... In the same way our duke, lashed by events unfavorable to his government, endures with the
tried to kill and eat his son Jupiter (whom the painter explicitly likened to Cosimo). Most of the time, the genealogical link between Saturn and Cosimo is cast in astrological terms through the relationship between Cosimo and Capricorn (and Saturn as the lord of Capricorn):

Francesco: ... But tell me, I see the ball [a reference to the palle of the Medici coat of arms] of the Earth inside a great sphere. I also notice that Saturn touches the sign of Capricorn in the zodiac with the lower hand holding the scythe. What do these mean?

Vasari: Capricorn, as your excellency knows, is a cosmic body, which is also called the World by astrologers. This is precisely the name of our duke [a play on Cosimo-Cosmos], who was made lord of this State. Saturn, his planet, touches his Capricorn ascendant, and by their aspects they cast benign light on the globe of the Earth, especially on Tuscany and its capital, Florence, which today is ruled by His Excellency with such intelligence and justice.38

To summarize, Cosimo is explicitly identified with Jupiter while Saturn is presented as his mythological father and as the planet who ruled his natal horoscope, that is, as he who generated him but also created all the political dangers Cosimo had had to face during his life. This interpretation fits quite well both with the features of the mythological Saturn and with the histories of the house of Medici and of Cosimo’s troubles. As Time, Saturn eats up his offspring but also keeps generating them; he symbolizes the cycle of life and the struggles of history. The house of Medici, on the other hand, had always faced the risk of both genealogical and political extinction: "... we can say that the great heroes of your most illustrious house were always born of Ops and then, eaten by Saturn, they died."39 Similarly, it is this ongoing fear of extinction that Vasari addresses in the passage cited earlier about Ops revitalizing the house of Medici by delivering Jupiter/Cosimo I to a secondary branch of the family. However, with Cosimo I the Medici seemed able to stabilize both their rule and their dynasty. Saturn gave them grief, but (through Ops) he also gave them good fortune. Cosimo’s rule marked the Medici’s return to power, one which was made possible by Saturn (but also necessary by his eating up the previous Medici “heroes”). In short, Saturn is a symbol of the Medici’s destiny.

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constancy and virtue of his soul, resolving with moderation every dangerous misfortune." Draper, Vasari’s Decoration, 126–7.

38 Draper, Vasari’s Decoration, 100.

39 Draper, Vasari’s Decoration, 126.
If Shank were correct about Cosimo being identified with Saturn, one would expect to find plenty of evidence about it in the Terrace of Saturn. Not only we find nothing of the kind, but there Vasari says that Jupiter (not Saturn) “is likened in these stories, as is appropriate, to the duke our lord.” In fact, the Terrace of Saturn is set in relation to the Room of Clement VII (not of Cosimo I), and the vicissitudes of Saturn’s reign painted in it are related to a range of scattered events that, despite Vasari’s skills, do not seem to produce a very coherent mythological narrative. Saturn’s arrival in Italy after being exiled by Jupiter is linked to his encounter with Janus and the subsequent founding of Saturnia (and maybe of Rome itself). A few pages later, Saturn’s exile to Italy is also likened to the exile of Pope Clement (whose room is downstairs) who, after having joined Emperor Charles V (who seems to be compared to Janus) was able to re-establish the Medici rule through Alexander de’ Medici as the first duke of Florence, thereby setting the stage for the later dynastic developments.42 The Golden Age is related to Saturn’s rule (with Janus) over Latium after his exile, but it is also likened to the prosperous, though short, periods experienced by Florence under the rule of Cosimo il Vecchio, during the pontificate of Leo X, under Duke Alexander, and during the rule of Cosimo I until the war with Sienna. At one point, the return of the Golden Age is compared by Vasari to the Medici’s return to power via Charles V, but the possible analogies between Saturn, Ops, Jupiter, Charles V, Alexander, Cosimo are far from clear. The only brief reference to Cosimo as Saturn in the Terrace of Saturn is this:

To have Chiron [the centaur] born of Fillira [by Saturn] so that he should teach Achilles, who was consigned to his care by Thetis, may be applied to the serious thoughts which move our duke to have Your Excellency diligently instructed by worthy men full of science and good teachings.44

The only other passage I have found in Vasari which draws an analogy (rather than a genealogical relationship) between the two is from the Room of the Elements:

For just as the people present the first fruits of the earth to Saturn, so will our duke’s subjects come at all times bearing their hearts and their deeds to

40 Draper, Vasari’s Decoration, 126.
41 Draper, Vasari’s Decoration, 123–4.
42 Draper, Vasari’s Decoration, 127.
43 Draper, Vasari’s Decoration, 124.
44 Draper, Vasari’s Decoration, 132.
give him tribute of their souls and substance in his need. And in every season he will keep the country in abundance, or if it is lacking, he will make the shepherds of the sea and the tritons come carrying wood nymphs; that is, he will commission full ships and galleys, bringing provisions and merchandise of every kind from plentiful places in order to keep the entire state of Florence and Siena very prosperous.  

In sum, a comprehensive reading of Vasari’s *Ragionamenti* demonstrates that the imagery of the early Medici court did not articulate a relationship of analogy between Saturn and Cosimo, but represented the two as linked by a father-son relationship which was usually coded in astrological terms. On the contrary, Vasari’s narratives repeatedly identified Cosimo with Jupiter.

1.5. Resources and causes

Now that I have provided an empirical response to Shank’s criticism, I would like to shift gear and take a short methodological detour before I return to the rest of his claims.

As mentioned, the connection between Cosimo and Jupiter is important to my argument as I claim it provided Galileo with a way of enhancing the significance of his discoveries in the eyes of the Medici. My argument is about the *possibilities* of matches between what Galileo could produce or discover and the “valence” of Medici patronage as it was shaped by the narratives they had spun about themselves. The possibilities for matches (and mismatches) were many. For instance, in Chapter 2 of *Galileo Courtier*, where I discuss Galileo’s use of the Cosimo-Jupiter analogy, I also show that he had already tried his hand at this game by representing the lodestone he had bought for Cosimo as an emblem of the Medici rule through a “magnetic” reinterpretation of the Cosimo-cosmos topos—an image which was repeatedly discussed by Vasari.  

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45 Draper, *Vasari’s Decoration*, 115–6. I strongly disagree with Janet Cox-Rearick’s statement that “The Sala degli Elementi is the first of the rooms and the only one in the Quartiere degli Elementi which is marked as referring personally to Cosimo” (*Dynasty and Destiny*, 276). Although I respect her scholarship, this specific claim of hers does not match Vasari’s own description of the Room of the Elements. Such an exaggeration might be the result of her primary focus (which is not the two apartments but the astrological imagery of early Medici art). Following this specific research agenda, she does not analyze the apartments as a whole, but deals only with the evidence pertinent to her project. Consequently, she may have overemphasized Vasari’s discussion of the astrological links between Cosimo and Capricorn (and Saturn via Capricorn) as epitomizing the room itself. However, her emphasis is clearly not Vasari’s.
in his *Ragionamenti*. However, on that early occasion, Galileo’s tactics were only mildly successful.\(^{46}\)

Shank, however, does not recognize that my argument is about *possible* relationships (some contextually more powerful or viable than others). On the contrary, he seems to attribute me the much narrower beliefs that: a) the Cosimo-Jupiter connection *ruled out any other*, and that: b) such a connection played a *causal* role in Galileo’s success (as when he says that “this pre-existent ‘Jupiter mythology’ allegedly motivates Galileo’s patronage strategy, and *explains* Cosimo’s appointment of him as court mathematician and philosopher.”)\(^{47}\) Let me discuss these two points as they provide important evidence about Shank’s interpretative framework.

*a*) I believe that had Galileo found satellites orbiting Saturn rather than Jupiter, he would have wasted no time resurrecting the astrological link between Saturn and Cosimo to argue that his discovery of the satellites of Saturn was an evident sign of the return of the Golden Age in Tuscany. In fact, he might have continued, Saturn was a symbol of the Medici destiny, and it could not have been accidental that such a discovery had taken place right at the time when the new grand duke had reached the throne, thereby demonstrating the longevity of the dynasty and the unfolding of their glorious destiny. And, perhaps, this omen indicated that Galileo himself, whose discoveries had announced the return of the Golden Age, should be allowed to return to his native Florence, etc… With sharp wits and a good iconographic database, one could articulate these mythological narratives in many convenient directions. It was precisely because of their flexibility that they played such a central role in court culture.

In fact, I have not claimed that Cosimo was compared exclusively to Jupiter, but simply that the Cosimo-Jupiter correspondence was central to Vasari’s project. As shown by the *Ragionamenti*, the painter surely would not pass on a good chance to flatter his prince by likening him also the Ganymede, Ceres, Ops, Saturn, Hercules, Vulcan, Astrea, Mercury, Pluto, Mercury, Cybele, and other mythological figures. Therefore, the issue is not the exclusivity of the Jupiter-Cosimo association, but the level of its articulation and its structural role within the whole apparatus. Shank

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\(^{47}\) Shank, “Galileo’s Day,” 240, emphasis mine.
would have had a point only if there were no sustained narratives about Cosimo qua Jupiter in Vasari which, as I have demonstrated, was not the case.

b) In Chapter 2, I treat the Jupiter-Cosimo connection as a crucial resource for, but not as the cause which “explains Cosimo’s appointment of him as court mathematician and philosopher.” By themselves, Cosimo’s iconography or Galileo’s representation of his discoveries as Medicean Stars did not have the power to convince viewers or readers that Cosimo was an absolute ruler or that Galileo ought to be the philosopher and mathematician of the grand duke. These images neither created power ex nihilo, nor were they mere envelopes for power statements. Instead, they were “political speeches”—speeches uttered from a position of pre-established authority and aimed at enhancing that authority vis-à-vis a specific audience. For instance, in that same chapter I discuss the background work Galileo had already done to place himself in a position of relative authority from which he could effectively make use of that imagery. Then, I spend several pages showing that the publication of the *Sidereus nuncius* and his celebration of the “Medicean Stars” were still insufficient to secure him the much-desired position of philosopher and mathematician of the grand duke. That was a great start, but more work and resources (like Kepler’s endorsement of his discoveries) were needed to get the job done.

Putting a) and b) together, I think that by reading my argument in causal terms Shank is led to believe that the monicausal inference he seems to see at the core of my argument could hold only if these mythological associations were mutually exclusive. Consequently, he may assume that one reference (seriously edited and read out of context) about Saturn being Cosimo’s planet is enough to refute my “causal” explanation of Galileo’s success based on the Jupiter-Cosimo link. In short, there may be a symbiotic relation between Shank’s causal outlook and his “essentialist”

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51 References to my claims as “inferences” are in Shank, “Galileo’s Day,” 239, 240. That these two references are not accidental is confirmed by the internal structure of his various critiques.
reading of the original sources: \textit{stripped arguments are refuted by stripped evidence.}

If my argument is not based on an inference from one or more causes it is because that's not how court imagery works. As Vasari put it, his stories were articulated in a way which resembled poetry rather than philosophy.\textsuperscript{52} It is the historian's task to reconstruct such a "poetic logic." For instance, that Cosimo could be linked both to Jupiter and Saturn (in different ways and with different emphases), does not mean that these associations were too fluid to be meaningful or that Vasari's narratives were simply inconsistent. Such a reading would result only from a perspective which attributes law-like status to isolated statements and then sees anomalies to those "laws" everywhere. A much different picture emerges once we understand the \textit{genealogy} of these associations within the process that developed and used them.

Far from being timeless statements, dynastic mythologies changed in time so as to maximize the match between the ruler's \textit{gestae} and those of mythological gods, or to represent his achievements as the "natural" outcome of his fate (as ruled by divine connections, astrological dispositions, or both). Cosimo was not always Jupiter, but he represented himself as such only toward the end of his rule, that is, when his political achievements allowed him to represent himself as Jupiter-like. When he became duke of Florence in 1537, he was just an inexperienced eighteen-year old from a secondary branch of a badly shaken dynasty whose last leader had been murdered by an ineffective political opposition. That Cosimo would last and become "Jupiter" was, at best, a bet. Not surprisingly, at the beginning of his rule the Medici artists celebrated Cosimo by stressing his illustrious \textit{ancestry} and the glory which \textit{awaited} him as his fate. Similarities between his horoscope and that of Augustus and Charles V (via Capricorn, Saturn, and Mars) served this purpose very well.\textsuperscript{53} In short, at this point in time Cosimo was celebrated for his links to the past and for the future which awaited him, not for his minimal achievements. As his political and military feats multiplied and allowed him to stabilize his rule, develop an absolutist regime, and unify most of Tuscany, he became increasingly Jupiter-like. However, Cosimo did not drop older astrological narratives that could still serve him

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\item \textsuperscript{52} Draper, \textit{Vasari's Decoration}, 95.
\item \textsuperscript{53} Cox-Rearick, \textit{Dynasty and Destiny}, 258-69.
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well in the new context, as they could be used to confirm that he had become precisely what the stars wanted him to become all along. Similarly, Saturn did not disappear, but was recast as the father of Cosimo-Jupiter.

Consequently, one should read these mythological associations like a paleontologist who evaluates similarities and differences between fragmentary fossil evidence also by reconstructing the genealogical process which may (or may not) have linked the species that left those fossils behind. Like species, mythological imagery evolved in relation to changing circumstance and power scenarios. Instead, by following inferential logic rather than genealogical processes, Shank misses the features that ought to guide the assessment of contextually relevant similarities, and ends up either mixing dogs and dinosaurs (as in the case of Jupiter and Saturn) or finding “nothing relevant about Cosimo I in the Room of Jupiter.” As I hope to show later, his dismissal of my claims about the role of the social legitimation of scientific claims and socioprofessional identities may be structured by the same kind of reasoning.

2. Galileo, Grassi, and the “fable of sound”

Shank sees my interpretation of a passage in Galileo’s Assayer—the so-called “fable of sound”—as the second most problematic section of my book. To him, it exemplifies both my tendency to play with the evidence as well as the limits of my attempt to present some aspects of Galileo’s science as courtly.

In the Assayer, Galileo tells the story of a man who, in the process of investigating the cause of a certain sound, finds that nature is able to produce it through a variety of very different means. As his inquiry proceeds, he comes to believe that he may be able to find the one true cause of the sound, not just its many manifestations. Eventually, he comes upon a cicada and thinks that the shaking of certain hard ligaments in its chest may be the cause he was seeking. However, as he tries to break the ligaments to stop the sound and prove his hypothesis, he kills the cicada without solving the puzzle.

I have read this as a moral tale through which Galileo criticizes the wrong-headed method of pedantic thinkers who do not accept nature’s ability to produce a given phenomenon through a

54 Shank, “Galileo’s Day,” 240, emphasis mine.
variety of means. Instead, they stubbornly seek positive knowledge even when the available evidence makes that feat hopeless. Unsatisfied with interesting hypotheses, these people pursue proofs but end up only killing cicadas. I have argued that Galileo presents this tale as the epitome of Grassi’s dogmatic attitude during the dispute on comets. Since courtiers viewed dogmatism and pedantry as unacceptable, Galileo’s representation of Grassi as a dogmatic thinker was aimed at discrediting him in the eyes of the Roman courtly and gentlemanly audience for which the Assayer, I argue, was primarily written.

Shank strongly disagrees, claiming that I give “the fable an indefensible interpretation by turning a deaf ear to obvious clues in the text and in its immediate literary context,” thus “misread[ing] the fable as Galileo’s critique of Orazio Grassi.”55 According to him, I miss the fact that “Galileo’s characterization of the protagonist (as possessing ‘extraordinary curiosity and a very penetrating mind’) clashes with the unflattering traits Galileo sees in Grassi.”56 Because of the positive features Galileo attributed to the man in the fable, Shank believes that my interpretation should be turned upside down, and that Galileo (not Grassi) should be identified with the cicada killer. Let me demonstrate that my interpretation is based precisely on the “immediate literary context” I am accused of disregarding, and that Galileo’s praise of the man’s curiosity does not undermine my interpretation but actually supports it quite nicely.

The sentence immediately before the fable of sound reads as follows:

Long experience has taught me that with regard to intellectual matters, this is the status of mankind: The less people know and understand about such matters, the more positively they attempt to reason about them, and on the other hand the number of things known and understood renders them more cautious in passing judgments about anything new.57

Clearly, Galileo introduces the fable as an example of how somebody who, precisely because he knows little, tries hopelessly to make definite statements about what he cannot know. These are the traits he explicitly attributes to Grassi. Throughout the Assayer, Galileo argues that the available evidence on comets is in-

sufficient to make positive statements about their nature and carefully casts his claims as hypotheses. Instead, Grassi, far from entertaining Galileo’s interesting hypotheses about how nature may produce comets, consistently reads them as positive statements about how nature does produce comets, and then faults Galileo for not proving his claims. This is what Galileo writes two pages before the fable of sound:

Neither Sig. Mario [Guiducci] nor I ever wrote that fuming vapors rise from some parts of the earth to the moon... What Sig. Mario did write is that he does not consider it impossible that sometimes there may be raised from the earth exhalations and other such things so much subtler than usual that they would ascend even to the moon, and might be material for the formation of a comet [i.e., that nature has the power to produce the phenomenon of comets that way too]; and that sometimes there occur unusual sublimations of the twilight material, as exemplified by the aurora borealis. But he does not say that this is identical with the material of comets... Likewise, straight motion is attributed to the same material only with probability and not with certainty. This is said not to retreat in fear of Sarsi’s objections, but merely to let it be seen that we are not departing from our custom of declaring nothing as certain except what we know beyond doubt...58

The same line of argument informs the previous two pages:

[...] now it seems to me that he [Grassi] proceeds to shape conclusions in order to oppose them as ideas belonging to Sig. Mario and me, though they are quite different from those set forth in Sig. Mario’s Discourse, or at least differently construed. That the comet is beyond doubt a mere image has never been positively affirmed; it has merely been raised as a question... Here are Sig. Mario’s words in this connection: “I do not say positively that a comet is formed in this way, but I do say that just as there are doubts about this, so there are doubts about the methods used by other authors...” With similar distortion, Sarsi [Grassi] represents us as having definitely declared that the motion of the comet must necessarily be straight and perpendicular to the earth’s surface, something which is not proposed in that way but is merely brought under consideration in that it would explain the changes observed in the comet more simply and in better agreement with the appearances.59

Three pages before the fable of sound, Galileo criticizes Grassi for the overconfidence he displays in his own beliefs about the nature of comets—a type of arrogance predicated on the disregard of nature’s ability to produce a given phenomenon in a variety of ways:

... [Grassi] says that to anyone who had once looked at the comet no other argument would be necessary to prove the nature of its light; for compared with other true lights it showed itself only too clearly to be true and not spurious... I confess that I do not have such a perfect discriminatory faculty...

59 Galilei, Assayer, 231.
Galileo’s criticism of Grassi in this passage closely resembles his argument against the methodology of the man in the fable. Like that man who believed he had found the true cause of a given sound, Grassi believes he has figured out the true nature of the comets. Galileo, instead, represents himself as somebody who knows nothing final about comets, but is content to realize that nature can produce that phenomenon in many different ways. Although, unlike Galileo, Grassi and the man of the fable do not stop at hypotheses, they still do not achieve the positive knowledge they seek. The man of the fable kills the cicada and learns nothing about sound, while Grassi “kills” Galileo’s hypotheses (i.e., views of the various ways in which nature could produce comets) but gains no true knowledge of the nature of comets. It is in this sense that the man in the fable ends up behaving like Grassi, that is, as what I have called a “philosophical brute.” How Galileo, in the context of this argument, could possibly identify himself with the man of the fable (as Shank claims) is something I cannot understand.

By ignoring this evidence (and my argument), Shank does not understand the features of Grassi and the man in the fable that Galileo saw as homologous. By missing the fact that the analogy I drew between the two was at the level of their method and of their results, Shank thinks I am talking about character. Consequently, he assumes that Galileo’s appreciative remarks about the man’s curiosity refute my argument. The man in the fable was probably a nice person, but, in the end, he did behave as a “philosophical brute.” Ask the cicada.

Let me now show how Galileo’s remarks about the character of the man in the fable can be easily explained within my interpretive framework. The man in the fable behaves like Grassi during his inquiry into the causes of sound. However, whereas Grassi learns nothing from his mistakes and is represented as an

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60 Galilei, Assayer, 231.
unreformed pedant throughout the book, the man of the fable seems shocked by the death of the cicada and by the realization of his cognitive failure, events that force him to rethink his approach: “Thereupon [the cicada’s death] his knowledge was reduced to such diffidence that when asked how sound are generated he used to reply tolerantly that although he knew some of the ways, he was certain that many more existed which were unknown and unimaginable.”61 Not surprisingly, Galileo describes him as eventually coming to his methodological senses and endorsing the position Galileo had been championing all along in the Assayer. Therefore, Galileo may have made some complimentary remarks about him because he eventually redeems himself, turns around, and becomes an ally. Additionally, Galileo’s depiction of that man as somebody who eventually “saw the light” might have been a rhetorical strategy to allow some readers previously sympathetic to Grassi to switch to Galileo’s camp without losing face.

Shank further misreads my book when he claims that: “Astonishingly, Biagioli does allude to Galileo as the protagonist of the fable at the end of Chapter 6—but now it is in his own insightful, ironic inversion of his original misinterpretation.”62 What Shank takes to be a much needed, if late, conversion never happened. He refers to a section of Chapter 6 that deals with Galileo’s trial. There I suggest that Galileo’s Dialogue may have been read by Pope Urban VIII not as an endorsement of a hypothetical view of scientific knowledge (as reflected in the Assayer), but rather as a text that, behind the facade of a hypothetical argument, was actually trying to prove that Copernican astronomy was physically true. The problem I was addressing was why Urban, who liked the Assayer so much, was then enraged by the Dialogue to the point of initiating the proceedings that led to the trial of 1633. I have tried to explain this shift as follows: “By insisting on seeking the final proof of the Copernican doctrine, Galileo was behaving [in Urban’s eyes] like the man he had poked fun at in the fable of sound for transfixing the cicada.”63 Clearly, I am not identifying Galileo with the man in the fable of sound, but I am simply suggesting that Galileo’s epistemological position in the Dialogue (but

61 Galilei, Assayer, 236.
63 Biagioli, Galileo Courtier, 352.
not in the Assayer) may have been seen by Urban (not by Galileo) as similar to that of the man in the fable.

3. The “shield of truth”

The third major point of Shank’s critique is that, after quoting a passage from Galileo’s *Discourse on Floating Bodies*, I paraphrase it a few lines later in ways that completely subvert its meaning. I will not comment on Shank’s perception of the relevance of this passage to my thesis, but will limit myself to a discussion of the evidence itself. Here is the passage from Galileo:

Most Serene Lord, I have taken the trouble (as your Lordship has seen) to keep alive my true proposition, and along with it many others that follow therefrom, preserving it from the voracity and falsehood overthrown and slain by me. I know not whether the adversaries will give me credit for the work thus accomplished, or whether they, finding themselves under a strict oath obliged to sustain religiously every decree of Aristotle (perhaps fearing that if disdained he might invoke to their destruction a great company of his most invincible heroes), have resolved to choke me off and exterminate me as a profaner of his sacred laws. In this they would imitate the inhabitants of the Isle of Pianto when, angered against Roland, in recompense for his having liberated so many innocent virgins from the horrible holocaust of the monster, they moved against him, lamenting their strange religion and vainly fearing the wrath of Proteus, terrified of submersion in the vast ocean. And indeed they would have succeeded had not he, impenetrable though naked to their arrows, behaved as does the bear toward small dogs that deafen him with vain and noisy barking. Now I, who am no Roland, possess nothing impenetrable but the shield of truth; for the rest naked and unarmed, I take refuge in the protection of Your Highness, at whose mere glance must fall anybody who—out of his mind—imperiously attempts to mount assaults against reason.64

My focus here was on the tension between Galileo’s assertion that he had the “impenetrable shield of truth” (i.e., that his claims about buoyancy were true), and his simultaneous awareness that his shield, while preventing him from being killed, did not seem to be enough to end the dispute since his adversaries kept attacking him. As he put it, he was “for the rest naked and unarmed.” This fits well with my argument that in a social system of science in which the practitioners had few institutionalized protocols to resolve disputes and adjudicate claims, the prince’s intervention

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may have been a crucial factor in ending a dispute, especially when all those involved were his clients. I concluded,

... Galileo indicated explicitly that the only possible way out of a situation rendered irrational by "those fanatics" was to be given the "power of impenetrability" by Cosimo, so that—like the bear that ignores the puppies barking around—he could dismiss the enemies and walk away.65

Please note that I bracketed "power of impenetrability" by my own quotation marks, and did not present the phrase as a quote from Galileo (which clearly it is not). Simply, I used "power of impenetrability" as my own short-hand designator of what I think Galileo saw as the grand duke's much-needed intervention to close the dispute and allow Galileo to end his "nakedness." Perhaps I could have used "power of dismissal" instead of "power of impenetrability," but that would have changed nothing of my argument—an argument that was about how one's claims (seen as true by the person who held them) would acquire public legitimacy in a patronage environment through the endorsement of the princely patron. But look at Shank's reading of my passage:

In Chapter 4, on a point of central importance to the relation of social and epistemological legitimation, Biagioli makes Galileo say the opposite of what he meant. Addressing the Grand Duke, Galileo writes (Biagioli's italics): "I ... possess nothing impenetrable but the shield of truth; for the rest naked and unarmed, I take refuge in the protection of Your Highness." Six lines later, Biagioli paraphrases the passage by saying that Galileo's "only possible way out... was to be given the 'power of impenetrability' by Cosimo." But no; Galileo insists that the "shield of truth" gives him impenetrability; he asks Cosimo to take care of "the rest."66

Shank misreads both the "immediate literary context" of my argument as well as the entire chapter (which specifically addresses the role of the patron in providing "the rest"), and consequently takes a short-hand designator (which I put in quotation marks) as an untenable paraphrase of Galileo's text. He then goes on to state that:

This misreading is strikingly consistent with Biagioli's decision on the same page to cut off Galileo in midsentence, as he was about to say: "and this I do with the invincible shield of truth, demonstrating that what I have asserted in the past was and is absolutely true..."67

As shown by the long passage I have quoted both here and in the book, I was not editing out any relevant evidence, because

65 Biagioli, Galileo Courtier, 229–30.
Galileo repeats the *same* topos of the “shield of truth” with the same clarity and emphasis in the long passage that I did reproduce. Furthermore, what I did not include does not undercut my argument in the least, for my claim is that what Galileo saw as his “invincible shield of truth” was not *irrelevant* but simply *insufficient* to bring the dispute to an end without Cosimo’s intervention.

4. The erasure of process

Rather than discussing all of Shank’s remaining smaller points, I want to use a few of them to elaborate on my earlier remarks about his tendency to cast my arguments as causal ones, and to read the original sources in a selective and “essentialist” manner.

a. Social legitimation of knowledge

Several of Shank’s critical remarks reflect a systematic dismissal of the process I see linking cognitive and social legitimation. He seems to assume that the legitimation of claims cannot be the result of a *process*, because true statements carry within themselves the *causes* of their own eventual acceptance. Consequently, he rules out that patronage may have played a role in the legitimation of Galileo’s claims (as they were already legitimate) or in motivating his career (as all his motives came directly from his belief in the truth of his claims). Galileo “had legitimacy; he wanted recognition.”

Because of this outlook, Shank dismisses my discussion of the modalities of the *interaction* between cognitive and social legitimation (or between scientific commitments and patronage concerns) and casts me either as somebody who simply conflates the two, or who believes that the acceptance of a claim is ultimately effected by extra-scientific *causes*. As he puts it: “the expression ‘social and epistemological legitimation’ frequently occurs as a unit,

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68 If statements can singlehandedly cause actions, then the context of their production and deployment may seem unessential to explain such results.

69 “The asymmetries and contrasts between mathematics and philosophy that purportedly motivate Galileo’s social and epistemological ascent are largely artefacts of several authorial decisions.” Shank, “Galileo’s Day,” 237, and “This pre-existent ‘Jupiter mythology’ allegedly motivates Galileo’s patronage strategy, and explains Cosimo’s appointment of him as court mathematician and philosopher.” Shank, “Galileo’s Day,” 240, emphases mine.

70 Shank, “Galileo’s Day,” 257.
as if the two processes were one," and "where the patron does not legitimize, there is no legitimacy: where he does ... it is on patronage grounds."71

That Shank's rejection of my argument rests on a priori assumptions rather than empirical considerations is supported by the fact that he does not challenge my analysis of disputes in which Galileo's arguments or evidence alone were not sufficient to win the assent of the audience he was addressing, nor does he ever spell out how what he sees as Galileo's pre-existent "legitimacy" could have resolved those deadlocks. Simply, his review contains no discussion of scientific arguments. The same a priori commitments may be behind his quick and complete dismissal of Chapter 4 where, through a partial reinterpretation of a longstanding debate about the place of incommensurability in the process of scientific change, I present in some detail my views about the process linking cognitive and social legitimation. Shank simply claims that the entire chapter is replete with "jargon" and that its argument is nothing but "an attempt to recast the reductionism of the previous chapters into linguistico-philosophico-anthropological terminology."72

The rejection of social legitimation structures also his critique of my claims about the cognitive and social hierarchy between mathematics and philosophy, the overcoming of which was, in my view, one of Galileo's ongoing concerns. I argue that Galileo's move to court and the adoption of a courtly style were also aimed at developing a new, socially powerful audience whose support would have allowed him to legitimate telescopic evidence, Copernican cosmology, and, more generally, the mathematics-based natural philosophy he was proposing. Instead, Shank believes that "The asymmetries and contrasts between mathematics and philosophy that purportedly motivate Galileo's social and epistemological ascent are largely artefacts of several authorial decisions."73 Shank's inference seems clear: if the hierarchy between mathematics and philosophy does not exist, then my claim about the importance of social legitimation to overcome that hierarchy is

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71 Shank, "Galileo's Day," 236, 237. Elsewhere he restates the point: "Unlike Biagioli's Galileo, for whom social and epistemological legitimation have merged, the historical Galileo of his text sees a distinction between truth and Cosimo.", Shank, "Galileo's Day," 241.
72 Shank, "Galileo's Day," 237.
73 Shank, "Galileo's Day," 237.
empty. Also, if that hierarchy does not exist, Galileo’s actions cannot be said to have been driven by a desire to overcome a gap that was epistemological and social at the same time, but only by the truth of his beliefs.74 Social and scientific ambitions would not mix.

My first allegedly tendentious “authorial decision” was not to consider Galileo’s work on mechanics (which I deal with only in the context of the dispute on buoyancy). Shank believes that, had I looked more carefully at Galileo’s mechanics, I would have understood that “in Galileo’s own mind, it was precisely this natural philosophical work that made him worthy of the title of granducal philosopher: he had ‘studied more years in philosophy than months in pure mathematics,’ as he wrote in 1610 to Belisario Vinta, the Medici secretary of state.”75

The relationship between this sentence and the argument it purports to refute is a mysterious one. Shank’s claim indicates that Galileo’s work in mechanics (which fell into the category of mixed, not pure, mathematics) and his investigation into the causes of motion (a philosophical topic) led him to question the hierarchy between mathematics and philosophy, and to believe that his mechanics should have the status of natural philosophy. This is precisely what I argue again and again in Chapters 3 and 4. Shank’s puzzling criticism suggests that he may be treating Galileo’s self-perception as a philosopher as a sufficient cause of (rather than an important resource for) his eventual achievement of that title through granducal patronage. As in his reading of Vasari, Shank’s causal outlook makes him forget the significance of the context. While he acknowledges that the quote he presents is from a letter from Galileo to the Medici secretary, he does not seem to notice that in that letter Galileo was precisely negotiating his title and position at the Florentine court. Quite clearly, that Galileo was representing himself as a philosopher does not mean that he was publicly recognized as being one, but simply that he was “pitching” himself to Vinta in the process of having his self-perception recognized by the Medici.

According to Shank, my second tendentious “authorial decision” was to have singled out the views of Galileo’s opponents during the debate on buoyancy as paradigmatic of the philosophers’ dismissive views of the cognitive status of mathematics. This evi-

74 Shank, “Galileo’s Day,” 237.
75 Shank, “Galileo’s Day,” 237.
dence (which he does not challenge) is outweighed in his mind by the fact that, over the centuries, there have been people who have questioned the cognitive gap between philosophy and mathematics. Shank’s point is as true as it is irrelevant. That in other places and times there were philosophers who were more appreciative of mathematics than Delle Colombe and his cohorts did not solve Galileo’s problems, because Galileo had to deal precisely with Delle Colombe and his cohorts.

b. Polarity versus change

The logical structure of Shank’s rejection of the relationship between cognitive and social legitimation seems to reflect a more general disposition to deny that two things can be simultaneously different and yet connected through a process.

His critique of my alleged misreading of the passage from Galileo’s Discourse on Floating Bodies shows that he reads my claims about relationship as actually being about identity. “Unlike Biagioli’s Galileo, for whom social and epistemological legitimation have merged, the historical Galileo of his text sees a distinction between truth and Cosimo.” The same pattern emerges from his claim that Galileo’s appreciative comments about the man of the fable of sound meant that Galileo was identifying himself with that man and, conversely, that critique (of method) and appreciation (of character) could not coexist. His inability to see how Vasari could associate Cosimo I to Jupiter while claiming, at the same time, that Saturn was Cosimo’s planet may reflect the same problem, as might his belief that I am contradicting myself in a later

76 Shank, “Galileo’s Day,” 238.

77 The structure of Shank’s argument is analogous to that of his previous critique of the significance of the Jupiter-Cosimo association. In both cases, he takes me to make law-like statements when, instead, I am simply presenting, respectively, a contextual resource and a contextual constraint. He then proceeds to “refute” my allegedly law-like statements by finding counter-instances. In the former case, he construes the Cosimo-Saturn relationship as such a refutation. In the latter, he perceives in the mathematics-friendly stances of some people who were not involved in that dispute (and who often lived in other countries and centuries) as undermining my claim. Also, in both cases, the “refuting” evidence is produced through a very selective reading of either primary sources or the secondary literature, as indicated by Shank’s dismissal the sizeable literature on the longstanding distinction between mathematics and natural philosophy I cite in the book (i.e., the work of Westman, Jardine, Dear, Crombie, Baldini, and Giacobbe).

reference to the man of the fable when, in reality, I am simply discussing something quite different.

The pattern continues. At the beginning of Chapter 3, I discuss in some detail the originality of Galileo’s role as philosopher and mathematician of the grand duke. Although he was listed in the court rolls as a court gentleman, Galileo limited his physical presence at court to the visits to which he was bound by court etiquette, by his own patronage needs, or by his obligation to go to court whenever the grand duke wanted to see him or have him dispute in front of visitors. I have argued that his lifestyle was not unlike that of nobles (like his friend Salviati) who, although closely connected to the court, spent most of their time in their villas in the outskirts of Florence.

Shank disagrees. He believes that, based on the evidence I provide, “the average historian might infer that Galileo was not a courtier.”79 My point about connecting Galileo’s science to court culture is not linked to where he had his daily breakfast or to how many hours a day he spent in his patron’s antechamber, but rather to who his audience was and how that shaped his styles of argumentation, where his patronage networks were centered, who gave him the title of philosopher which he cherished so much, how he was perceived and represented by non-Florentine gentlemen, scholars, and mathematicians, and so on. Instead, Shank seems to assume that Galileo could be either A or B: a courtier as any other courtier or no courtier at all.

His critique of my use of the trope of the fall of the favorite to frame Galileo’s trial is a replay of this one. In Chapter 6, I present an hypothesis about the structural similarities between Galileo’s trial and the process known within court literature as “the fall of the favorite.” I specify in some detail the ways in which Galileo was a favorite and the ways in which he was not, and discuss the heuristic value and limitations of the trope of the “fall of the favorite.” However, Shank first misreads my qualifications of the hypothesis as “Biagioli’s indecision about the thesis” and then saves me from my “indecisions” by recasting my hypothesis and by attributing to me the claim that Galileo was truly Urban’s favorite.80 He does so despite the fact that I say:

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79 Shank, “Galileo’s Day,” 238.
80 For instance, he writes: “... if we grant Biagioli that Galileo was a courtier in Rome...” (Shank, “Galileo’s Day,” 239).
Obviously, I am not claiming that Galileo was Urban’s favorite. There were no official favorites in Rome and, although Galileo was well connected to the Papal court and visited it every few years, he was not a local courtier. Nevertheless, he did have a special relationship with Urban [which I then go on to discuss].  

Shank ignores this and concludes that I am refuted because Galileo was not a favorite, and does so by reciting the very evidence I had presented to qualify my hypothesis.  

The flip side of Shank’s disposition to deny that two categories can be different and yet related is found in his tendency to interpret descriptions of differences as being statements about law-like dichotomies. For instance, he takes my description of the strong differences between court and university cultures as meaning that the two were sealed off from each other (allegedly like mathematics and philosophy). Once he has construed my claim as a dichotomy, he then proceeds to argue that such dichotomy is untenable:  

It is difficult to take this schema seriously if one knows that Galileo grew up in a patronage environment (the Bardi Camerata and the Jacopo Corsi group), attended the University of Pisa (effectively the Medici university), learned mathematics with a Medici court tutor, obtained a university position in mathematics first at Pisa, then at Padua (after first offending a Medici and receiving the grand duke’s permission to leave Tuscany), tutored the young Cosimo while teaching at Padua, and moved to Florence as grand ducal mathematician and philosopher and as extraordinary professor of mathematics at Pisa.  

I cannot agree more with Shank’s evidence because it is precisely what I present and discuss in the book. However, I do not use this evidence to claim that there was an absolute dichotomy between court and university, but to show that Galileo was able to move through these two different environments in a trajectory that eventually landed him were he desired to land: at court. Instead, according to Shank’s logic, if somebody travels between two countries and knows his/her way around in both, we cannot say that those countries are very different because that would be an untenable dichotomical statement.  

81 Biagioli, *Galileo Courtier*, 331 (emphasis mine).  
82 “Galileo was a very odd courtly favorite: he spent fewer than four months in Rome during the decade that separates Maffeo Barberini’s ascent to the papacy as Urban VIII from Galileo’s summons to Rome by the Inquisition. As a candidate for the title of Papal favorite, Galileo does not stand a chance by comparison with genuine intimates like Bernini, Giovanni Ciampoli, or even Tommaso Campanella.” (Shank, “Galileo’s Day,” 239).  
83 Shank, “Galileo’s Day,” 238.
Shank’s move is structurally analogous to those discussed before. There he was assuming that I was artificially conflating two categories, while here he claims that I am artificially separating them. Both cases yield the same result: I am allegedly refuted by my own evidence.\footnote{Unsurprisingly, he does the same in his criticism of my claim about the pattern of hierarchy between mathematics and philosophy (which he perceives as another artifactual dichotomy of mine), where he sees my evidence as refuting my own claims: “[Biagioli] inadvertently provide[s] evidence against his view,” Shank, “Galileo’s Day,” 238.}

\textit{c. Essentialism and its algorithms}

To summarize, Shank’s reading practices seem to display a “blind spot” about processes linking specific aspects of two entities or enabling change between two different historical situations. By missing the process he ends up seeing only the two end points of the trajectory and can convince himself that I routinely present artifactual dichotomies or that I have a “reductivist” view of science (i.e., that I reduce science to power). For instance, rather than considering the possibility that the \textit{kind} of arguments I am making may be about processes rather than causes, he assumes that our logic must be the same, but that I simply use “power” whenever he would use “truth” (and also assumes that my notion of power is as absolute as his notion of truth).\footnote{I am not saying that he translates my categories into his, but that he may believe that my categories (no matter what their content may be) must be linked in the same way his are, and must be equally absolute (i.e., “essential”). Therefore, he misses the fact that I treat power not as an “essence” but as a process, and that it is increased by the very process through which it legitimizes knowledge.}

However, Shank does not seem to realize that his perception of my evidence as systematically refuting my allegedly reductivist claims or my allegedly artifactual dichotomies may actually indicate that (unless I am driven by a permanent death wish) perhaps I am not the reductivist he takes me to be. Locked inside his assumptions and related reading protocols, Shank does not seem able to entertain the thought that my “artifacts” may simply be his own.

Basically, the structure of Shank’s critiques resembles that of a very peculiar \textit{reductio ad absurdum} which begins with a thesis that is not mine but purports to refute me anyway by showing that the conclusions following from such a thesis are inconsistent with my evidence. Here are the basic steps of his \textit{reductio}:
1) Shank encounters an argument that presents the acceptance of scientific claims as a result of a process involving the mobilization of different resources (including the claims themselves), or the shaping of new socioprofessional identities through a process of “bricolage” of different cultural elements and social roles.

2) He strips these arguments of their “processual” or “bricolage” dimensions and turns them into causal narratives structured by either/or inferences, or into statements about the existence of rigid law-like dichotomies.

3) He then introduces his own assumptions about the right cause of the acceptance of claims (usually Galileo’s own beliefs about possessing the truth, being a philosopher, etc.), or about the tenability of the dichotomies he takes me to present.

4) He correctly realizes that, most of the time, my arguments do not fit his assumptions.

5) He assumes that, if I do not share his view, I must be saying the opposite of what he assumes to be true (as his process-blind either/or logic allows for no other “default” setting). For instance, he assumes that if I do not say that it is sufficient for claims to be true in order to be accepted, then I must be saying that the acceptance of scientific claims is caused by external power alone (i.e., that I substitute “power” for “truth”).

6) His reading of my argument as a causal one (or as a dichotomy) then makes him perceive the evidence I have introduced (usually to show the different and often conflicting elements being negotiated or mobilized through the process of change) as actually refuting the causal argument or dichotomy he assumes I am presenting.

This last step is helped by (and reinforces his confidence in) his “essentialist” reading of the evidence. Once he has reduced my arguments down to causal inferences or monolithic dichotomies, he can then “refute” them with decontextualized atoms of evidence which he has produced through analogously reductive readings of the sources. Unsurprisingly, Shank’s reading snowballs into a sequence of self-fulfilling prophecies which inexor-
bly reinforce his belief that he is right and that I am wrong (or worse). No wonder he can convince himself that I play with the evidence!

Let me propose a few schematic reconstructions of Shank’s algorithm in action:

**Galileo courtier:**

1) I claim that Galileo was a courtier in some ways, and not in others. I discuss a process through which he tried to put different elements of his identity together to constitute himself as a “new philosopher.”
2) Shank’s causal outlook casts my argument as implying that Galileo could be either a courtier or no courtier at all.
3) But Galileo could not be a courtier (as Shank’s assumes that he did not need to be a courtier to gain legitimation as a philosopher).
4) But I do not say that Galileo was not a courtier.
5) So I must be saying that he was truly one.
6) I allegedly refute myself by presenting and discussing evidence that Galileo was not a canonical courtier.

**The shield of truth:**

1) I claim that Cosimo’s role was crucial for the legitimation of Galileo’s views on buoyancy (within that specific context) by allowing him to withdraw from a deadlocked dispute. I present Galileo’s scientific claims neither as irrelevant to, nor as sufficient causes of his eventual success in that specific context.
2) Shank takes me as having only two options: either I say that Galileo’s claims were right and caused his success, or that he won the dispute just because of his patron’s power.
3) Shank assumes that Galileo was right (he said he possessed the “shield of truth.”)
4) But I do not say that Galileo victory was caused by his “shield of truth.”
5) So I must be saying that grand ducal patronage was the cause of his success.
6) I am allegedly refuted by the evidence I present which indicates that Galileo thought he possessed the “shield of truth.”
The man of the fable:

1) I argue that the man was a “philosophical brute” on account of his method, not character.
2) Shank assumes that the man could be either a brute or no brute at all.
3) He could not be a brute like Grassi because Galileo said nice things about him, but did not say nice things about Grassi.
4) But I do not say that the man was a good guy or that Galileo identified with him.
5) Therefore I must be saying that he was an unconditional brute.
6) I am allegedly refuted by my own text. First, I cite a passage by Galileo in which he also said that the man in the fable was a good guy. Second, according to Shank, “Astonishingly, Biagioli does allude to Galileo as the protagonist of the fable at the end of Chapter 6,” though, of course, I am talking about something altogether different.\(^{86}\)

Galileo favorite:

1) I claim that some features (but not others) of Galileo’s role resembled those of the court favorite, and that the process known as the fall of the favorite might cast some light on some aspects of his trial (but not on others).
2) Two options: either Galileo was a real favorite or no favorite at all.
3) Galileo could not be a favorite (because, allegedly, he was not even a courtier).
4) But I do not say that Galileo was not a favorite, or that I use the fall of the favorite just as a metaphor.
5) Ergo, I must be saying that he is a favorite and that he fell like one.
6) But I also say that, in some ways, he was not a favorite, so I must be undermining myself.

Jupiter, Saturn, Cosimo:

1) I argue that the Cosimo-Jupiter association was a crucial resource within the process that allowed Galileo to legitimate him-

\(^{86}\) Shank, “Galileo’s Day,” 241.
self as a philosopher and gain public assent for his discoveries, but do not present it as a cause of those results.
2) Shank assumes that either the Jupiter-Cosimo link was the cause of his legitimation or it was not. If it was, then Cosimo should have been associated exclusively to Jupiter, because the existence of alternative associations would have undermined the causal status of the Jupiter-Cosimo connection.
3) According to him, the Jupiter-Cosimo link could not be a cause of legitimation because true claims do not need social legitimation. Galileo needed only “recognition.”
4) But I do not say that this association was just rhetoric, a simple courtly flourish Galileo put on his claims as a cherry on an independently delicious cake.
5) Therefore, I must be saying that the Jupiter-Cosimo link was the cause that explains Galileo’s success.
6) I am allegedly refuted by a passage about the Saturn-Cosimo relationship found in the very text which I present as my main source of evidence.

5. Conclusion

Although Shank’s allegations that I “play with the evidence” were the most disturbing aspect of his review, they could be easily countered by presenting the evidence. Instead, what I found much more difficult was to understand the reasons behind his relentless misinterpretations of the sources and the sustained sense of moral distrust he displays toward my arguments.87 Because, unlike Shank, I find it hard to believe that people can be consistently irresponsible and self-sabotaging at the same time, I felt uncomfortable to adopt his own perspective and dismiss his critique as simply resulting from “playing with the evidence.”

87 For instance, Shank seems to believe that my book has been craftily presented to the scholarly community: “This is a book one approaches with high expectations. The title is intriguing; the dustjacket copy promises ‘radical reinterpretations’ and ‘close readings’ of Galileo’s works; the endorsements are superb” (Shank, “Galileo’s Day,” 236). Shank’s somewhat obscure closing statement that “In the end, Biagioli’s mistreatment of his sources soundly refutes his own model of legitimation: no amount of social legitimation can for long give cognitive status to tendentious inferences from misread evidence. Social and epistemological legitimation do sometimes appear to overlap, but their congruence may be brief,” seems almost to imply that the endorsements of my book and the positive influence they might have on the reader are part of a cabal aimed at our professional community (Shank, “Galileo’s Day,” 241, emphasis mine).
I have tried, instead, to treat his essay as a historiographical puzzle, as something to be explained as the result of an interpretive protocols (and the emotions they may have elicited in the process). Understanding the logic of Shank’s misreading of my texts has been laborious but, among other things, it has allowed me to clarify some of my arguments and foreground their methodological dimensions. If this exercise has not led me to revise my negative assessment of the empirical tenability and heuristic power of Shank’s historiographical paradigm, it has provided me with an hypothesis about how his interpretive protocols may have led him to impute unethical motives to a text that has none. As I hope to have shown, the genealogy of Shank’s accusations is a much more interesting problem than the accusations themselves. Processes are always fun.