

In praise of authentication: the case of Article 50(2) EU AI Act, its rule or origin and exception for substantial alteration

Jerome De Cooman

jerome.decooman@uliege.be

18 June 2025, Trinity College Dublin, Ireland



I. Introduction



Burrow-Giles (1884)



Painer (2011)





I. Introduction

Zarya of the Dawn (Feb. 2023)



The Electrician (Apr. 2023)





I. Introduction

- ▶ What can be learnt from this background?
 1. The use of a machine in the creation of a work does not prevent it from being copyrighted as long as the human user is able to exercise a certain creative control over the creation (Burrow-Giles; Painer)
 2. Users of GenAI do not reach the required threshold (Zarya of the Dawn)
 3. Human-made and machine-enabled artworks are indistinguishable (The Electrician)
 1. Indistinguishability means information asymmetry
 2. Information asymmetry has economic consequences, (at least in theory)
 3. If met, these consequences can be addressed by economic regulation

II. The Lemons Problem





II. The Lemons Problem



Let:

w_{peach} be the worth of a good-quality product

w_{lemon} the worth of a poor-quality product,

q the average probability estimated by the buyer that the product is a peach, and $1-q$ the average probability the product is a lemon (where $0 \leq q \leq 1$),

p_{peach} the price of a good-quality product

p_{lemon} the price of a poor-quality product.

Given the difference in quality,

$$w_{lemon} < w_{peach}$$

Under *symmetric* information

$$w_{lemon} = p_{lemon}$$

$$w_{peach} = p_{peach}$$

$$p_{lemon} < p_{peach}$$

II. The Lemons Problem



Under *asymmetric* information

$$w_{\text{lemon}} < w_{\text{peach}}$$

$$p_{\text{lemon}} = p_{\text{peach}}$$

Dishonest sellers have an incentive to sell a lemon the price of a peach → Buyers internalize the risk of being sold a lemon for a peach

$$w_{\text{lemon}} < p^* < w_{\text{peach}}$$

Assume

$$w_{\text{lemon}} = 10 < w_{\text{peach}} = 20$$

$$q = 0.5$$

$$p_{\text{lemon}} = p_{\text{peach}} = 15$$

II. The Lemons Problem



- ▶ Upshot?
 - › dishonest sellers sell a lemon at the price of a peach
 - › Buyers adapt their willingness-to-pay accordingly
 - › Sellers of peaches
 - » Either leave the market
 - » Or voluntarily decrease the quality of their product

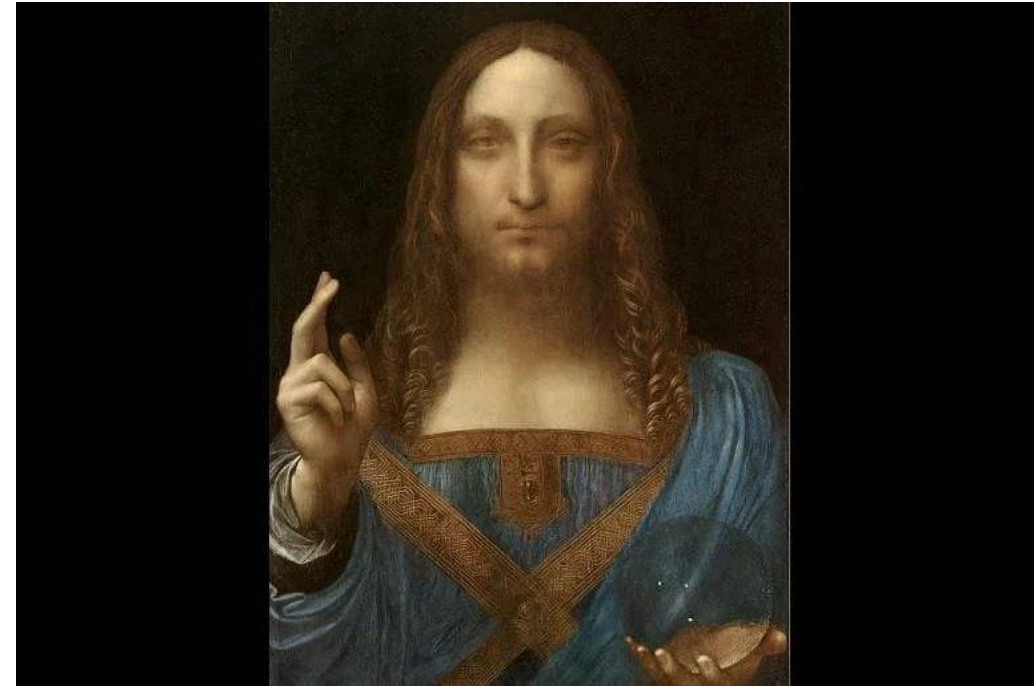
III. The Lemons problem in the art market



III. The Lemons problem in the art market



1950s: sold for USD 60 (today, USD 755)



2017: sold for USD 450.3 million (today, USD 557.3 million)



III. Lemons problem in the art market

- ▶ Aesthetic value \neq market value
 - › Authentication did not change the *aesthetic* value of *Salvator Mundi*
 - › Authentication gives the market value of a work, not its aesthetic merits



When (contextual value)?
1814, i.e., at the end of Peninsular war (1808-1814)

How long (survival value)?
More than two centuries

By whom (symbolic value)?
Francisco de Goya

III. The Lemons problem in the art market



	Market for used cars	Market for artworks
Criterion	Worth of a used car \mapsto quality of that car	Worth of an artwork \mapsto origin of that artwork
Lemons	Cars that often need repairs	Fakes and forgeries notwithstanding their aesthetic value
Peaches	Reliable cars	Genuine artworks notwithstanding their aesthetic value

IV. The Lemons Problem in the (GenAI) art market



- ▶ For a lemons problem to exist, machine-enabled artworks and human-made ones are indistinguishable



IV. The Lemons Problem in the (GenAI) art market



- ▶ For a lemons problem to exist, machine-enabled artworks and human-made ones are indistinguishable
- ▶ Indistinguishability between a human-made and machine-enabled artwork does not mean the latter is a fake or a forgery



IV. The Lemons Problem in the (GenAI) art market



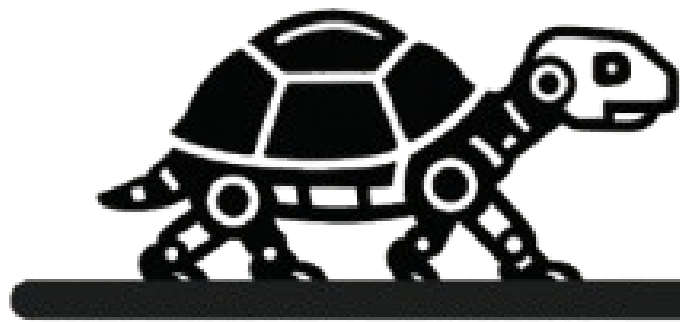
- ▶ For a lemons problem to exist, machine-enabled artworks and human-made ones are indistinguishable
- ▶ Indistinguishability between a human-made and machine-enabled artwork does not mean the latter is a fake or a forgery
- ▶ A machine-enabled artwork is not a forgery either.



IV. The Lemons Problem in the (GenAI) art market



- ▶ For a lemons problem to exist, GenAI human user should have an incentive to sell a machine-enabled artwork as a human-made one (incentive to cheat).
 - › Do they?
 - » Is their market value under symmetric information different?
 - › This need to be empirically substantiated
 - » But three reasons to think their market value is different



GALÁPAGOS
GenAI and the Law of Art

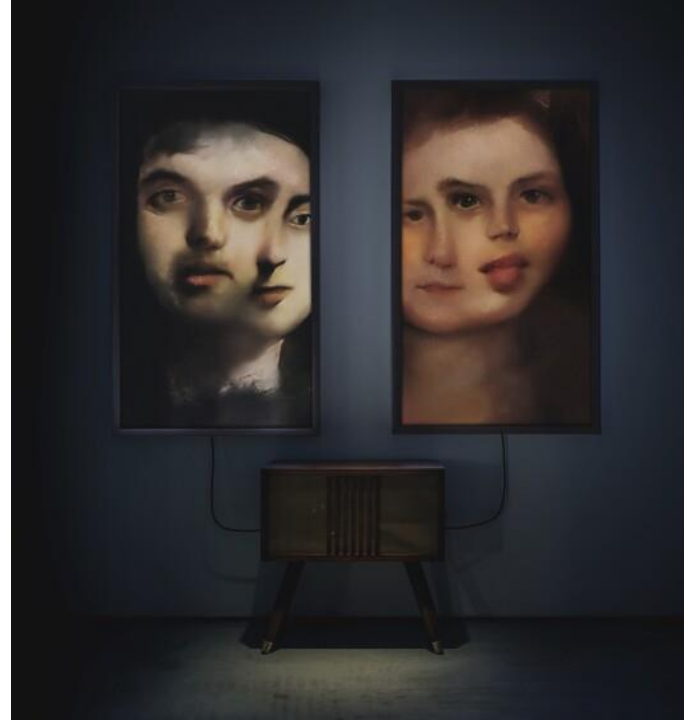


IV. The Lemons Problem in the (GenAI) art market

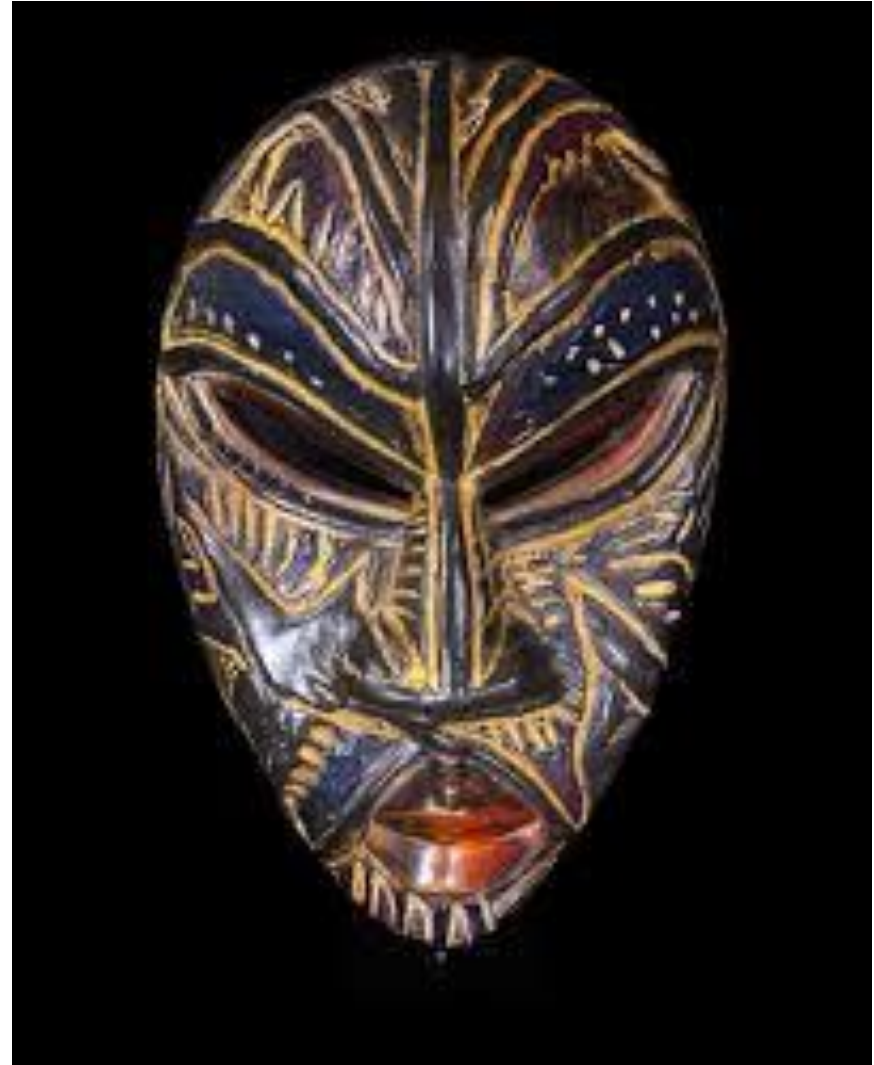


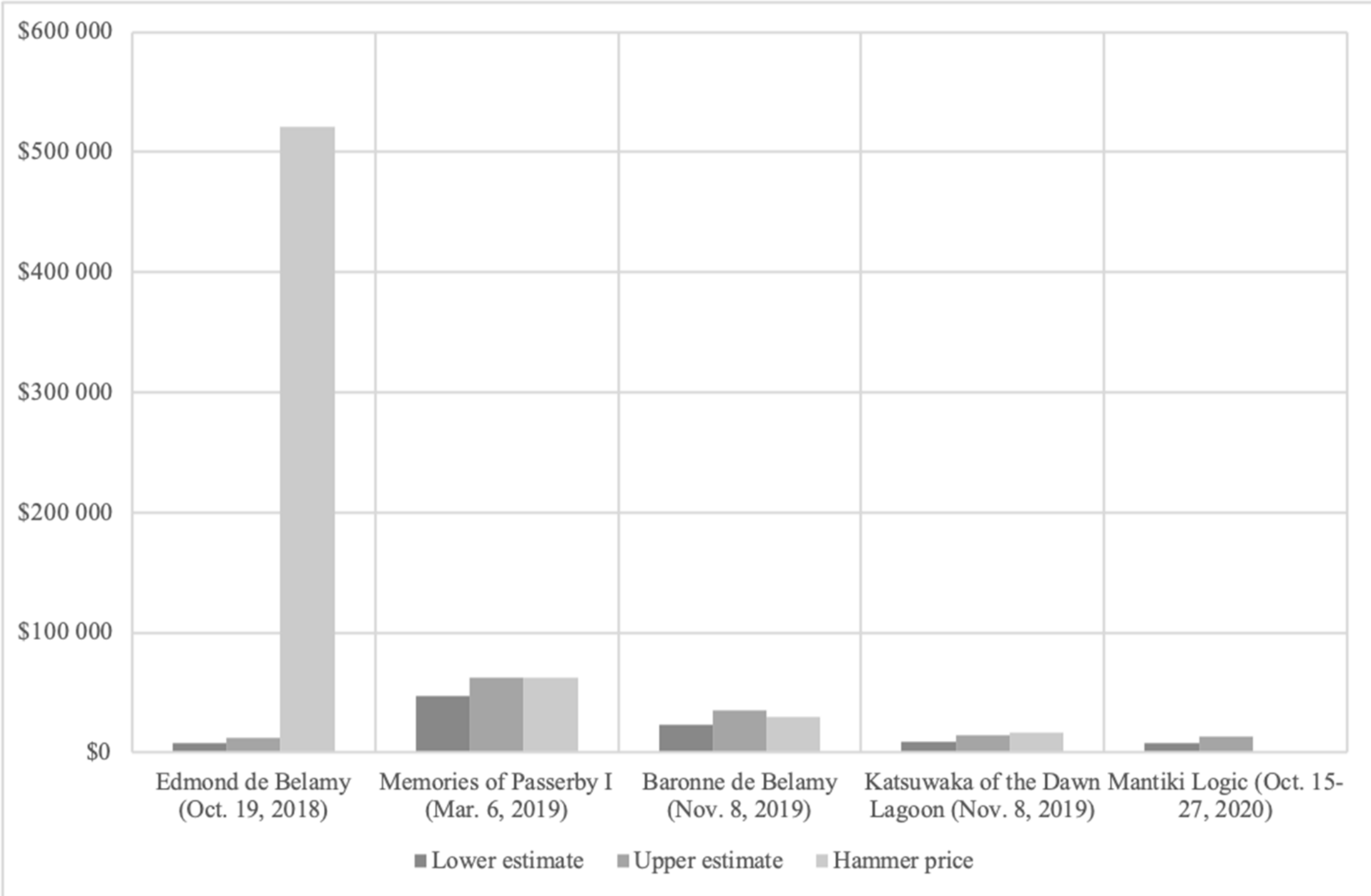
- ▶ For a lemons problem to exist, GenAI human user should have an incentive to sell a machine-enabled artwork as a human-made one (incentive to cheat).
 1. There exist a “negative bias of perception towards [machine enabled artworks] and a preference bias towards [human-made ones]” (Ragot et al., 2020)
 2. Auctions of machine-enabled artwork at prices that exceed expert evaluation seem to be drying up (see figures next slide)

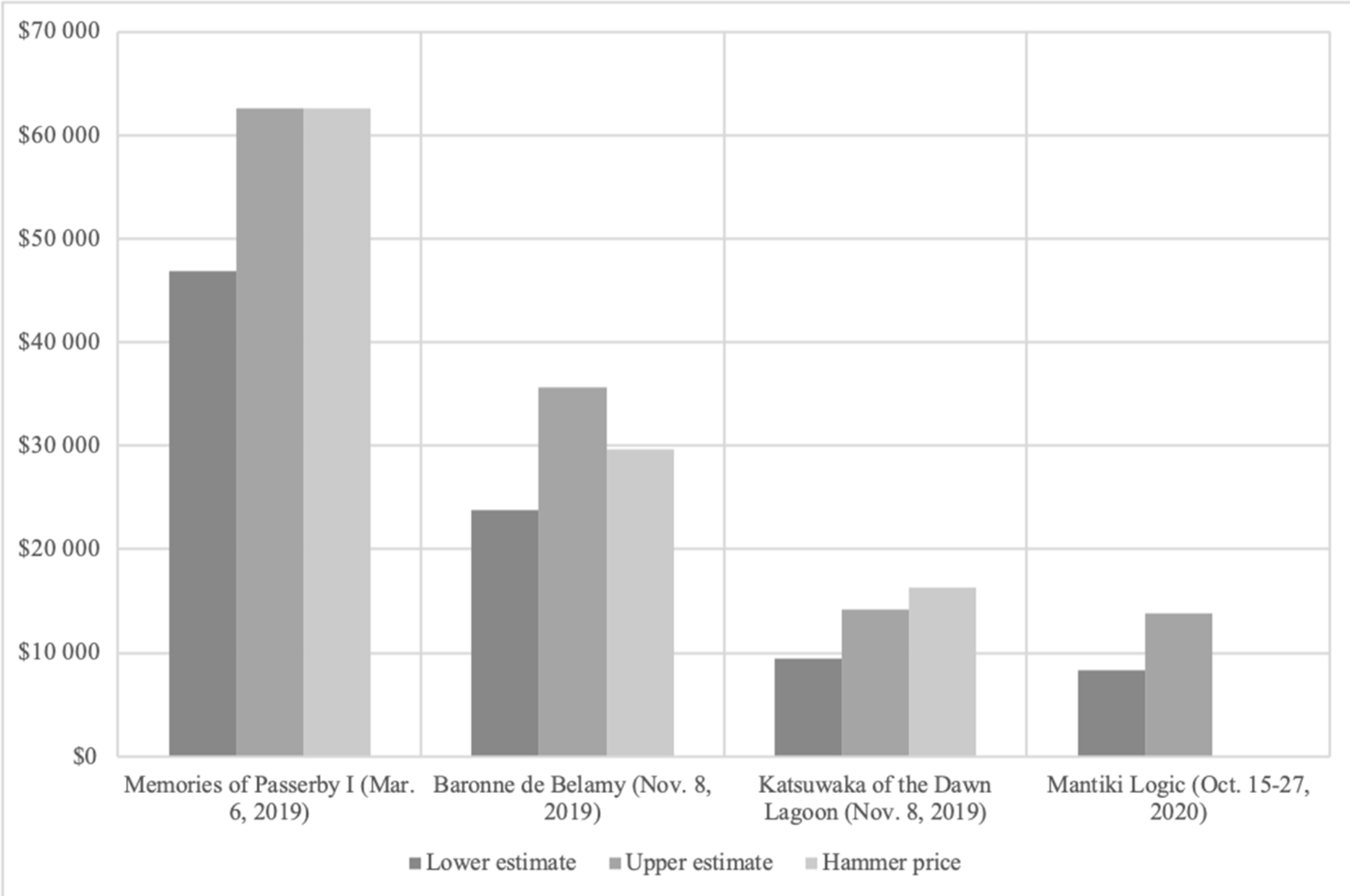
IV. The Lemons Problem in the (GenAI) art market



IV. The Lemons Problem in the (GenAI) art market







IV. The Lemons Problem in the (GenAI) art market



Artwork	Lower estimate (USD)		Upper estimate (USD)		Hammer price (USD)	
	On auction date	Updated (2023)	On auction date	Updated (2023)	On auction date	Updated (2023)
Edmond de Belamy	7,000	8,453	10,000	12,075	432,000	521,645
Memories of Passerby I	39,543	46,922	52,724	62,562	52,724	62,562
Baronne de Belamy	20,000	23,732	30,000	35,598	25,000	29,625
Katsuwaka of the Dawn Lagoon	8,000	9,493	12,000	14,239	16,250	19,282
Mantiki logic	7,075	8,292	11,791	13,821	n.a.	n.a.

IV. The Lemons Problem in the (GenAI) art market



	Market for used cars	Market for artworks
Criterion	Worth of a used car \mapsto quality of that car	Worth of an artwork \mapsto origin of that artwork
Lemons	Cars that often need repairs	Fakes; forgeries; <i>machine-enabled artworks</i>
Peaches	Reliable cars	Genuine <i>human-made</i> artworks

IV. The Lemons Problem in the (GenAI) art market



- ▶ For a lemons problem to exist, GenAI human user should have an incentive to sell a machine-enabled artwork as a human-made one (incentive to cheat).
 1. There exist a “negative bias of perception towards [machine enabled artworks] and a preference bias towards [human-made ones]” (Ragot et al., 2020)
 2. Auctions of machine-enabled artwork at prices that exceed expert evaluation seem to be drying up (see figures next slide)
 3. legal uncertainty prevails regarding the potential copyrightability of machine-enabled artworks
 - » This has an economic impact: copyright = monopoly
 - » Remember *Painer?*
 - » The uncopyrightability of machine-enabled artwork limits the remuneration of GenAI users.
 - ▶ But again, whether their economic model requires this remuneration needs to be substantiated (//incentives rationale for copyright protection; Ginsburg, 2018)

V. Art Authentication



- ▶ In 2022, Jason Allen’s *Théâtre D’opéra Spatial* won the first price in the “Digital Arts/Digitally Manipulated Photography” category at the Colorado State Fair
- ▶ Public outcry in successive waves:
 - › “He cheated”
 - » But nothing in the rules of the contest (at least under this category) prevented the use of Midjourney.
 - › “If no cheating, then the rules are unfair” (// Eldagsen’s *The Electrician*)



V. Art Authentication

- ▶ “Users of an AI system that generates or manipulates image, audio or video content that appreciably resembles existing persons, objects, places or other entities or events and would falsely appear to a person to be authentic or truthful (“deep fake”), shall disclose that the content has been artificially generated or manipulated.” (art. 52(3): v.04/2021)
- ▶ “[This] shall not apply where the use of an AI system that generates or manipulates text, audio or visual content (...) is necessary for the exercise of (...) the right to freedom of the arts’ (art 52(3a): v.05/2023)
 - › *Caveat*: the ‘right to freedom of the arts’ covers ‘artistic expression’ (ECJ, *Pelham*, §35) and should, per Article 13 of the EU Charter of Fundamental rights, ‘be free of constraint’.

V. Art Authentication



- ▶ “**Providers** of AI systems (...) generating synthetic audio, image, video or text content, shall ensure that *the outputs of the AI system are marked in a machine-readable format* and detectable as artificially generated or manipulated. Providers shall ensure their technical solutions are effective, interoperable, robust and reliable as far as this is technically feasible, taking into account the specificities and limitations of various types of content, the costs of implementation and the generally acknowledged state of the art, as may be reflected in relevant technical standards. *This obligation shall not apply to the extent the AI systems* perform an assistive function for standard editing or *do not substantially alter the input data provided by the deployer* or the semantics thereof, or where authorised by law to detect, prevent, investigate or prosecute criminal offences.” (art. 50(2) AIA).

V. Art authentication



- ▶ What is substantial alteration (Kashtanova, *Rose Enigma*)?



V. Art authentication



V. Art authentication





V. Art authentication

- ▶ “Goods the production of which involves more than one country or territory shall be *deemed to originate in the country* or territory *where they underwent their last, substantial, economically-justified processing* or working (...) resulting in the manufacture of a new product or representing an important stage of manufacture” (art. 60(2) Union Customs Code)
- ▶ A process is substantial if “the product resulting therefrom *has its own properties* and a composition of its own, which it did not possess before that process or operation.” (*Gesellschaft für Überseehandel*, §6).
- ▶ Substantial transformation test “can be expressed by the *ad valorem percentage rule*, where either the percentage value of the materials utilized or the percentage of the value added reaches a specified level.” (*Brothers International GmbH*, §21)

V. Art authentication



Substantial transformation test	AIA substantial alteration (<i>mutatis mutandis</i>)
Several different geographical areas may be involved in the production process of a product.	An artwork may owe its existence to both human and machine.
Its country of origin is not necessarily the last country through which the product passes before reaching its relevant market.	The fact that a human edited the artwork before being made available to the public does not mean it is human-made
The country of origin can only be the one in which the product was substantially transformed for the last time.	That the artwork will only be labelled as human-made if the human input is substantial vis-à-vis the role of the machine.
Ad valorem rule	Comparing the properties of the artwork before and after any human editing by assessing the added value of human intervention



V. Art authentication

- ▶ In *Painer*, the ECJ distinguishes the artwork creation in a three-stages process
- ▶ An author “can stamp the work created with [her] ‘personal touch’” at each of these three stages (ECJ, *Painer*, §§91-92).

	Painer	GenAI
Conception	the preparation phase (choosing the subject and style)	GenAI is not involved
Execution	Execution: the taking of the portrait photograph (taking pictures—plural intended)	GenAI plays the dominant—if not exclusive—role
Redaction	Redaction: the selection phase (choosing and editing <i>the</i> picture)	GenAI is not involved

V. Art authentication



- ▶ Thus deconstructed, delegation of human creation is solely witness at the execution stage
- ▶ Not the first time
 - › *Burrow-Giles* and *Painer* confirm indirect control of the execution is enough
- ▶ The question is, therefore, whether there is “too much” abdication?
 - › According to USCO, Ms. Kashtanova controlled the conception but did not exercise a sufficient control toward the execution because the initially prompted images were generated “in an *unpredictable* way” based on a “*randomly* generated noise”
 - › “While additional prompts applied to one of these initial images can influence the subsequent images, the process is not controlled by the user because it is not possible to predict what Midjourney will create ahead of time.”



V. Art authentication

- ▶ Copyright law “*tolerates some degree of randomness* in a work’s execution (...) At [a certain point] the putative author has *surrendered so much control* over the execution that the independence of the work’s embodiment calls into question whether her *initial conception of the work was anything more than a general idea*” (Ginsburg & Budiardjo, 2020).



V. Art Authentication

Jackson Pollock



Agnieszka Kurant



V. Art Authentication



- ▶ Therefore, did Ms. Kashtanova exercised *enough* control *despite* the random generation of noise as its starting point?
- ▶ Midjourney uses “a randomly generated seed number to create a field of visual noise, like television static, as a starting point to generate the initial image.”
- ▶ However, users are able to specify the seed numbers by defining two parameters (“-seed or - same seed”).
- ▶ This suggests it is possible to exercise *some* control over the creation.

V. Art Authentication





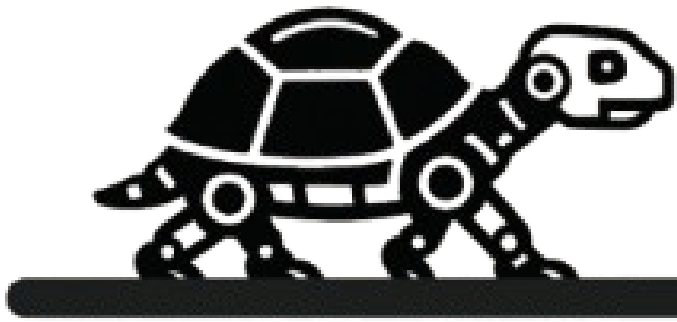
V. Art Authentication

- ▶ Signalling: “efforts by sellers to ‘tell’ buyers about the products, and therefore to change the initial asymmetric informational structure of the market” (Spence, 1976)
- ▶ A signal is useful “when there is an *unobservable attribute* that is valuable to buyers.” (Spence, 2002)
- ▶ A signal is efficient if it is
 - › Credible (words are cheap)
 - › Not too expensive (seller invests in signalling until the marginal gain driven from the signal is equal to its marginal opportunity cost)
 - › More expensive for dishonest dealers than for honest sellers (e.g., warranty)

VI. Conclusion



- ▶ The argument is built on two assumptions.
 - › First, human-made and machine-enabled artworks are indistinguishable.
 - › Second, they are valued differently, human-made artworks assuming the role of good-quality products.
- ▶ Together, they suggest there is a lemons problem
 - › But future research need to empirically substantiate the valuation of GenAI artworks



GALÁPAGOS
GenAI and the Law of Art



VI. Conclusion



- ▶ if one species has any advantage whatever over another, it will in a very brief time wholly or in part supplant it (...). If both [species] are equally well fitted for their own places in nature, both probably will hold their own places and keep separate for almost any length of time.’ (Darwin, 1859, 402)
- ▶ “Competition *on the merits* may, by definition, lead to the departure from the market or the marginalisation of competitors that are less efficient and so less attractive to consumers from the point of view of, among other things price, choice, quality or innovation” (*Intel v. Commission*, §134)



LIÈGE université
Cité