

## Comparing different auction formats in galleries

We want to compare the first-price sealed-bid auction with the second-price sealed-bid auction used in two different auctions. According to game theory, people act accordingly to a given rules at a given time. Thus in a first-price sealed-bid auction, a bidder will have to pay the price he set if he wins the auction. In the second-price sealed-bid, the buyer will not pay the price he set if he wins the auction (D. Easley and J. Kleinberg, 2010, p 226). Therefore one can assume that a person sets a lower price at a first-price sealed-bid auction than at a second-price sealed-bid auction. From this we can predict that the second-price sealed auction will possible give the highest total winning-bid. We want to find out if that is the case by running an experiment.

Earlier this year, a local gallery ran an auction where the famous street-art artist Dolk's artwork «Pope» was available. The rules of this particular auction defined the first-price sealed-bid auction.

To carry out our experiment we want to know an estimate market price from an expert, to compare with the final end-price from the specific auction. Unfortunately we do not know of any second-price sealed-bid auction scenario in the local art environment. For us to complete our experiment we are willing to run an second-price sealed-bid auction through a gallery and selling one of our own artworks. With the knowledge of the market price on this piece to compare with the final result.

The artwork we are donating for this project is AFK's "Stolen Child". The artist of this work is primary known for the "Making a Martyr", the famous artwork containing crucifixion of Sylvi Listhaug, which was auctioned with a winning-bid at 500.000 NOK.

### Estimate of market price

We contacted the owner of *Galleri Gategalleriet* in Bergen, who specialize in street art, which is the category where both artworks belong. With his overview of the art market we got a professional estimate of the market price on the two different artworks considering the sale time. The estimated market price for both objects was equivalent, at 8.000 NOK a peice. In our experiment this price is going to be our comparing price to the winning-prices in both auctions.

### The first-price sealed-bid auction of Dolk's "Pope"

The artwork was auctioned at the 21th of feb 2018. The announcement was made on a gallery Facebook page and on a Norwegian art-forum, "Kunstveggen". This auction format was met with scepticism by the members on the forum where it was posted, this probably because of the unknown auction format. According to the gallery the final price of the object (the highest bid) was 5.150 NOK.

With an estimate market price at 8.000 NOK, the winning-bid is 64% of the estimated price.



Hei alle sammen.

Vi tenkte å prøve oss på en ny auksjonsform her på forumet.

Trykket vi auksjonerer bort er et Dolk Pope.

Trykket er uinnrammet og i mint tilstand.... [See More](#)


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## The second-price sealed-bid auction of AFK's "Stolen Child"

This artwork was auctioned by Galleri Gategalleriet in Bergen, with the same approach as the previous auction. The gallery had a precise and well formulated description of the rules defining this auction format. The auction started the 3rd of October and ended the 6th of October. The estimated market price on the artwork was set to 8.000 NOK.

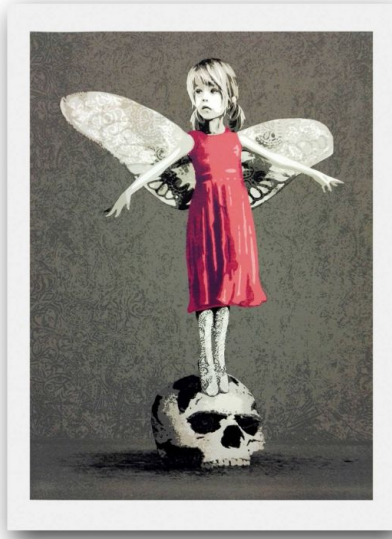
After the auction we were sent the bid history which showed 24 bids. The highest bid was 12.000 NOK and the final price for the artwork (the second highest bid) was 8.000 NOK, spot on the estimated market price.



**Galleri Gategalleriet**  
3. oktober kl. 19:00 · 🌐

...

**\*\* AVSLUTTET - AUKSJON - AVSLUTTET \*\***  
 AFK - Stolen Child  
 Høyeste bud: 12.000 kr.  
 Kjøpspris: 8.000 kr +5% kunstavgift. ... [Se mer](#)



## Problems and error rate

We are aware that our results may be awkward considering only executing one auction of each format. We are also taking into account that it is not the same time, artwork nor artist in both cases. The two different items are defined in the common art category, and therefore most likely containing the same audience and potential buyers. We also have to take into consideration that the two art pieces are different and the buyers might prefer one over the other. Another aspect we have to consider is the uncertainty in the art market, regarding if the buyer's intention is reselling or keeping it for good. With this in mind we think the overall impression and results are adequate considering our limited amount of time of action.

In this table (received from Galleri Gategalleriet) you can easily tell who understood the auction concept and who did not. We can assume that those who bid 3.000 NOK or less did not understand the auction format nor the current art

market, this because the gallery price when the artwork was released was 3.000 NOK. You can also see number 20, 3, 18 and 21 understood the auction format very well. It is also worth noted that the number 10 and 24 is the same person, which is why 10.000 NOK was not the final price.

Rekkefølge	Navn	Bud	Mottatt
24	[Redacted]	12000	06.10.2018 - 15:59
10	[Redacted]	10000	03.10.2018 - 21:11
23	[Redacted]	8000	06.10.2018 - 12:49
16	[Redacted]	7000	04.10.2018 - 17:01
11	[Redacted]	6500	03.10.2018 - 21:51
7	[Redacted]	6200	03.10.2018 - 20:25
20	[Redacted]	5786	05.10.2018 - 21:20
3	[Redacted]	5213	03.10.2018 - 19:20
19	[Redacted]	5000	05.10.2018 - 16:04
22	[Redacted]	4600	06.10.2018 - 11:50
18	[Redacted]	4501	05.10.2018 - 00:42
4	[Redacted]	4500	03.10.2018 - 19:33
2	[Redacted]	4200	03.10.2018 - 19:17
21	[Redacted]	3555	06.10.2018 - 11:18
15	[Redacted]	3200	04.10.2018 - 09:00
1	[Redacted]	3000	03.10.2018 - 19:10
6	[Redacted]	3000	03.10.2018 - 20:13
9	[Redacted]	3000	03.10.2018 - 20:46
17	[Redacted]	3000	04.10.2018 - 21:12
13	[Redacted]	2850	03.10.2018 - 22:48
14	[Redacted]	1800	04.10.2018 - 07:28
5	[Redacted]	1500	03.10.2018 - 19:46
12	[Redacted]	1200	03.10.2018 - 22:10
8	[Redacted]	1002	03.10.2018 - 20:42

## Why the difference?

In the first-price sealed-bid auction the bidders might be more conservative when bidding when they knowingly have to pay the precise amount which is sent in. Which means that if you want the artwork, you should always bid your true value if we ignore the Winner's curse. With a low price starting point for the buyers, we assume that the average bid is far lower than the estimated market price. By bidding the true value, it results in a payoff of 0 if you lose the auction, and also a payoff of 0 if you win the auction. Therefore an obvious tactic will be to place a lower bid than the true value and at the same time balance the payoff, such that you contain the possibility of winning with a reasonable payoff.

In the second-price sealed-bid auction, the norm is to bid your true value, but you can in some cases bid a higher amount bearing in mind that your price will be lower. The dominant strategy in this case is submitting the true value, where you are guaranteed a payoff larger than 0 when there is not existing an equivalent amount.

A common suggestion considering the comparison of the two different auction formats is that a gallery would receive a higher amount in the first-price sealed-bid auction, after all the seller gets paid the highest bid rather than the second highest bid. According to the study of game theory people's behaviors adapt regarding the specific rules that are made for a scenario. In this case the bidders will tend to bid a lower price in a first-price sealed-bid auction than they would in a second-price sealed-bid auction. From the two different real world examples we easily get an impression of the effect (adapted behaviors) of the bidders (players) involved.

## Conclusion

The challenge in our experiment which leads to an indecisive outcome is the uncertainty regarding the art environment. There might be a different buying group for each art piece which leads to different prices. If the two art pieces auctioned were similar the highest bidder at the first auction would not participate in the second auction, and we would possibly end up with a lower winning-bid in the last auction. With this in mind we consider using these two auctions gives an acceptable comparison, with an identical professional estimated market price.

Based on our experiment the second-price sealed-bid auction got the expected revenue to the seller. Considering the different dominant strategies for each auction format the result was anticipated, though the final price for Dolk's "Pope" was surprisingly lower than the estimated price. From the buyer's perspective the first-price sealed-bid auction had a terrific result. The second-price sealed-bid auction on the other hand gave the best outcome for the seller in this case.

**We wish to extend a huge thank you to Christer Holm, owner of Galleri Gategalleriet, for helping with the auction and determine the market price of each artwork.**

## References

David Easley and Jon Kleinberg. (2010) *Networks, Crowds and Markets*. New York, Cambridge University Press.

Kunstveggen. (22.09.2018) *Dolk Pope Blindauksjon* [Internet], Kunstveggen. Available from: <https://www.kunstveggen.no/t/dolk-pope-blindauksjon/11327> [Viewed 06.10.2018]