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Goethe's Second-Price Auction

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In 1797 Johann Wolfgang von Goethe sold a manuscript through a second-price auction. We investigate Goethe's motivation in the context of the late eighteenth century's book market and relate it to modern auction theory.

I. An Intriguing Proposal

Johann Wolfgang von Goethe (1749–1832), considered by some to be the greatest German writer, employed a number of sophisticated strategies in his dealings with publishers.¹ None of them is as intriguing as the one appearing in Goethe's letter, dated January 16, 1797, to the publisher Vieweg (1761–1835):

I am inclined to offer Mr. Vieweg from Berlin an epic poem, *Hermann and Dorothea*, which will have approximately 2000 hexameters. . . . Concerning the royalty we will proceed as follows: I will hand over to Mr. Counsel Böttiger a sealed note which contains my demand, and I wait for what Mr. Vieweg will suggest to offer for my work. If his

We are grateful to an anonymous referee and to Martin Hellwig, Hartmut Kliemt, and Preston McAfee for very helpful suggestions.

¹ Occasionally, Goethe presented himself as an Olympian, well beyond unaesthetic financial goals. He once wrote to the publisher Cotta: "I look odd to myself when I pronounce the word Profit" (Fröbe 1960).

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offer is lower than my demand, then I take my note back, unopened, and the negotiation is broken. If, however, his offer is higher, then I will not ask for more than what is written in the note to be opened by Mr. Böttiger. [Cited in Mandelkow (1968, p. 254)]

Although there is only one potential buyer, the scheme is a second-price auction: The (sealed) reserve price effectively turns the seller into a second bidder. For the publisher Vieweg, Goethe's sealed demand is equivalent to another sealed bid (which may or may not have come from another potential buyer). Sealed-bid, second-price auctions and their remarkable properties were first analyzed by the late William Vickrey (1961).² It is quite astonishing that exactly 200 years ago a poet used such a sophisticated mechanism, and we have reason to believe that this is more than just a curious coincidence.

Note that the common form of authors' remuneration in Goethe's lifetime was the "sheet royalty": the author got a fixed fee (i.e., independent of the number of books sold) for each sheet (one sheet equals 16 printed pages). Goethe's sealed reserve price was 1,000 talers, which meant, given the epos's length, around 68 talers per sheet. This was about three to four times more than the usual fee for other popular authors.

II. The Late Eighteenth-Century Book Market and Goethe's Informational Problem

Goethe left no indication whatsoever of the particular motives behind the design of the second-price auction.³ Nevertheless, we want to argue that, as a step toward the general goal of revenue maximization, Goethe's main aspiration was to reduce the informational asymmetry between author and publisher concerning the expected profit from a book: he wanted to learn about his "value."⁴ There is no doubt that Goethe was aware of this asymmetry and of the subsequent disadvantage for the author (although he probably exagger-

² Vickrey was awarded the 1966 Nobel Memorial Prize in Economic Sciences mainly for this work.

³ Goethe's mechanism was treated as a mystery by literary researchers. The first relation to a second-price auction appears in Tietzel (1995).

⁴ At the end of the eighteenth century, increasing literacy, the popularization of new literary forms (e.g., the novel), and a relatively high income level led to a very drastic increase in the demand for books. Rosen (1981) explains how "superstars" might win disproportionately high rents in similar situations. It is quite probable that, given this change of environment, Goethe's strategy also reflects his general dissatisfaction with the then-common form of fixed authors' fees.

ated the quality of information available to the publisher). He explicitly refers to the asymmetry in a letter to Boisserée, dated January 12, 1828: "Let me . . . name the main evil. It is this: the publisher always knows the profit to himself and his family, whereas the author is totally in the dark" (see Steinhilber 1960, p. 159).

Although the informational asymmetry is probably pertinent to most author-publisher relations, there are two related reasons why the situation was particularly critical in Goethe's lifetime.

1. The main feature of the German book market at that time was the absence of copyrights. This notable absence can be explained by Germany's division into no fewer than 314 sovereign principalities and by the resulting free-rider effects among those ministates.⁵ As a consequence, the book market was plagued by a wealth of "pirate" copies. Of course, the number of pirate copies was directly proportional to the success of an original edition, and the original publishers, which bore all the entrepreneurial risk, had no interest in revealing to outsiders the number of printed copies, the volume of sales, the titles that turned out to be best-sellers, and so forth.

2. The lack of copyrights caused another legal ambiguity that led to repeated conflicts: publishers tended to believe that buying a manuscript conferred on them the right to publish it again and again, "forever." In contrast, many authors acted according to the belief that the fixed fee that they obtained for a manuscript conferred rights on the publisher for one edition only, and after that edition's exhaustion, the author was free to enter into other contractual relations concerning the same manuscript. As a consequence, even serious original publishers did not truthfully inform authors about the number of copies in an edition, the number of editions, and so forth. For example, Goethe complains in a letter to Friedrich Schiller, dated April 8, 1805: "I also noticed that Göschen printed a four-volume edition under the wrong years 1787 and 1791, although we never spoke about that" (see Hagen 1983).

We now briefly summarize the main properties of Goethe's procedure. Assume, as the simplest first approximation, that Vieweg regards Goethe's sealed reserve price as a random variable that is distributed independently of his own valuation. It is then optimal for Vieweg to make a bid equal to his true willingness to pay.⁶ From the point of view of naive, one-shot revenue maximization, Goethe could

⁵ Copyrights were common practice in centralized France and England. They were adopted also in Germany after the unification of the late nineteenth century.

⁶ When valuations are affiliated (this is a form of correlation), the winning bid in a second-price, sealed-bid auction overstates the willingness to pay (i.e., it is higher than the expected value for the object, conditional on winning). For details, see Milgrom and Weber (1982) and McAfee and McMillan (1987).

have made as well a take-it-or-leave-it offer at an explicit reserve price. Both methods lead to the same revenue, and, under the assumption that the seller faces only one bidder and that the reserve price is set optimally, these are the best among all conceivable selling procedures. However, in the take-it-or-leave-it version, Vieweg would be supposed to answer "yes" or "no," and Goethe could not have obtained precise information about the publisher's true valuation. Moreover, Goethe's chosen method has the advantage that the seller does not reveal precise information in case a transaction does not take place.⁷ This may be advantageous for future transactions concerning similar works.⁸

III. Aftermath

The reader may be curious about the outcome of the "game." Although Goethe was able to devise such a clever scheme, he did not anticipate the behavior of Counsel Böttiger, who wrote the following letter to Vieweg:

The sealed note with the imprisoned Golden Wolf is really in my office. Now, tell me what can and will you pay? I put myself in your place, dear Vieweg, and feel what a spectator, who is your friend, can feel. Given what I approximately know about Goethe's fees from Göschen, Bertuch, Cotta and Unger, let me just add one thing: you cannot bid under 200 Friedrichs d'or. [Jensen 1984, p. 651]

As the reader may have guessed, 200 Friedrichs d'or were worth exactly 1,000 talers! Without excessive subtlety, Böttiger revealed Goethe's sealed demand, and Vieweg offered exactly that sum. The ignorant Goethe accepted the offer, but his aspiration—to learn about his true "worth"—was, alas, not fulfilled.

Tietzel's (1995) estimate for Vieweg's profit from the first edition of 6,000 books is 2,600 talers. *Hermann and Dorothea* was a best-seller, and till 1830 Vieweg printed (without telling Goethe!) at least another 20,000 copies.

Even if we neglect Böttiger's treason (which did not affect

⁷ Note that the optimality of Goethe's scheme depends on the ability to commit on the reserve price. Commitments based on a secret reserve price are, in general, hard to achieve: if it is secret, what is to stop the seller from renegeing? Part of Goethe's cleverness consisted in devising the scheme such that commitment is achieved by using a third, neutral party.

⁸ In view of future possible deals, Vieweg had an incentive to bid less than his true valuation. But the chances of another deal with Goethe were slim since Goethe continuously changed publishers.

Goethe's revenue), it is important to note that a better course of action would have been to organize an auction with more participants. For the case of symmetric risk-neutral bidders with independent signals, Bulow and Klemperer (1996) show that an English auction with *no* reserve price (which is then revenue-equivalent to a second-price, sealed-bid auction) with $N + 1$ bidders is, in expectation, more profitable than *any* selling procedure with only N participants.⁹

In 1828, Goethe indeed used the strategy of attracting many bidders for the publication of his collected works (which was considered a seminal event): after Goethe's intention to publish such a collection appeared in the press, no fewer than 36 publishers made bids. Not all bidding publishers were considered serious enough to be entrusted with such an important task (around 40 volumes were needed). Goethe accepted an offer of 60,000 talers from the well-known publisher Cotta. Having in mind Goethe's profit from the sale of *Hermann and Dorothea* (which was only 25 percent of the total profit from the first edition), note that the auction with many bidders enabled Goethe to obtain a much higher share of the cake. Whereas Goethe quickly cashed 60,000 talers, Cotta earned a profit of around 70,000 talers,¹⁰ but stretched over 12 years.

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⁹ A weaker form of this result holds for the case of affiliated signals.

¹⁰ Our estimate of Cotta's profit is based on data that are somewhat less precise than those used to estimate Vieweg's profit. From the discounted value of 70,000 talers (which is an optimistic estimate) one should also deduct storage and mailing costs. On the other hand, Cotta probably had some indirect gains, due to the prestige of having published such a major work.

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