5

Rational Bidding Strategies

5.1 Bidding in an English auction

Imagine you are bidding at an English auction in a traditional auction house. The item is an antique jewelry case meant to be a birthday present for your wife. You have a concrete idea of how much you want to pay maximum for it, because you have already found a case somewhere else that would cost 150 euros. However, its style and condition are not quite as nice as that offered in the auction. But you will not bid more than 150 euros in any case, because it is not a special birthday with a round number.

In other words, you have fixed an indifference price which you are very aware of. If you win the auction with a price that is lower than your indifference price, then you will be very pleased about the difference. But if the price in the auction approaches that of your indifference price, when will you quit? The answer is obvious; you will bid to exactly 150 euros and then give up. That is also the core of bidding strategy in an English auction: To bid precisely to your own indifference price and then give up.

We can discuss various other tactics for a dynamic English auction which are possible depending on the design of auction dynamics. For example, it seems to make sense in most cases to increase your bid in the smallest possible increments. In this way, you ensure that you do not have too great a difference to the indifference price of the second-best bidder if your respectively current bid wins.

But it is sometimes an advantage to signal to other bidders with an especially large bid increment that you are powerful and intent on winning. With that, however, we move into the gray zone of the psychological aspects of negotiating which cannot simply be explained rationally or...
on the basis of game theory. By *bidding strategy*, we want to understand the question of which *maximum bid* a bidder will submit. In an English auction, this is determined solely by the indifference price.¹

**Analog bidding strategy in a(n English) purchasing auction**

Does this simple bidding strategy, which is so easy to comprehend for an English sale auction, also apply to a purchasing auction? Let’s put ourselves in the position of a production plant for mechanical parts, which has submitted an offer to a new customer, an automobile component supplier. Following extensive negotiations about many details, it is only a question of the price at the end. The customer has negotiated simultaneously with several alternative suppliers and now has invited all to a purchasing auction to take advantage of the competition argument. The purchasing auction was announced as a dynamic English auction.

Of course, the owner of the production plant has calculated as entrepreneur at which price the project still produces a profit for him and from which price he takes a loss if the price sinks further. “Profit” and “loss” are always relative terms in these calculations, which depend on how many *fixed costs*² and *opportunity costs*³ the project will involve and how high the estimation of profit potential with this customer is once the production plant has its foot in the door. The entrepreneur has considered all of these things, so that he can name precisely the price at which his preference switches between “we want to have this order” and “we prefer not taking this order”. In other words, he has a fixed indifference price which he is very conscious of. Exactly as in the sales auction, he theoretically must bid until his indifference price and then stop. Will he really do that?

At first glance, the difference in the sales auction is that the entrepreneur has to make a profit. If he does not make any additional money with his projects, then he need not operate his business. The indifference price is exactly that price at which it is the same whether he takes the project or not. Consequently, why should he bid this price? After all, he also has to accept the price if he wins (contrary to a second-price-sealed-bid auction, which we will analyze in the next section). As a result, he will always want to bid with a markup on his indifference price.

But when the price competition at the auction approaches his indifference price, then there is no limit before his indifference price from which it would make sense to stop bidding. Even if his profit becomes increasingly smaller, it is larger than zero as long as the price is higher than his indifference price.