A new selling mechanism has recently appeared on internet auction sites: a buyout option. A buyout option allows a potential bidder to purchase the item being auctioned at a pre-specified buyout price, instead of attempting to obtain the item through the traditional auction procedure. There is virtually no existing literature related to this issue. As a result, no general insights have been made regarding how participants should behave in such an auction.

The focus of the analysis here is an auction with a temporary buyout option, an option like those found on eBay, which may cease to be available before the auction ends. Possible motivations for a seller to offer a buyout option and for bidders to exercise such options are identified. The analysis centers on varying risk attitudes and time impatience by market participants. Two models of auctions with temporary buyout options are analyzed.

The benchmark model consists of a three stage game. In the first stage the seller sets a buyout price. During the second stage, all potential bidders (each knowing his own valuation as well as the buyout price specified by the seller during stage one) decide simultaneously and independently whether or not to exercise the buyout option. If no bidder chooses to exercise the option, then the item is sold by way of a sealed bid second price auction in the third stage. When all agents are risk neutral an equilibrium is identified in which the seller chooses a buyout price which results in the option never being exercised in equilibrium. Risk aversion on the part of the seller or on the part of bidders can lead to the seller optimally choosing a buyout price that results in the option being exercised with positive probability in equilibrium. Further, if bidders are risk neutral and the seller is risk averse, allowing the seller to offer a buyout option results in an ex ante Pareto improvement, compared to a sealed bid second price auction.

One of the reasons eBay introduced the buyout option was that they found buyers wanted to be able to obtain and sellers wanted to be able to sell the items being auctioned more quickly. In order to introduce such considerations, a model of an auction occurring over continuous time with rules similar to those found on eBay is developed. This second model consists of a two stage game. In the first stage the seller sets a buyout price. The second stage consists of an ascending price auction occurring over continuous time on the unit interval. Each bidder realizes not only an independent private valuation, but also an
independent arrival time that is distributed uniformly between zero and one. A bidder may actively participate in the auction only after his arrival time. The buyout option is available in stage two so long as it has not been exercised and so long as no bids have been placed. These rules mirror those found on eBay.

The model is initially analyzed assuming no time impatience on the part of any market participants. In such a scenario an equilibrium is identified in which the seller will choose a buyout price that results in the option never being exercised in equilibrium. Market participants are subsequently allowed to be time impatient, preferring a given transaction to occur sooner as opposed to later. It is shown that time impatience by either the seller or the bidders can lead to the seller optimally choosing a buyout price that results in the buyout option being exercised with positive probability in equilibrium. Additionally, if the seller is time impatient while bidders are not, allowing the seller to offer a buyout option results in an ex ante Pareto improvement, compared to a similar auction without a buyout option. To conclude the analysis of this model, it is shown that a risk averse seller in this environment will also choose a buyout price that results in the option being exercised with positive probability in equilibrium.

Finally, the issue of whether or not it is possible for a seller to further improve upon a single fixed buyout price is addressed. A four stage variation of the benchmark model is examined, in which the seller is allowed to offer two potentially different buyout prices over two sequential stages. When all market participants are risk neutral an equilibrium is identified in which the seller chooses a sequence of buyout prices which result in neither option being exercised in equilibrium. It is then shown that a risk averse seller facing risk neutral bidders will choose a sequence of buyout prices which result in the buyout option being exercised at each unique price with strictly positive probability in equilibrium. Thus, when facing risk neutral bidder, a risk averse seller will always strictly benefit by being able to offer two distinct buyout prices, as opposed to a single fixed buyout price as in the benchmark model.