misreporting their true information.

The main focus of our paper is to address the following questions: i) How should firms share their private information in collusive agreement such that industry profits are the highest? ii) How are the collusive profits under different types of information sharing compared to profits from non-cooperative production? iii) How should colluding firms share their private information in a coalitional incentive compatible way? iv) How should industry profits be distributed among firms in a way which captures the contribution or the "worth" of each firm to total profits?

Other work on the subject [e.g., Donsimoni et al. (1986) and Crampton and Palfrey (1990)] follow an approach similar to ours by assuming that firms abide by the cartel agreement. The problem of explicit collusion in an industry with heterogeneous firms and private information was first considered formally by Roberts (1983). He derives properties of the incentive compatibility constraints associated with a revelation game. He found that without side payments, if firms are sufficiently similar, then monopoly collusion cannot be achieved, but if side payments are allowed such collusion is possible with a dominant strategy mechanism essentially equivalent to the Vickrey (second-price) auction. Rotemberg and Saloner (1990) investigate a price leadership scheme in a differentiated products duopoly in which the firms are asymmetrically informed. Crampton and Palfrey (1990) study the issue of cartel enforcement when the cost of each firm is private information. An enforceable cartel is one which is feasible, incentive compatible and individually rational. They show that if defection results in either Cournot or Bertrand competition, the incentive problem in large cartels is severe enough to prevent the cartel from achieving the monopoly outcome. Laffont and Martimort (1997) study collusion of agents whose objectives are not aligned with that of their organization under asymmetric information.

Our model is different from the above ones. In particular, we have a general model and we address the issue of collusion in a differential information game for the first time. We show that collusion under the pooled information yields the highest industry profits. However, this type of information sharing is not coalitional incentive compatible.[1] We present examples with two firms where one firm can distinguish between two states of nature and the other cannot and the firm with the "superior" information finds it profitable to misreport the true state of nature to the other firm. Only collusion under the common knowledge information is coalitional incentive compatible. It is important to emphasize here that we look at the coalitional incentive compatibility and not at the individual incentive compatibility as, for example, Crampton and Palfrey (1990). An individual incentive compatible

[1] A collusive agreement is coalitional incentive compatible when there does not exist a coalition of firms that can misreport the true state of nature and benefit its members. For a precise definition see definition 7.1.