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or some other associate. This recognition suggests that blackmail has some of the characteristics of social sanctions that promote socially acceptable behavior. If blackmail were legal, there would be a monetary inducement for people to spy on others in an effort to detect, say in the case of marriage, adultery. If a person knew that his adulterous affairs were more likely be detected, and he would have to pay a price for concealment, it is reasonable to suggest there would be a reduced likelihood of persons engaging in adultery. In other words, blackmail acts as a tax on behavior that the blackmail victim does not want exposed. (Palgrave: 107) If blackmail were to produce that result, then a clear beneficiary would be spouses and other associates. In this case the blackmailer might be seen as a private enforcer of moral conduct and marital oaths of fidelity. Criminalization of blackmail eliminates the tax and reduces the incentive for people to search for discrediting information about others.

Blackmailers are often held in violation of 18 U.S.C. §875(d): "Whoever, with intent to extort from any person, firm, association, or corporation, any money or other thing of value, transmits in interstate or foreign commerce any communication containing any threat to injure the property or reputation of the addressee or of another or the reputation of a deceased person or any threat to accuse the addressee or any other person of a crime, shall be fined under this title or imprisoned not more than two years, or both."

In the Cosby case, the threat was to injure the "reputation of the addressee." The question might be asked: is one's reputation his property? Reputation is defined as: "estimation in which a person or thing is commonly held, whether favorable or not; character in the view of the public, the community, etc." (Webster's: 1998) In other words, one's reputation is what others think of him. While reputation is an asset created by investments in honesty and other forms of socially accepted behavior, it is difficult to make an argument that the thoughts of others are in fact his property.

To the extent that the information the blackmailer threatens to reveal is true, the blackmailer threatens to perform a socially valuable function of informing others that the blackmailee is undeserving of the esteem placed upon him. By accepting money in return for his silence, the blackmailer converts this social value to private gain for himself and continued misrepresentation by the blackmailee.

Before the 19th century, blackmail was a crime only if it involved extortion such as threatening to do bodily or property injury if payment were not made. It was not a crime to threaten to expose a person's criminal or immoral behavior in exchange for a payment. Posner says that this was a period in the nation's history when there was more private enforcement of laws, including criminal laws. It was with the rise of public enforcement of laws that blackmail became criminal (Posner: 1983, pp. 284–285).

What constitutes a crime can be divided into two classes *mala in se* and *mala prohibita*. Homicide and robbery are wrong in themselves (*mala in se*). They involve the initiation of force against another. By contrast blackmail, drug abuse, and gambling re *mala prohibita* offenses, and considered criminal, not because they violate the property or person of another, but because society seeks to regulate such behavior. *Mala prohibita* offenses such as alcohol consumption drift in and out of criminal codes according to changes in public opinion, tastes, customs or religious standards.

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See *http://www.mercyseat.com/little2.htm* and also, *http://www.electricscotland.com/history/social/sh16.html*.

BLACK'S SINGLE-PEAKEDNESS CONDITION

Like Kekulé's vision about the ring structure of the carbon molecule, the notion of single-peaked preferences came to Duncan Black as a sudden flash of insight. In the 1940s, Black had independently rediscovered the concept of cyclical preferences and was looking for a way to avoid majority rule cycles (Black, 1958). In single-peakedness he found one.

While single-peaked preferences can be defined in more than one way, Black's definition has a simple elegance: a *single-peaked curve* is one that changes its direction at most once, from up to down. A set of preference orderings is said to be *single-peaked* with respect to some continuum (sequencing of the alternatives) if every voter's utility function over the set of alternatives can be graphed as a single-peaked curve with respect to that continuum. Black's *median voter theorem* states that, when preferences are single-peaked, majority rule preferences are transitive and the feasible alternative which lies highest on the preferences of

the median voter is a *majority winner* (a.k.a. a *Condorcet winner*), i.e., can (for an odd number of voters) receive a majority against each and every other alternative in paired contest.

Black's Theorem is important because the notion of single-peaked preferences provides a useful idealization of a variety of real-world decision-making processes over a single-dimension of choice, and because the theorem is directly linked to important bodies of economic and political theory, including Arrow's Possibility Theorem for Single-Peaked Preferences, Anthony Down's *median voter* (Downs, 1957), *Duverger's Law* (Duverger, 1957), and Amartya Sen's *value restriction* condition (Sen, 1970).

Moreover, the concept of the median voter on a line can be generalized beyond a single dimension (Black and Newing, 1951), and turns out to be critical in understanding the conditions for the existence of core outcomes in multidimensional issue spaces. A natural generalization of Black's Theorem is the result (for *Euclidean preferences*) that a majority rule core exists in a multidimensional voting game if and only if all median lines intersect at a point. Also, the idea of single-peakedness is directly analogous to the ideas that form the basis of the scaling models of mathematical psychologists (Coombs, 1964) which have been used to study the underlying dimensions of choice in legislatures and multi-judge courts (see e.g., Grofman and Brazill, forthcoming).

In the second edition of Arrow's *Social Choice and Individual Values* (1963) Arrow incorporates Black's work on single peakedness, although he defines single-peaked preferences differently, making use of the *betweeness* relation. In Arrow's Possibility Theorem for Single-Peaked Preferences, Arrow replaces his unrestricted domain condition (see Arrow's Theorem, this volume) with the requirement that preference orderings be single-peaked over a single dimension. However, in doing so, he has dramatically restricted the set of feasible preference orderings. For k alternatives, there are k! (k factorial) possible strict preference orderings; but only 2^{k-1} of these are single-peaked with respect to any pre-specified continuum. It is easy to see that the ratio of $k!/2^{k-1}$ approaches zero as k approaches infinity. (However, as I argue below, even when not all preferences are single-peaked, single-peakedness can still be a very powerful explanatory concept.)

Black's median voter theorem can also be linked to the median voter theorem of Anthony Downs. Downs is dealing with voter preferences which are proximity based, i.e., voters are posited to have ideal points (issue preferences) on a line or in a multidimensional issue space, such that, in a choice between any two alternatives, each voter prefers that alternative which lies closest to her own ideal point. Proximity-based preferences along alternatives that can be characterized as points on a line imply single-peaked utility curves over that line. Thus, in the context of Down's analysis, when alternatives and voter ideal points can be viewed as points on a line, Black's median voter theorem says that the alternative closest to the ideal point of the median will be able (for an odd number of voters) to defeat any other alternative on the line that might be proposed. However, the two median voter theorems should not be confused.

Downs' median voter theorem is about the structure of competition between political parties. Downs' theorem says that, when voters have proximity based preferences along a line, and when voting is by simple plurality, and when there are only two political parties, and when a variety of other quite specific "institutional" and "behavioral" assumptions are satisfied (see Grofman, 1993), competition creates incentives that lead to party platforms that converge to the ideal point of the median voter.

Thus, while Black's Theorem tells us that the median voter's preferences are potentially influential because her ideal point is a majority winner, Downs states conditions under which that potential influence will be realized when we have two-party competition in a single dimension. Black's result is about the structure of preferences; Down's theorem is (at least implicitly) a game-theoretic model about the results of strategic interactions.

Black's median voter result also can be viewed as a potential foundation for Duverger's Law, the claim that political party competition in single member districts using plurality to select the winner will result in the reduction of the number of (effective) competing parties to two. (Recall that Downs posited two-party competition; he did not derive it endogenously from an explicit model.) Theorists who have attempted to provide a precise game-theoretic basis for Duverger's Law have usually done so in expectational terms, i.e., arguing that voters will not choose to waste votes on candidates who have no chance of winning (and candidates with no choice of winning will be discouraged from running), and observing that, in a plurality-based system with a single winner, in a repeated game framework, there will usually be at most two candidates who have any realistic chance of victory. However, if we posit that party competition is over a one-dimensional issue space, then we can argue that, if there are two relatively centrist parties already in place, third parties will be deterred from entry because a party that locates between the two existing parties will receive few votes, and a party that locates toward one end of the issue space, away from the median voter also will be unlikely to do well

(cf. Taagepera and Grofman, 1985). Of course, other non-Duvergerian equilibria may also exist.

Amartya Sen (1970) has generalized Black's single-peakedness condition by recognizing that there are three parallel ways to avoid cycles, of which single-peakedness is only one. Since cycles are based on triples, it is sufficient to examine conditions for cyclicity on triples. For simplicity of exposition we restrict ourselves to strict orders (no ties). Sen's condition on triples that is equivalent to single-peakedness is the NW (not worst) condition, the requirement that of the strict orders we find among any three alternatives, there be one alternative among the three that is never found to be worst in the preference ordering of any voter (i.e., at the bottom of the voter's ordering). A second conditions is NB (not best), which is equivalent to what Black calls *single-troughedness*, involving curves that change their direction at most once, from down to up. The third condition is the NM (not middle) condition, which has no clear spatial analogue, and no clear intuitive underpinning either.

A well-known (and frequently misinterpreted) result due to Sen is that the combination of these three conditions (referred to as *value restriction*) is, for strict orders, both sufficient and necessary for transitivity. Here, however, Sen is using the term necessary in a way that is different from common practice (Sen, 1970, p. 183). Sen uses necessity to refer to a condition that guarantees transitivity no matter what frequency (or probability) distribution we assign to the orderings that are allowed to be feasible. But, in actuality, we will always have a particular distribution of preference orderings. It is easy to show that that we can find a set of preference orderings that simultaneously violates NW, NB and NM, yet generates transitive majority rule. Consider, for example, two voters each with preference ordering abc, plus one voter each with orderings acb, bac, bca, cab, and cba respectively. All six possible strict orderings are present, and value restriction is thus clearly violated, yet the majority rule order is abc (Regenwetter et al., forthcoming).

Similarly, when Feld and Grofman (1988) studied voter preferences in 1980 among four potential candidates for president of the U.S., they found that all 24 of the possible strict orders were present among the electorate, yet there was a transitive majority ordering among the four alternatives which was single-peaked with respect to the left-right political spectrum on which the candidates would be placed by expert observers. Moreover, when they looked at subsets of the electorate, they also found transitive majority preferences that were single-peaked with respect to that left-right dimension, even though the specific ordering could vary depending upon the characteristics of the subset being examined.

Indeed, the work of a number of scholars, and not just my own, has demonstrated that, while single-peakedness may not characterize all (or even most) voters, in real world polities, political choices often tend toward single-peakedness at an aggregate level, when we allow opposite preferences to cancel out. (*Opposite preferences* are pairs of orderings which run in reverse order, e.g., abc and cba.) We can account for this empirical phenomenon of the prevalence of single-peaked orderings at the aggregate level either in terms of general tendencies toward single-peakedness at the individual level that are coupled with a probabilistic error structure that "hides" the underlying pattern, or in terms of a (small) subset of the electorate being characterized by single-peaked preferences and the rest of the electorate having preferences shaped by numerous and diverse considerations that in the aggregate tend to cancel each other out (Regenwetter et al., forthcoming).

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