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DEONTIC LOGIC AND THE NATURE OF LEGAL REASONING.*

Following Von Wright's analysis of the formal aspects of normative discourse significant amount of effort has been devoted to explorations of methods by which norm and action related discourse can be formalized. All such explorations, however, have two things in common : they either base themselves on modal logic or construe models which are analogous; and they are, by and large, extensional. Logic of norms and actions is now generally called deontic logic. The ambit of deontic logic is evidently wide : it includes moral, legal, religious and political discourse. By extension one may also encompass the logic of imperatives and perferences within it. In this paper, however, I will discuss denotic logic mainly with reference to legal discourse, in a manner which characterizes the requirements of legal logic in particular but consequently draws inferences about deontic logic in general.

In my view there are some serious foundational problems in the type of deontic logic presently being done. This becomes evident when we consider legal logic, specially of the type Ilmar Tammello and others have proposed. This paper is an attempt to explain these foundational issues and the possible alternatives.

There are two approaches to the study of formal relations in normative discourse or social actions. One way is to accept some basic principles of ordinary or modal logic and then attempt to derive the basic formal principles concerning norms or actions as a sub-set of these more general modal or ordinary logical

principles. The other way would be to begin by actually observing the phenomena of normative discourse or social actions in some detail, without any preconception about what formal principles could (or do) obtain, and then attempt to inductively infer the types of basic formal principles that in fact obtain in such phenomena.

Deontic logic, the study of basic formal principles concerning norms or actions, has unfortunately witnessed mainly the first type of approach, by and large. It is unfortunate because, as I will try to show, one need not assume that both deductive and inductive approaches to the study lead to similar conclusions.

The first type of approach – of deducing deontic logic from modal logic, has usually been the peroccupation of philosophers–mostly those influenced by Logicism, Formalism or more generally Logical Positivism, in one way or another. The second type of approach has been the domain of the lawyers, who seem to be more at home with the details of the normative discourse and social actions, but at a distance from the abstract formalism of logicians. "The life of law is experience, not logic", said Holmes. However, this does not preclude the possibility of the jurist drawing logical inferences from their experiences. To do so would be to follow the second approach mentioned above. A leading jurist who did this, as we know, was W. N. Hohfeld. He did not attempt to derive his principles from more basic principles, but simply formalize the intuitions he had gained in experience. However, as compared to the numerous philosophers who have sought the deductive method of systematizing deontic relations, on the inductive side one can perhaps point only to Hohfeld as one who succeeded in enlightening us in some original ways.

The point is not about the number of people to be found on the deductive or inductive side of the camp. What is important to note is the qualitatively different type of analysis and consequent discussions offered by the Hohfeldians as campared to those of formalists. Hohfeld too, it must be remembered, is attempting to explicate the relationships of necessity, entailment, implication, etc, between deontic notions such as obligations (duties) and rights, and privileges, etc., just as the formalists seek to establish the relationships between obligations and permissions, or commitment and prohibition. The assertions that 'every duty entails a right', or that 'every right necessitates a corresponding duty' — which a Hohfeldian may make, are as much expressions of deontic logic as the corresponding assertions of the formalists, such as 'every duty entails permission' (whatever is obligatory is permissible).

If the subject matter of the study for both the Hohfeldians and the formalists, such as Von Wright and Ilmar Tammelo, is the same i.e., if both are seeking to eventually explicate the formal relations that obtain between concepts, propositions or actions in the normative realm one must ask why is there such a major difference in the nature of the analysis they offer, and the type of enterprise they engage in ? Is this merely a matter of differences in style and emphasis or are deeper issues at stake ? Clearly, in so far as the deontic logicians ' enterprise is meant to be of some use to the jurists, the hiatus between the philosophical endeavour and the jurisprudential one is intolerable. It cannot be simply passed off as differences in style or emphasis – given that the subject matter for both is the same. But how is one to reconcile the differences and to make the one bear upon the other ?

To my understanding, the differences in the two approaches are not *prima facie*. They relate to some basic intuitions on both

sides. These intuitions or assumptions need to be made explicit if we are to understand the problems at the deeper level. The best way to do this, perhaps, would be to observe the manner in which deontic logic has historically evolved.

Deontic logic derives its life from modal logic. Modal syllogistic seems to have been Aristotle's last major contribution to logic. It is to be found in his *Prior Analytics* (chps. 3 and 8–22, Book–I). Some elementary discussions are also to be found in *De Interpretatione* (chps. 12 & 13). In general terms, Aristotle's modal logic involves the study of notions such as necessity, impossibility, possibility and contingency. He laid down that a proposition is possible if and only if its negation is not necessary. Similary, a proposition is said to be necessary if and only if its negation is not possible. The notion of contingency is treated in *De Interpretatione* as synonymous with that of possibility, but in the *Prior Analytics* it is defined to imply that a proposition is contingent if and only if it is neither necessary nor impossible. These definitions lead to various problems, but the important fact to note here is that the Aristotelian conception of the difference between necessity and contingency clearly presupposes a particular metaphysics, namely that the real nature of a thing is its essence. In Aristotle's view absolutely necessary truths express insights into the nature of its being. There are analogous senses of 'possible'. In so far as one is concerned with a world in which things are more than their essences one may say that some features of the things are merely possible (contingent) since those particular features are not entailed by the essence of the things in question. A contingent proposition for Aristotle would hence be one whose truth is not determined simply by the essence of the things about which it is asserted.

When in the seventeenth and the eighteenth century philosophers such as Leibniz and Hume moved the realm of necessary truths to the relation between ideas or concepts, the proposition opposed to the necessary truth became not those which are merely possible but contingent truths, i.e., propositions which are not true in themselves. The rejection of the Aristotelian scheme of essences eliminated absolutely necessary truths about the world; only contingent ones remained. Similarly, since the theory about essences was replaced by theory about concepts, the necessary relationship between concepts came to be identified with impossibility or absolute possibility (logical possibility). It must be remembered, however, that the necessary – possible distinction is equivalent to the essential – contingent distinction only if the former categories are taken in their absolute sense. The rejection of essences allowed the opposition of necessary to contingent *simpliciter*. The next step of characterizing necessary relationships between concepts as analytic and subsequently in terms of apriority occurs in the works of Leibniz and Kant and becomes explicit in those of the logical positivists. Such identifications assume that the things do not have essences, or at least that we cannot know them. The logical consequence of eliminating essence is to reduce all our knowledge of the world to a knowledge of accidental properties. It is important to note here that both in the earlier and in this century these various developments concerning the modal notions have occurred in a context of epistemology which is concerned mainly with formalism in mathematics and natural sciences, not in context of normative discourse. How does this bear upon the development of deontic logic ?

In the middle ages it was realized that the logic of the permissible and the obligatory in some ways paralled that of the possible and the necessary, and could be regarded as falling under modal

logic in a broad sense. Systematic treatment of modal logic in modern times, therefore, naturally led to exploit this analogy to its logical consequences, *i.e.*, to handle deontic logic in the manner of modal logic and base the former on the letter; this is evident in the works of E. Mally (1926) and Kurt Grelling and Karl Reach in the late 1930s.[1] This major development, however, completely ignored the reorientation in metaphysics and the consequent change in the meanings of 'necessity', 'possibility', *etc.*, that occurred in the course of the evolution of logical positivism. It, therefore, did not introspect whether the epistemological context in which the modal notions had received their new meanings was actually appropriate for the normative context of the social realm, whether the sorts of 'necessity' and possibilities' that obtain in social actions are similar to those concerning the physical or the mathematical realm.

Typical principles of modal logic are : whatever is necessary is possible, that what is impossible is necessarily false and *vice versa*, and that what is necessitated by something necessary is itself necessary. Analogously, it would seem that one can construe deontic logical principles of the type : whatever is obligatory is permissible, that what is forbidden (not permissible) we are obliged not to do and *vice versa*, and that what we are committed to by something obligatory is itself obligatory. On the face of it, thus, the structure of deontic logic appears to be like that of a fragement of modal logic, and a simple way of presenting it formally would be to take some system of modal logic, replace " It is necessarily the case that..." by " It ought to be the case that..." and " It can be the case that..." by " It is permissible that...", and omit those laws that fail to remain valid after this transformation. Studies by G. H. Von Wright (1951) has stimulated extensive research in this direction.[2] Numerous attempts have been made, following Von Wright's work, to

fruitfully enlarge the deontic system to accommodate as many principles of modal logic as possible. But before we begin to discuss these developments it will be important to return to the basic notions of ' necessity ' and ' possibility ' and inquire whether the shift from modal logic to deontic logic is well grounded, that is, whether these basic modal notions can be employed in deontic logic without creating some basic semantical confusions about the meaning of the terms.

To begin with, let us scrutinize the meaning of a fundamental modal principle : whatever is necessary is possible. In what sense of necessity and possibility is the relation being asserted ? Is it merely conceptual (logical), or *de dicto* (between sentences), or *de re* (essential or metaphysical) ? It is not inconceivable that some one may argue that in actual life all that is necessary is not possible. For example, although it is necessary to be compassionate or loving to all, given human nature or the nature of social life, it is not possible. Or similarly, although it is necessary to be always honest, given the nature of social contingencies it is not possible. Bradley argued that it is impossible to be just in an unjust society. It may even be argued that some social ideals, such as of equality or autonomy are impossible although necessary. These arguments are not meaningless nor are they self-evidently false. What they in fact appeal to is a sense of necessity which goes beyond the merely logical. If one were to characterise this as an appeal to the nature of things or state of affairs then one may say the sense of necessity invoked is that of metaphysical or essential (*de re*) necessity. The 'necessity' in question is not lagical or *de dicto*. The argument then simply is : the existential quantifier 'whatever', in the modal principle 'whatever is necessary is possible', does not hold true for the deontic realm; deontically : 'some things which are necessary are possible' and 'some (other) things which are necessary are

impossible', both propositions are true. More fundamentally the argument amounts to the assertion that with respect to actions and norms the syntax is not independent of the semantics, the semantics involves ontology, therefore the deontologised syntactical rules of modal logic just cannot form the basis of deontic logic, nor can the latter be derived from the former.

A typical example of how adoption of assumedly self evident modal rules as deontic rules leads to strange conclusions is Hintikka's 'paradox'.[3] Like other deontic logicians Jaakko Hintikka assumes 'whatever is necessary is possible' or its deontic equivalent ' whatever is obligatory is impossible ', and hence its opposite ' whatever is impossible is not obligatory '. From this he goes on to show that ' whatever is impossible is forbidden ', in the following way : it seems clear that

(1) to do something which cannot be done withotu something wrong being done would itself be wrong to do, but

(2) the impossible cannot be done with or without something wrong being done;

(3) but by (1) if Y is wrong and doing X - but - not - Y is impossible, it is wrong to do X;

(4) therefore : if it is impossible to do X, it is wrong to do it.

This ' paradox ' is puzzling as it is, but it becomes more dubious if one realizes that from Hintikka's principle, together with the principle that what is wrong to do it is wrong to attempt, it would follow that it is wrong even to attempt the impossible. Numerous arguments have been advanced to resolve Hintikka's paradox. They revolve mostly round the notion of ' impossible actions ', attempting to show that the notion is meaningless. The absurdity of the conclusion, however, arises due to the unquestioned assumption of the very first premises :

'whatever is necessary (obligatory) is possible', or its opposite 'whatever is impossible is not obligatory'. Deontically it would not be false or meaningless to say that many things which are presently impossible are nonetheless obligatory, for example being always honest or truthful. It is hence perhaps that Kant said "Act *as if* you are a member of the kingdom of Ends", (even if presently you are not); only in a kingdom of Ends, presumably, all that is necessary (obligatory) will be possible and all impossible actions not obligatory.[4]

There are good reasons to believe that moral or legal necessity or (obligation) is radically different from conceptual necessity. Contemporary deontic logic, which has neither paid attention to the Aristotelian analysis nor to the details of the way relationships of duties and its correlates actually work in legal or moral affairs, is evidently belabouring with conceptios and rules which are inherently inapplicable to the deontic realm. Major efforts have thus sought either to simplify deontic logic to fit the modal paradigm or to interpret the grammar of obligation statements in ways which are conducive to this paradigm. Thus for example A. R. Anderson proposes to simplify obligation statements (imperatives) as conditional indicatives–a scheme in which "you ought to do X" would mean "If X is not done then necessarily some sanction or penalty will be applied."[5] Although such an interpretation of an imperative may simplify deontic logic it would not do justice to either moral obligations (since not all moral actions involve the application of some sanction or penalty), nor to legal obligations (since not all legal obligations are contractual, e.g. : the duty to vote), beside there are varieties of legal obligations coming under strict liability, vicarious–liability, etc., all of which do not involve sanctions or penalties in the same way.

To argue that deontic logic cannot be tailored to fit the requirements of modal logic is not to suggest that all inquiries into the grammar of obligation statements are without significance, issues such as whether deontic operators attach to propositions or action create genuine puzzlements. Here works such as of Robert Nozick, Richard Routley, Von Wright, R. M. Hare H. N. Castaneda and others constitute valuable explorations into depth grammar.[6] They also provide fruitful insights into transformational grammar, *vis a vis* normative discourse; for example the transformational rules concering 'better than' sentence (preferences), those concerning transformation of imperatives into indicatives, *etc.* These analyses, however, pertain to the English language only – *i.e.* the manner in which 'obligations' 'preferences' 'requirements', *etc.*, are expressed in English. In another language the depth grammar would be different. For example, there is no equivalent of the English 'ought' in Hindi. The Hindi equivalent of 'you ought to do thus' is '*Tumhen aisa karna chahiye*' the word-to-word translation of which would be 'you thus to do should want' the locutionary force of which can be rendered as 'you should by yourself want to do thus'. If one were to do deontic logic in Hindi, questions such as whether 'ought' is a deontic operator and whether it attaches to propositions or actions would just not arise. Perhaps one would naturally be led to the logic of preferences (in terms of wants or desires). The questions about whether or not deontic operators attach to actions, or to something else, would also not arise in the same way in Hindi and other languages derived from Sanskrit, for another reason. Whereas English grammar is descriptive, the Paninian Sanskrit grammar (on which Hindi grammar is also based) is generative. In Sanskrit language each term reveals its genetic relationship (its roots) in relation to other terms. For example, while the term 'obligation' does not tell by itself, what is refers to, the Sanskrit (and Hindi) term '*Kartavya*' at

once tells that it refers to action, since the genetic root of the term is *Kṛ* (to do/act) and the term is derived from this verb root.

Linguistic specificity, *i.e.*, the depth grammar of English, should not be mistaken for deontic logic. What is required here, evidently, is a detailed study of the transformational and generative grammar of various languages in relation to how obligations, preferences, rights, permissions, prohibitions *etc.*, are expressed in them, so that one may be able to distinguish genuine deontic rules from mere linguistic ones. Evidently what the deontic logician wants is trans-linguistic rules, that is, rules which apply to all languages. But this cannot be comprehended unless one also simultaneously comprehends what is language specific.

In the absence of this what one may end up with is formal abstractions of the type which Ilmar Tammelo advocates for law. Besides invoking the usual modal principles Tammelo brings with some specific ' closure rules ' or ' sealing principles ', which are assumed to be the most basic formal deontic principles at the boundaries of legal discourse, that is, these principles are assumed to be limiting rules for intelligible legal discourse.[7] Among such closure rules which Tammelo and other deontic logicians assert are : ' whatever is not prohibited is permitted ', and its opposite, ' whatever is not permitted is prohibited '. Now are these rules principles of deontic logic or statements of legal or political conditions specific to a particular society ? On the face of it they may seem to be basic deontic principles, but if we carefully look at the semantics of the terms ' prohibition ' or ' permission ', as they occur in various legal systems, it would become evident that the actual conditions under which prohibitions and permissions occur differ from system to system. Moreover the truth conditions for a statement ' X is prohibited ' is very different from that of ' X is permitted '. The two cannot be

equated. In non-totalitatian or non-dictatorial political societies the fact that people are free to act as they wish and that they would generally act in accordance with law, is something already presupposed by the law. The *granting* of freedom *i.e.*, of permission to do something, can only arise in very special circumstances in law. There seem to be two such special conditions : first, when there has been a verdict to the effect that someone's freedom is to be curbed for some reason, such as when a criminal is put behind bars. Permission is required in such cases to allow some special favours to the convict. The second arises when special circumstances require acting in contradiction to the generally established law, such as when one needs to look into someone's personal belongings-in the way the police needs legal permission (warrant) to search someone's house. Similarly, prohibition by law also occurrs in very special circumstances. It is required, for example, when the public has to be prevented from incurring some personal harm, such as when one needs to prevent people from driving over a weak bridge, swim in dangerous waters, refrain from smoking, or not go near nuclear dumps, *etc.* The arbitrary deontic claim that ' *whatever* is not prohibited is permitted ' is legally false. In a democracy there are many actions which are not prohibited but it does not make sense to ask whether there are rules permitting these actions unless one has special reasons to do so. As noted, permitting a non-prohibited action, such as taking a morning walk or your bed tea, requires extra-ordinary circumstances. The historical roots of the assertion that ' every action that is not prohibited is permitted ' seems to lie in the assumption that the general freedom to act, stands in need of permission by the sovereign, or that one works and lives in the jurisdiction by the grace of the rule maker. This is a residue of a feudal mentality where the monarch owned everything (including perhaps people's lives) and gave permission to work and be free.

The basic principles which have been assumed to be deontic principles are therefore not morally neutral. Even the expression that 'whatever is obligatory is possible', is in fact the expression of a moral hope – the way people would want society to be, not as it is. By expressing them in formal languages, as Von Wright or Tammelo do, one does not get away from expressing morally questionable principles.

One may assume that if deontic logic cannot be derived from modal logic (or whatever one may assume modal logic to be) it must at least be in conformity with the principles of ordinary logic. This too, however, does not seem to be the case.

In ordinary logic p and not–p cannot be said of the same object without asserting a false self-contradictory statement. In the deontic realm, however, it would not be false to say, for example, that an action is both just and unjust. It can be just with respect to a set of reasons or group of people and unjust with respect to another. For example, with respect to the judge's action in the *slum-dwellers' case*[8] In India, in which many people living on road pavements in Bombay were asked to vacate, it can be said that the judgement is just from the point of view of town–planning and development of Bombay, but unjust from the point of view of the slum-dwellers. Similarly, with respect to the *Doon Vally case,*[9] in which the court ordered cessation of mining in all environmentally sensitive areas, the ju ge's verdict can be said to be just from an ecological point of view – in terms of the fact that mining had to be stopped to protect the hills for future generations and for the saftey of the local people, but it can also be said to be unjust from the point of view of the labourers who have now been unemployed. Many actions in the social realm can be ascribed contradictory predicates simultaneously if one assumes different frames of references, purposes or priorities. The logical principles of self-identity and self-

contradiction (that p.~p is necessarily false) cannot be applied to deontic logic without creating serious confusions, leave alone deriving deontic rules from those of ordinary logic. The fact that the principle of excluded middle : (p. ~p is false) does not hold for deontic logic becomes more evident if we carefully look at other concepts correlated with the concept of self-contradiction, such as that of consistency and completeness. The deontic conception of consistency or completeness is not the same as that of ordinary logic as applied in axiomatic theories.

The desire for formal completeness seems to be grounded in the possibility of obtaining a system which contains all its logica consequences. This rational requirement of ideal completeness[1] applies to all deductively correlated systems of propositions, whether they be mathematics, physics, biology or law. The epistemological requirement of our reason, however, is one thing, the ontological structure of the world another. From the legitimacy of the requirements for completeness one cannot jump to the conclusion that any normative system is or can be complete. With respect to the normative realm specifically, one can never be sure that one has completely individuated or classified all objects that belong to its ontological realm; moreover there is always room for novel types of entities. Hence one can never be sure whether the set of normative propositions one is dealing with completly describes the set of objects it is meant to describe. Such problems of individuation and classification are very common in law. In normative discourse, therefore, when one talks of completeness one cannot be talking of it in the formal sense– a system containing all its consequences, even in principle. There is a more significant reason, however, why the notion of normative completeness is different from the usual formal one. It is desirable, for instance, that law be complete for the basic reason that it must apply to all cases, but the desire to apply it to all

cases is itself grounded in the reason that we want to protect everyone from injustice. Law is intended to be complete in the sense that all socially relevant circumstances are correlated to at least same legal norm so that these norms may be applied to these circumstances to protect people from being treated unjustly. Such a sense of completeness, clearly, is not merely a formal sense. Law is also intended to be *morally* complete. As noted, various thinkers have nonetheless discussed the question of legal completeness in terms of ' closure rules ' as if this were a matter of more formal consideration. [10]

One may similarly note the different sense of 'consistency' in legal discourse. Since the discourse is a system of deductively correlated propositions its basic and derivative propositions must be consistent with each other so that there is an overall consistency in the system. In such a system both p and not-p would not be true for any q, otherwise one would derive any q from it. Legal propositions are characteristically applied in the settlement of disputes so that every sub-set of the basic propositions must consist only of propositions which can be applied together. Evidently this requires more than formal consistency. It involves the notion that such an application be possible in a way that the joint use of the members of the sub-set does not frustrate the intentions of any of the component units. If these conditions were to be violated for some members, those members can be rejected or replaced and were, evidently, wrongly accepted as members. The real members of the system are some other related propositions, specified in part by the conditions for rejection of incompatible members and partly by the end that is intended to be achieved by the introduction of the new members. The possibility of removing the inconsistencies in this way requires a knowledge of the systematic juristic aims. A mere knowledge of the ways incompatibilities formally arise is not enough for being able to replace the inconsistent propositions by consistent ones. The

possibility of making law a consistent system requires a knowledge of its systematic ends, its goals or what is otherwise called the 'spirit of law'. Since the basic ends of law are moral ones, the notion of consistency in application already entails the notion of such ends. Of course, sometimes law is falsely perceived to be merely mechanical, *i.e.*, the judges have to be merely consistent with the legislated laws and precedence. Law, as any practitioner knows, is not such a mechanical enterprise. It is a dynamic process of continuous law making and unmaking. The principle of precedence, however, does not by itself make law mechanical, for the question what makes precedence consistent would always remain – making the explanation regressive.[11]

What is true of the notions of completeness and consistency is also true of their opposites : incompletness and inconsistency. The role that these notions play in normative discourse cannot be captured by their defiinitions of the kind given in formal logic.[12]

In the light of this discussion it should be evident why deontic logic of the type developed by contemporary thinkers is far from being of any use to lawyers, jurists or those who wish to understand the formal aspects of the actual normative discourses. Unless some radical rethinking is done in this field, formalization of such discourse will remain far from satisfactory.

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NOTES

1. See : Kürt Grelling, " Zur Logik der Sollsatze ", in *Unity of Science Forum* (January, 1939) pp. 44–47; and Karel Reach, " Some Comments on Grelling's paper 'Zur Logik der Sollsatze, '' in *Unity of Science Forum* (April, 1939. p. 72).
2. G. H. von Wright's significant contributions are in *An Essay in Modal Logic* (Amsterdam, 1951), Ch. 5., and *Norms and Action* (London, 1963).
3. Jaakko Hintikka. " The Modes of Modality ", *Acta Philosophica Fennica.* Fascicule 16 (1963). 65–82.
4. For details see Leslie Armour and Chhatrapati Singh : ' Kingdom of Ends in Laws and Morals ', in *Indian Philosophical Quarterly*, Jan. 1986.
5. A. R. Anderson : *The Formal Analysis of Normative Systems.* Technical Report No. 2. U. S. Office of Naval Research, Contract No : SAR/ Nonr–609 (16) (1956).
6. Robert Nozick and Richard Routley, " Escaping the good Samaritan Paradox, " in *Mind* Vol. 71 (1962) 377–382. H. N. Castaneda, " Un sistema general de logical normativa. " in *Dianoia.* Vol. 3 (1957) 303–333.
7. Ilmar Tammelo, *Outlines of Modern Legal Logic.* Wiesbaden, Franz Steiner Verlag. GMBH. 1969.
8. *Olga Tellis.* v. *Municipality of Bombay.* A. I. R. 1985 SC. 945.
9. *Rural Litigation Entitlement Kendra Dehradun & Others.* v. *State of U. P.* A. I. R. 1985. SC. 652.
10. For a more detailed discussion of related issues see : Chhatrapati Singh. *Law from Anarchy to Utopia.* Oxford University Press, Delhi. 1985, pp. 13–36.
11. For a more detailed study of the nature of legal proposition see : Leslie Armour, Chhatrapati Singh; ' Constitutional Law and the Nature of Basic Legal Propositions ', *Journal of the Indian Council of Philosophical Research.* Vol. II, No. 2. Spring 1985.
12. For a discussion of the rules of recognition concerning inconsistencies, and incompleteness in law, see : Chhatrapati Singh, *Law from Anarchy to Utopia.* pp. 17–32.

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