Ordered Anarchy: Evolution of the Decentralized Legal Order in the Icelandic Commonwealth

by Birgir T. Runolfsson Solvason

Abstract

The task in this paper is to come up with a theory of cooperation and, then, apply that theory to a particular historical case. The historical case discussed is the rise and evolution of social order in medieval Iceland; the so-called Commonwealth period. The Commonwealth experience poses an interesting question; how did the Commonwealth emerge.

The concepts of reciprocity and cooperation are discussed first, and then an evolutionary theory of cooperation is offered. Next, the theory is put to the test of actually explaining the rise of the Commonwealth's institutional structure. The theory is found highly informative in application and able to account for Iceland's institutional structure. Reciprocal behavior on the part of the Icelanders initiated and created the cooperative institutional system. The keys to stability of the system are found in the encouragement of reciprocical behaviour, where the future repeated engagements are important enough to discourage defections. The Commonwealth was a decentralized structure, based mostly on voluntary cooperation, and enforcements of judgements were private.

1. Introduction

This paper will examine the emergence of social order in the *Icelandic Commonwealth* (930-1264 AD), a critical period in the history of Iceland. I will focus on the settlement of Iceland, showing how the institutions and rules that defined the Commonwealth emerged. There are basically two theories of how the institutional structure arose. The first one builds on the account given by Ari Þorgilsson in *Íslendingabók*. That book claims that the *Alþing* was formed at *Þingvellir* (around) 930.1 It further claims, that the leaders of a local assembly, the *Kjalarnesþing*, initiated the establishment of the *Alþing*. They, according to the *Íslendingabók*, sent a man named *Úlfljótur* to Norway to adapt the West Norwegian law of *Gulaþing*. Upon his return to Iceland, local leaders gathered at *Þingvellir* and agreed on a law code, that Úlfljótur and another man named *Þorleifur hinn spaki* (the wise), proposed. At this first gathering of the *Alþing* a lawspeaker was elected to recite the laws each year, since writing had not yet begun. Interestingly enough, Úlfljótur is not named as a lawspeaker, according to the list of lawspeakers found in the *Íslendingabók*, and this fact makes the story as told in the book less credible.

While JÓHANNESSON [1974] and most other historians simply repeat the account given in *Íslendingabók*, trying to show the logic of this account, LÍNDAL [1969:6-10] disputes this account.2 Líndal states that the medieval legal tradition, the customary law tradition, would not have allowed such a constructivist creation. He claims that if Úlfljótr was actually sent to Norway, then it was only to compare some Icelandic laws to those of the Western regions of Norway but not to copy or learn them. Líndal further claims that there are great differences between the oldest Icelandic laws and the oldest *Gulaþing* laws, so much that the latter could not have been the model for the former. Líndal does not deny that the *Alþing* may have been formed through an organized effort on the part of

some chieftains, but suggests that the *Alþing* could only have arisen as a logical continuation of an existing tradition and structure.
In the study here, I join in Líndal's criticism of the standard account of the rise of the institutional structure, but take his alternative a step further. It is my contention that in rejecting the mainstay of the constructivist explanation, which leaves us without a factual account of how the *Alþing* actually emerged, I must use conjectural history. The conjectural history cannot, of course, escape establishing some connection to what we know of early medieval Iceland. The conjectural history is founded in Líndal's work and supplies a basis for an evolutionary model of the Commonwealth institutions.
Several recent contributions to the study of the emergence of cooperation in a state of nature without a central enforcement agency inform the paper's theoretical perspective.3
The major points demonstrated are the following:

i) My theory predicts that cooperation will evolve and spread, provided only two individuals start cooperating. Taking account of the large-number problem (random interactions), the theory predicts that many cooperative clusters will emerge instead of one large group.
The historical analysis shows how these clusters or groups did emerge in Iceland.

ii) The distinction between trust-rules and solidarity-rules, or clusters of the market type and clusters of the organization type, has relevance. I show that, for trust-rules, there really is no "large-number" problem, while for solidarity-rules, there is such a problem. Icelanders responded to the differences between these types of rules by forming two different types of clusters. The *Þings* were clusters of the market type and the *Hreppar* were clusters of the organization type. As the theory predicts, the *Hreppar* had fewer members than the *Þings*, supporting the hypothesis that only organization-type rules have a "large-number" problem.

iii) For cooperation to emerge among many clusters, all that is needed is for any two groups or any group members to start cooperating, and that group cooperation will then spread. This I call "secondary clustering", because overlapping groups or a hierarchial group structure emerge.
The historical analysis shows how this "secondary clustering" emerged in Iceland, revealing itself in the institutions of the *Vorþing*, the *Fjórðungsþing*, and the *Alþing*.

iv) In the last two sections I discuss possible problems with the cooperative theory, problems with the transmission of information and the reintegration of defectors. I further show how institutions and rules emerged in Iceland to solve such problems. I will suggest that such institutions, although not predicted by the theory offered here, complement it.

2. The Evolution of Cooperation

In solving the problem of how cooperation might have evolved in Iceland it is useful to use game-theoretical analogies. In so doing we may try to determine what the choice situational payoffs are to the respective players in the game. Two classes of games come quickly to mind; coordination games and prisoner's dilemma games. The former are

games with payoffs such that the only rational choices available to the participants result in what we may call a "cooperative" solution to the game. But in the prisoner's dilemma games (PD-games), when other players cooperate, any single player does best by defecting. In some sense, therefore, PD-games, like public goods, have a free-rider problem.

The notions of recurrent dealing and reciprocity are advanced in a recent work on cooperation theory (AXELROD [1984]). If some individuals have recurrent interactions, by adopting reciprocity they can modify each other's behavior. In game-theory terms, this means that cooperation will be rewarded with cooperation, and defection retaliated against by defection. In a one shot PD-game this, of course, does not work, because reward and punishment cannot both be given by a player in the same game.

In a PD game if A cooperates and B defects, A cannot punish B unless they play more than one game. If there are recurrent games between A and B, A could defect to punish B in the next game after B's defection. In a way, A's behavior could be explained by what A has learned; A now knows B.

For cooperation to spread to others, what is needed is that two people start cooperating.[4] However, if defectors interact at random with cooperators, the spread of cooperation will be limited. This is the large number problem. As long as the group is small, there is no opportunity for a defector to interact at random with other members of the group. But after the group has grown to a certain point, the opportunity for defection presents itself. Therefore my cooperation theory predicts that small groups, or clusters, would predominate instead of one large group when large numbers of actors are present.

All this is not to say that human cooperation takes place in a vacuum. Rather, in most cases there are institutions that encourage or enforce cooperative behavior, including property rights, law, money, and other market and state institutions. Observing the rise and, sometimes, the decline, of such institutions, we could say that human history is the history of how cooperation emerged or failed to emerge, how cooperation became stable or unstable.

3. Action Interest and Constitutional Interest

To clarify the theoretical argument I introduce a distinction between "action interest" and "constitutional interest" (VANBERG AND BUCHANAN [1990, 176-80]). The two types of interest do not conflict, but, rather allow one to differentiate between two levels of choice. The constitutional interest is what an individual considers his best interest as a member of a group in general, while action interest is what the individual considers his best interest in a particular situation. The emergence of cooperation is hindered if the two interests do not converge. In coordination problems, these interests do converge, as there are no incentives to drive them apart. For PD-type problems, however, there is a problem of convergence. An individual may prefer a rule for the whole group, such as a rule intended to provide a public good, but, then in a particular situation he may be better off if he consumes the good without paying his share. If reciprocity is practised additional incentives are established to make the two interests converge. As pointed out, though, reciprocity should only be expected to emerge and be effective in small groups or small-number settings, where recurrent dealings are expected.

4. Trust-rules and Solidarity-rules

However, I have described only a part of the problem. Not only are there two types of game problems, the coordination and the PD or conflict type, but PD-games actually include two different sets of rules. These two PD-type rules are trust-rules, like "respect property," and solidarity-rules, like "pay your fair contribution to joint endeavors." The latter are not targeted to particular individuals or groups, as are the former. As VANBERG AND BUCHANAN [1990, 185] put it:

> By his compliance with or transgression of trust-rules a person *selectively* affects specific other persons. Because compliance with or non-compliance with trust-rules is, in this sense, "targeted" the possibility of forming *cooperative clusters* exists...
>
> In contrast to trust-rules, compliance with or violation of solidarity rules cannot be selectively targeted at particular other persons, at least not within some "technically" - i.e. by the nature of the case - defined group. There is always a predefined group *all members of which* are affected by their respective rule related behavior.

In other words, compliance with trust-rules provides benefits for participants. By contrast, compliance with solidarity-rules generates benefits both for participating actors and non-participating ones. The trust-rules therefore become self-enforcing with the additional incentive provided by reciprocity, but this incentive is not enough to make the solidarity rules self-enforcing.

Therefore, trust-rule groups can grow as large as reciprocity allows. An individual only has to discriminate between cooperators and defectors, and he can use his memory of previous interactions to accomplish this. Furthermore, the individual has an incentive to cooperate, since others have the capacity to remember his previous behavior. In trust-rule situations, he would not want to be defected against, since that makes him miss out on benefits. In contrast, for solidarity-rules he does not have this incentive, because these rules are like genuine non-excludable public goods. He benefits whether he cooperates or not, and is possibly better off by defecting (if the cooperative choice has a cost to it). Therefore, reciprocity in recurrent interactions only allows for small cooperative clusters.5 Could cooperation emerge among these groups, and if so, how?

5. Second-Order Clustering

The starting point in my analysis is the cooperation of two individuals. These individuals then become better off, and this leads to the spread of cooperation. Through this mechanism groups are created, all having the common characteristic of being cooperative. But if two individuals can cooperate and become better off, why not two groups? Such "second-order" clustering solves problems of intergroup cooperation.6 If there are recurrent dealings between groups or between individuals from different groups, then the same solution would emerge here as in the original case. Two individuals from two different groups or clusters, begin cooperating: then this second-order cooperation spreads. It can spread, as on the first-order level, through joining or imitation. Groups could have not only first-order boundaries, but also, different second-order boundaries.

At the first-order level the group is bounded by the "optimal number" for cooperative clusters, the optimal number being determined by the range of the solidarity-rules. At the second level, a different group emerges. This second-order group is different in that it incorporates members from more than one group. If this secondary clustering works, then there should be nothing preventing a third order clustering also.7 In this way a hierarchy of groups could emerge without the help of any central enforcement agency.8
The theory here shows, a solution to the "Hobbesian problem" of the war of all against all is possible without a central enforcement agency. One must remember, however, that an original state of nature where all are fighting all is unlikely to have ever existed. I now test the theory against the historical case most resembling a state of nature; the settlement and the rise of social order in medieval Iceland.

6. The Settlement of Iceland

The histories of most early societies were not recorded in writing. An exception is that of the Athenians. Another, only rivaled by the former, is that of the Icelanders. Starting in the twelfth century a brilliant literary tradition arose in Iceland; not only was poetry and prose produced, but also the famous *Icelandic Sagas*.9
The settlement of Iceland began about 870 AD, and during the next sixty years about 30,000 people settled there (JÓHANNESSON [1974, 46-49]). Since Iceland was uninhabited when the first settlers arrived, they could settle anywhere they pleased. According to the *Landnámabók* some of the earliest settlers claimed tracts of land so large that they could not cultivate it all. Although around 30,000 people had settled in Iceland by 930, it is doubtful that all the land was cultivated by that time. Some areas may have been fully cultivated, but some of the land settled may have been unlivable. People may have came to realize the particular piece of land they occupied lacked drinking water, had too much snow, or had poor grass production. Therefore, a need to resettle may have arisen, causing problems. According to the *Landnámabók*, conflicts arose concerning land claims. Local *Þings*, which served as assemblies and courts, must have emerged in Iceland to handle such conflicts.

7. The Emergence of Institutions
The early history of the formation of the Commonwealth as told by Ari, in *Íslendingabók* and by others in *Landnámabók* has mostly gone unchallenged. But, although most modern historians have tacitly accepted Ari's account at least one legal historian has questioned the story. LÍNDAL [1969] concludes that whatever the truth may be it is not what Ari would have us believe.10 For my purposes here the most important point Líndal makes is that because of the customary nature of law in the high middle ages, a recreation or copying of "foreign" laws would not have been acceptable at that time. Líndal claims that since the settlers came from areas scattered around NW-Europe, although most were probably Norse by origin, these people had come into contact with various legal traditions.
Líndal's idea is that the legal system as it evolved in the settlement period was basically a mix of the various legal traditions that the settlers had known before. These laws often conflicted, so a legal structure arose which probably caused additional conflicts of law in addition to substantive disputes. With time, and as the hierarchial legal structure began to

rise, some of the local leaders may have recognized the need to simplify the legal tradition and accept one unified legal code. Líndal therefore assumes that some leaders may have gotten together and discussed these issues, and, taking notice of their differences decided to send Úlfljót abroad to clarify some legal issues.

It is my aim here to use the theory, as presented in the sections above to offer a variation on Líndal's claim and explain the history presented by historians. In essence, the decentralized order theory offers an alternative explanation of the emergence of institutions and social order in the Commonwealth. I do not claim to formalize Líndal's views, but rather to take his challenge and offer an alternative account of the evolution of the legal order in Iceland. Neither do I claim to prove the history of the Commonwealth; the theoretical explanation in this chapter only offers an alternative version of this history - an alternative that I myself find more convincing than Ari's version.

I conjecture, although no historical evidence is available on it, that the first assemblies were presided over by a single leader, a chieftain.11 These were likely very informal gatherings at first, but nonetheless initiated the later more formal and encompassing institutions.

The assembly was presided over by a chieftain instead of a king, as in Scandinavia and the other colonies. Some chieftain oversaw each assembly, but he had no more rights than any other freeman. The sources on this matter are ambiguous, but the way a chieftain established his following supports the view that the chieftains were originally arbitrators. This can be seen in that each freeman-farmer could pick a chieftain to follow; the farmer chose his arbitrator. After the establishment of certain of these chieftainships, their numbers became fixed by law. Each freeman-farmer could still pick a chieftain to follow, but his choices were now limited by the number of chieftains.12

Another institution, the *Hreppur*, seems to have developed early in Icelandic history, probably in the settlement period or the 10th century. But according to the law-book, the *Grágás*, the *Hreppur* was composed of a minimum of twenty farms, and had a five member commission. Among other duties, each *Hreppur* was responsible for seeing that orphans and the poor within its area were fed and housed. It did this by assigning these persons to member farms, which took turns in providing for them. How long each farm had to provide for the person was determined by the wealth of the farm.

The *Hreppur* also served as a property insurance agency. It assisted in case of destruction wrought by fire and diseases of livestock. If a farm's kitchen burned down, the other farmers in the *Hreppur* would pitch in to build a new one. If both kitchen and living quarters burned, then half of each was paid for. In case of disease, if more than a quarter of the livestock died, the other farmers would assist either by contributing money or livestock. There was, furthermore, a maximum amount each farmer had to contribute, and no farmer had to assist the same farm more than three times. The *Hreppur* had its rules and regulations. Among these was a rule that no one could move into the Hreppur unless he had the recommendation of another such unit (see JÓHANNESSON [1974, 103-109], BENEDIKTSSON [1974]). Finally, the *Hreppur* organized and controlled summer grazing lands in cooperation with the members.13

These institutions, the *Þing* and the *Hreppur*, show clearly how "cooperative clusters" developed in medieval Iceland. Both institutions arose at the same time, fairly shortly after the first settlers arrived. This can in part be explained by the fact that the settlers were familiar with the assembly tradition. But since the settlers had different traditions

what emerged was different from these previous traditions. The local *Þings* were less kinship-oriented in Iceland than in other places, and the *Hreppur* was a new development, not known elsewhere.

That these institutions did not span the whole country supports the criticism of Axelrod's theory based on the large-number problem. At some number of people it becomes more beneficial for group members to defect rather than cooperate. What developed in Iceland was a number of each type of institution; many local *Þings* and many more *Hreppar*.

The two types of institutions also support the distinction made between trust-rules and solidarity-rules. The *Þing* functioned as a cluster for market activities, such as trade, and as an arbitrator for two-person dealings. These correspond to problems with trust-rules, and fit the prediction that these rules are essentially for market-type orders. The *Hreppur* was as a cluster for common concerns, such as the need for private and social insurance. It corresponds to problems with solidarity-rules, and fulfills the more general prediction that such rules apply to organization type orders. It is also noteworthy that the *Hreppur* defines the relevant membership group before producing any benefits. This is essential for solidarity-rules groups to be able to emerge.

These two institutions also overlapped in membership. The *Hreppur* was geographical in jurisdiction, while the *Þing* was not. Once a farm had joined a given *Hreppur*, its affiliation could not be changed. The farmer, on the other hand, could change his alliance to another chieftain, and therefore another *Þing*, whenever he wanted. These two institutions also fit the large-number distinction that was made above, in that each *Hreppur* had fewer members than each local *Þing*.[14]

8. Institutions of the Second-Order

Although there is no reason to think that the *Þings* and the *Hreppar* did not work fairly well in resolving intragroup conflict, conflicts would be expected between members of different *Þings*. It is likely that there were a number of these conflicts, since the local *Þings* were not strictly geographical.

What emerged in Iceland to handle such conflicts was an enlargement of the local assembly. This was the *Vorþing*, an assembly made up of three chieftains and their followers. The *Vorþing* also acted as a court. Another institution, the Quarter-*Þing*, or *Fjórðungsþing*, was established about the same time. The Quarter-*Þing* was comprised of nine chieftains and their followers, and like the other *Þings*, served as a court. The dates of the formation of these are not known for certain, but references in the *Sagas* to *Þings* date the emergence of some forms of these lower level courts before 930.[15]

What matters for my purposes is that an institutional structure within which intergroup conflicts were handled did appear. At the lowest level of the structure an assembly formed around a single chieftain and the *Hreppur* formed around a single locality. These handled problems of intragroup cooperation and allowed also for some intergroup cooperation. Next *Vorþing* and *Fjórðungsþing* formed to establish better intergroup cooperation as the relevant groups got larger.

Although the enlarged court system had jurisdiction over more settlers, it still did not connect all settlers or groups. Therefore, we should still expect intergroup conflicts to arise and not be solved immediately. Followers of different chieftains belonging to different *Vorþing* or *Fjórðungsþings* could come into conflict; there was yet no institution

to handle these problems.

The next step in the development of the institutional structure was the formation of the general assembly, the *Alþing*. With this development the country united under one body of law, referred to as "Our Law" (*Vár Lög*). At the same time the court system was formalized, and procedural rules, or a constitution, were established. The functions of the *Alþing* were twofold. First, it served as a Law-Council. Second, it served as the highest court. To serve this function, the court at the *Alþing* was divided into *Fjórðungsdóma*, or Quarter-Courts. These corresponded to the *Fjórðungsþings* at the lower level, but were reestablished at the *Alþing*, and the former "officially" shut down. The *Alþing* was formed around 930, as an informal gathering, and for the most part the whole structure was being established from the initial settlement to about 965 and thereafter remained almost unchanged until the fall of the Commonwealth. One change took place in the period 1004-1030; the *Fimmtardómur*, or the Fifth-Court, was added. This court became the final court, in some respects like a supreme court. It took responsibility for unresolved cases and also heard cases on procedural matters such as perjury and the bribing of juries.

After the formation of the *Alþing*, or, rather, in the early 11th century, the court system had three levels. The lowest level was the *Vorþing*, which assembled twice each year, in the Spring and in the Fall. The Spring assembly was divided into two assemblies. The first, the *Sóknarþing*, served as a regular court, and the second, the *Skuldaþing*, served as a place to settle debts. The Fall assembly announced to the locals what had happened at the *Alþing*. The Quarter-Courts formed the second level of the court system. As mentioned, these now sat at the *Alþing*, and it seems that the former Quarter-*Þings* were abandoned at about this time. The Quarter-*Þings* replacement by the Quarter-Courts meant that the juries became more "national" in character, since now all the chieftains appointed the juries to the Quarter-Courts. Each Quarter-Court, the organization of which became geographical around 965, was assigned the task of resolving cases from a particular quarter.

With the formalization of the quarters an additional *Vorþing* was added in the Northern quarter because of a conflict there. The number of chieftains in that quarter became 12, and therefore 39, instead of 36, in the whole country. To rectify the balance of power between quarters, nine new chieftainships were established for the other quarters, but these new chieftains only had duties at the *Alþing*.

The third level was the Fifth-Court, and in it a simple majority was required for a decision. At the lower levels, complicated rules of extended majorities were required for decisions, and that may have contributed to the need for the Fifth-Court.

Aside from this formal structure, cases were resolved by individual chieftains, and sometimes a few chieftains came together with their followers and held Private-*Þings*. It therefore seems that the abandonment of the Quarter-*Þings* resulted in extra-legal institutions, although these were essentially continuous with previous institutions (J. BENEDIKTSSON [1974]).

The evolution of secondary clusters emerged, roughly as the theory presented here would predict. The order of emergence is as follows: first, we have the individual chieftain group, and the *Hreppur*. On top of these the local assemblies and then the Quarter-*Þings* evolved. Finally, the *Alþing* interconnects all groups.

What emerged in Iceland was a form of federalism. In some sense this structure is

centralized, in that by the 11th century Our Law defined the whole structure, and the Law Council could restructure the system. But nothing has been said of judgements, penalties, or methods of enforcement and it is necessary to look into these issues.

9. The Enforcement of Law and Penalties for Defection

The law, or "Our Law", was essentially an accumulation of the laws of all the settlers. The Law-Council, or the *Lögrétta*, did not construct legislation as such, but, rather, tried to determine what the law was. The *Lögrétta* was comprised of 36 chieftains (later 48) and each chieftain's two advisors. Only the chieftains had the right to vote to decide what the law was. Since Icelanders had not yet begun to make written records, the *Lögrétta* chose a Lawspeaker, the *Lögsögumaður*, to memorize and recite the law. The Lawspeaker recited the constitution every year and all the laws over a three year period. As the name of the Law-Council, the *Lögrétta*,16 suggests, the purpose was to put the law right; the Lawspeaker would recite laws that he thought were relevant and amend older ones if he found it necessary.

It is important to note that the law of the Commonwealth was Customary Law, as was all laws of that era.17 Customary Law is a living law that is rich in details rather than in principles. The law is perceived as old, the older the better, although this does not exclude the possibility of the law's changing. Change, however, is seen as the rectification of older law rather than as the creation of law. It is therefore essential that the people in a community governed by customary law agree on what the law is, since the motives of the accused were not considered when juries decided the guilt of defendants.18

The juries, typically composed of 36 citizens, only decided the issue of guilt, once this was decided the penalty was stipulated by the law. There were no judges in the Commonwealth system, only juries (LÍNDAL [1984]).

To confirm his recitation of the inherited law, the Lawsayer required simple majority in the *Lögrétta*. But all chieftains had to agree to the amendment of a law,19 and all free-men had the right to protest against such an amendation within the next three years. Whether this right of protest actually ever had any effect is not known, but it seems safe to assume that compromise between the "official" legal authorities and private citizens was common. In support of this claim I note that the Lawspeaker was required by law to consult with at least five knowledgeable people if he had any doubts as to what the law was or should be. If any one did not accept the law, he essentially "resigned" from Our Law, and it seems that the Icelanders were keen to compromise rather than risk that.20 This becomes especially clear in the way Christianity was accepted. The country was divided equally on the issue of religion, and yet Christianity was approved as the official religion in the year 1000. In general, the *Sagas* and other sources give evidence of an attitude of compromise in Iceland (LÍNDAL [1984]).

It is important to note that even after the law was recorded in writing in the early 12th century, the Lawsayer still was required to recite the law and amended it as he thought necessary. LÍNDAL [1984] claims that the unwritten Customary Law was to the end of the Commonwealth the Law of Iceland and the written texts were mere tools of assistance. Yet, codification did change the nature of the law, it became more a lifeless collection of statutes than a living heritage.

The jury determined the guilt or innocence of the accused. If the accused was found guilty, the law provided the terms of punishment; it was not up to the jury or any judge to decide that. Basically, a rule of strict liability applied in Iceland; determining the intention of the defendant would have been too costly.
Witnesses supplied the means of proof in Iceland, both witnesses of the act and character witness. The ordeal was never important in Icelandic courts. As MILLER [1988:192] states:

> "The unavoidable sense of the sources is that in Iceland the ordeal was not a very important feature of the formal legal system. The medieval Icelandic laws....limited ordeal to cases of paternity, adultery, and incest or marriage in violation of the prohibited degrees of kinship, but even in those instances the ordeal often appeared as supplementary to the more routine procedure of witness testimony or panel verdicts."

All penalty was either in the form of restitution or fines.21 Restitution, or *Útlegð*, was used for lesser offenses, while fines were demanded in more serious cases. Fines, or *Sekt*, were either sentences of lesser outlawry, *Fjörbaugsgarður*, or greater outlawry, *Skóggangur*. A person sentenced to lesser outlawry was required to leave the country, the protection of "Our Law," for three years. Someone sentenced to greater outlawry was to leave the country permanently, and could be rightfully killed after three months. Both types of outlaws lost their property, which was distributed by the *Féránsdómur*. Only the guilty person's property, not that of his wife or other family members, could be confiscated, as long as the family member could show legitimate ownership.
Enforcement of judgments was private, in that the victim was responsible for enforcing a judgement in his favour. In most cases the law specified when payment of a judgement should take place, and failure to pay on time was itself a criminal offense. To make the system more effective, the payment of a judgment usually required witnesses or consultation with the aggressor's chieftain, and, in addition, the victim could sell his judgement to someone stronger than himself.
If the property of the outlaw was valued at more than the victim had a right to, complicated rules governed the distribution of what remained. The distribution of the remainder was so arranged as to provide incentives, usually monetary incentives, for others in society to see that the enforcement of the judgement was carried out. It seems that the Icelanders were keen not only on compromise in major disputes on what the law was, or should be, but in disputes between individuals compromise was also common. According to MILLER [1984:99], despite having "had a complex court structure, most disputes did not lead to adjudicated outcomes." In customary legal systems, this preference for compromise is widespread.

10. Transmission of Information

One problem for the theory of cooperation arising in relation to the large-number problem, is that of the transmission of information about rules and defectors. As long as the cooperative groups are small, persons have little problem in acquiring the relevant information about defectors. The larger the group, however, the harder it becomes for people to acquire this information. An especially acute problem is the identification of

defectors from other groups. Also, some sort of information-relaying mechanism is necessary to inform people as to what the rules or laws are. Apparently, institutional devices are required to cope with these problems.
In Iceland, as mentioned, the *Leiðir* or Fall assembly served these purposes. All freemen attended such gatherings in their locality to get news about what had happened at the *Alþing*. The announcements there identified defectors from all groups and clarified the law. Clarification of the law took two forms. First, new laws were introduced which all freemen had the right to accept or protest against. Second, by hearing judgments, people could infer the legal principles being used.
Defectors from other groups could also be identified through the sponsorship function of the *Hreppur*. In order for anyone to settle in a new community, he was required to provide references. Presumably these references were both recommendations and served as some form of status identity.
Although these institutions serve to bridge gaps left by Vanberg's and Buchanan's theory, these are not required by theory. Rather, these institutions complement the Axelrod-Vanberg-Buchanan theory, and in no way exclude other possible institutions.

11. Reintegration of Defectors

Another question that deserves attention is that of how defections are to be dealt with. There are two types of defections, deliberate and unintended. The first does not pose much of a problem, since presumably cooperators would want to rid the group of intentional defectors and would be unconcerned as to what became of them. The second poses a problem, since if someone did defect by mistake, the group might prefer "forgiving" the person to permanently cutting him off. The problem that emerges here can not be answered by Axelrod's tournament, because we now want to consider the defector's intentions instead of only his actual behaviour.22 With a TIT-FOR-TAT stragety the defector would only be punished once, if he resumed cooperative behaviour immediately after the mistaken defection. But if the defecting actor now mistakingly responds to the punishment by defecting again, we have the possibility of a breakdown. If communication between actors is allowed, the defector could admit his mistake and offer reimbursement, and cooperation should be able to resume.
How were defections handled in medieval Iceland? The law established specific and detailed instructions as to the proper punishment of deviant behaviour. The laws decided what was reasonable and unreasonable, and what remedies should be had in each particular case. In general, the lesser the offense, the lesser the penalty. Payment of money or livestock was usually required. But the more serious the offense, the more likely a form of outlawry would be required. District outlawry was the punishment for offenses against a community as a whole. Next was lesser outlawry, or *Fjörbaugsgarður*, and the highest penalty was that of full outlawry, or *Skóggangur*.
In addition, the aggressor's property was confiscated. For lesser outlawry, all property belonging to the aggressor except his land was confiscated by the *Féránsdómur*. The exclusion of land of the lesser outlaw from confiscation, was intended to allow the aggressor to be readmitted as a full citizen at the end of the three years. All of a full outlaw's property was confiscated, since he was not expected to return.
If making someone an outlaw resulted in his children becoming orphans, the district

became responsible for providing for them. But even a full outlaw could be readmitted into the protection of "Our Law." To be readmitted the outlaw had to declare before witnesses that he would kill three other full outlaws, and then be able to prove he had done so. Succeeding in this, he was readmitted.
Violations for which outlawry was the penalty were both private and public offenses. The private element of the offence were dealt with through confiscation; public offence was dealt with by the penalty of outlawry. The public element of the offence was the violation of "Our Law". This is illustrated by the obligation of the plaintiff to execute a full outlaw brought before him; the plaintiff who refused faced the possibility of being outlawed himself for threatening "Our Law". This is clearly an example of what Axelrod calls a metanorm.

12. Conclusion

I offered a solution to the "Hobbesian problem" by presenting a theory of the spontaneous emergence of cooperation. The Icelandic Commonwealth, which historically most resembles the Hobbesian situation, also illustrates the emergence of social order without central enforcement.
Although I have presented a coherent theory of how cooperation may emerge from a non-cooperative situation, and presented a historical case that supports the theory, it should not be concluded that this is how cooperation always emerges. The theory, and the historical case, only demonstrate how cooperation can emerge.
In contrast, the history of most societies demonstrates how states or a central enforcement institution emerged and promoted cooperation (and sometimes the decline of it).23

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1 The book actually does not say which year the Alþing was formed. But from other things the book mentions, historians have estimated that this would have been around 930.
2 Although LÍNDAL [1969:19-24] suggests that the whole story about the formation of the Alþing may be fictional, he himself does give the book the benefit of the doubt and claims instead that the story is at least incorrect. The Christian influence may explain the constructivist type of explanation offered for the formation of the Alþing.
3 I will focus in particular on the contributions of AXELROD [1984] and V. VANBERG AND J. BUCHANAN [1990].
4 AXELROD [1984] ran a computer tournament, where competition among different strageties was simulated. The stragety that came out on top in the tournament wa TIT FOR TAT, a stragety that starts out on a cooperative move and then reciprocities its opponents move on the following turn. The results from Axelrod's study suggest that cooperation can evolve without a central enforcement agency. TAYLOR [1987], through an analysis of two-person PD-games, reaches the same conclusion.
5 A partial solution (offered by R. AXELROD [1986, 1095-1111]), to ensure compliance with solidarity-rules (or norms), is that a metanorm could be adopted: punish not only defectors, but also those who fail to punish defectors. This solution is only partial since metanorm enforcement requires more "knowledge" than the solution for trust-rules.

6 See VANBERG AND BUCHANAN [1990, 188-191].
7 Whether these clustering will actually be hierarchial or only overlapping on the same level is not of concern here. In the theory both ways would tend to promote cooperation between groups.
8 Another way intergroup cooperation might emerge would be through intergroup sponsorship. A group guarantees the cooperative behavior of the group members in interactions with members of other groups. Such sponsorship could be imitated by other groups if the original group were successful.
9 Other works written in this period include: Landnámbók (The Book of Settlements), Íslendingabók (The Book of Icelanders), and Grágás (The Early Laws of Iceland).
10 Líndal even suggests that in medieval times, and before, it was common to ascribe the initiation of law and whole systems to some great lawgiver.
11 Actually, there is no evidence as to how the first assemblies formed in Iceland. A logical sequence, as mine hopefully is, would postulate that a local assembly arose first around a single chieftain and then only later the local þings, the Vorþings, would have arisen. This would seem more sequential than the Vorþings arising right away. The only historical evidence on these pre-Alþing assemblies mentiones the existance of two Vorþings, but tells us nothing of their origin or procedures. Historians have not really addressed this issue, but instead rather tried to retell us what the sources tell us. Lárusson (1932:16) is an exception; he assumes that local assemblies arose around each chieftain at first.
12 The origin of the chieftainship is disputed. The Goði (Icelandic for chieftian) seems to be derived from Goð, or God in English. There have been suggestions that this refers to the chieftain role as keeper of the temple (heathendom). This probably is the correct origin of the term, but not necessarily descriptive of their functions (JÓHANNESSON [1974]).
13 For an interesting analysis of the question on whether these commons were a tragedy, see EGGERTSSON [FORTHCOMING].
14 The actual number of Hreppar in the settlement period is not known. JÓHANNESSON [1974, 103] states that in 1703 they were 162, and claims that it is reasonable to assume that there were about the same number in the 10th century. The number of Goðar (chieftains) was 36, before 960, and 39, after 960. The number of local Þings after 960 was 13. If these figures are correct, then it follows that the Hreppur had fewer members than the Þing, and that supports the theory.
15 Actually, one cannot be confident on the dates before the year 1000. But, it is usually accepted that the Alþing (see below) emerged around 930 (JÓHANNESSON [1974]). Here that date is accepted as correct. I do not, on the other hand, necessarily accept that the structure was as formalized at this time, as most historians should have us believe. The structure was not formalized until 965 and thereafter.
16 Lögrétta, literally means "law rectifying". That the name has significant meaning has been argued by LÍNDAL [1984].
17 It is worth pointing out that in the Commonwealth individual rights and property were the norm.
18 The customary law in Iceland was in this similar to that of Anglo-Saxon Britain: "The essence of early English law is that it was `popular' law. The people at large were the repositiories of law; they were the judges in the public courts. Law represented custom,

of which any man with a good memory might be the repository, and local opinion; it was the one quasi-democratic thing about our early society" (BROOKE [1961:68]).
19 LÍNDAL [1984] argues for unanimous votes on new laws.
20 In a more recent paper VANBERG AND CONGLETON [FORTHCOMING] suggest that a more realistic and proper way to approach the "cooperation problem" from an Axelrod-type perspective is to define the situation as a PD-game with an exit option (PDE). They show that in a PDE-game a strategy of "prudent morality" may actually do better than a strategy of TIT-FOR-TAT. Prudent morality uses the "exit-option" against defectors instead of "punishment" as TIT-FOR-TAT would use.
21 It should be noted that some Icelandic legal concepts had different meaning in the Commonwealth than they did in later times. The concept sekt, for example, which may be translated to English as either guilt or a fine, really had the former meaning in the Commonwealth. When, therefore, I refer to a fine I am really referring to the older meaning of guilt. Guilt, i.e. a fine, was associated with two forms of outlawry, lesser and greater. The Icelandic word útlegð, is another example, which literally translates into English as outlawry, did not have that meaning in the Commonwealth. Útlegð in the Commonwealth referred to a monetary fine, a form of restitution.
22 A stragety of TIT FOR TWO TATS possibly has some relevance here, see AXELROD [1984].
23 The Commonwealth declined and eventually "fell" in 1262-64. The causes for the "fall" are not clear. Historians have offered various explanations, ranging from external pressure (Norwegian King) to economic decline. S. LÍNDAL [1964, 5-36] offers a good summary and criticism of these explanations. The most plausible explanation is a rent-seeking explanation (SOLVASON [1991]). With the introduction of taxation in 1096 the competition among the chieftains seems to have turned away from legal battles to that of gaining tax-revenue.

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