

Return to Direct Democracy, is it possible, do we want it?

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Introduction - applying Open Source to politics

I'm a big fan of Open Source and the Internet. In addition to being interested in the production processes of Open Source software, I've also a long time ago been interested in the application of Open Source principles outside the software world. Some of these phenomenons are already household words, like Wikipedia or Creative Commons or even peer-to-peer. Some others are starting to gain foothold, for instance the Open Hardware movement is an interesting effort, one of the first where Open Source ideology is being applied to production of material goods.

One frontier that we have yet to conquer is the area of politics. In fact, while innovation of new business models based on Open Source principles is interesting, I consider the possibility of reforming the democratic process as some kind of Holy Grail: It is orders of magnitude more challenging than anything else and the risks of tampering with the power structures of existing nation states are terrifyingly high.

The idea of applying Internet technologies to the democratic process has of course been thought many times already. Yet current efforts are in my opinion merely small field tests of what could eventually be done. They are small Internet-age enhancements to the established traditional political process. For instance the famous Howard Dean presidential campaign with the Deanspace portals showed that it is possible to credibly run for US president relying more on a grassroots campaign than donations and PR from large corporations and associations. This is a direct result of the way Internet has equalised communications from a broadcasting model controlled by a few, to a many-to-many communications model distributing the power of communication more evenly.

As another example, the Internet has also made it possible for citizens to access all kinds of government documents and governments may also provide possibilities to give online feedback. This too is great, yet it does not really alter the decisionmaking power structure as such. It is kind of like Microsoft distributing some freeware as online downloads - it's convenient, but it is not Open Source.

And finally a lot of effort has been put into deploying e-voting machines: Basically using a PC-computer to do the same thing we used to do with paper and pencil. With all the problems that have been encountered here, this doesn't even qualify as a small enhancement!

Some people are excited about the fact that the Internet provides for more equal and participatory communication and thus empowers citizens. Yet in reality, you can talk all you want but the real political power has not shifted anywhere.

The questions that we should ask ourselves are as follows:

ONE: Is there anything wrong with how democracy currently works? If so, what in particular could work better?

TWO: What would an alternative process look like? And just to be clear, the answer to this question must be much more detailed than just "Direct Democracy", since a straightforward implementation of Direct Democracy has serious weaknesses of its own.

THREE: Is it possible to implement the proposed alternative with current technology? Here we should remind ourselves of the serious difficulties that countries deploying simple e-voting have faced. When discussing the government of the powers vested in a nation state, we must apply high scrutiny to the integrity of system - both the technical system and the new political process.

FOUR: Is the alternative really desirable?

FIVE: Given that the incumbent powers often are not that interested in giving away the power they have, how would one go about replacing a current democracy with the direct democracy system. Due to space constraints, this last point is left as an exercise to the reader.

Problems with current democracies

Democracy is the worst form of government except for all those others that have been tried.

- Winston Churchill

Most will probably agree that our current democratic governments are not perfect. In fact, there are two kinds of criticism against modern democracies. First, it is possible to criticise the concept of democracy itself. For instance, arguably an authoritarian system is more efficient in decision making than our sometimes rather bureaucratic democratic processes. (This is why armies and to some degree corporations still have more authoritarian decision making processes than states.)

In this talk/paper we will take as a given premise that the democratic process itself is a desirable thing and not under criticism. We will be more concerned to find out if it could function better than it does today.

Unfortunately there is not room in this discussion to enumerate the many examples of when I feel that the democratic process in today's nation states have failed. But I can give a clear definition which we can use a guideline. Since we have now chosen to believe in idea of democracy itself, then the failure of a democratic process is such when the decisionmaking fails to represent the majority of the citizens of a constituency.

As just one example, you can think of all the countries that decided to join the Iraq war against the will of a clear majority of those countries' citizens. And while doing that it is also a healthy reminder for our future discussion to remember that the USA actually is not one of these countries, since in the USA there was a majority support for the war. In that case it is a healthy exercise to ask the question why most Americans believed they would find both Al-Qaeda and weapons of mass destruction in Iraq, when a majority of Europeans did not believe so?

When thinking about failures of current democracies, it seems that most of the criticism can actually be grouped under 2 headings:

FIRST: Failure to represent the full spectrum of voting citizens

Election systems typically are poor to fully represent the whole spectrum of opinions in the voting citizens.

Sometimes this is *by design*, for instance in France and (until recently) in Sweden the voters are only allowed to vote for a party, but it is the privilege of the party itself to decide which persons on the party list are elected first to hold the seats won.

More often the failure is an indirect result of different *cut-off effects* in the various election systems. For instance the systems of USA and United Kingdom have a philosophy of "winner takes all", where in one voting district there is typically only one seat to run for, or as in the case of the US presidential elections, the system by design gives all of the electoral seats to the winning party, even if it may have won less than 51% of the votes. While these countries in theory are multi party systems, in practice due to the dynamics of the election system they easily end up being two party systems, with the liberal party in the

UK actually being a small miracle in its existence. And while the Americans tend to be oh so proud of their democracy, in my opinion a two party system is only slightly better than a one party system!

In Finland we have - in my opinion - a reasonably healthy election system, known as the d'Hondt system. It gives voters the ability to vote for persons, yet parties benefit from their composite sum of votes. In one district there are several seats available, and they typically go to many different parties. Yet the cutoff effect is present in the Finnish system too. In the Parliament we typically end up having 3 big parties and about 5 smaller ones - much better than just two parties taking turns in abusing their turn in power - yet it is clear that even 8 or 10 parties do not fully represent the full spectrum of the Finnish citizens. To give just one example, there has never been any Member of Parliament with an immigrant background.

The cutoff effect is particularly visible in the smaller districts. Even if they still have 8 to 10 seats to run for, in practice there is more than a 10% threshold for a party to win the first seat. In fact in our last elections a candidate for the Greens running in a small district on her own won 9% of the whole district, and her absolute number of votes placed her as 42nd on the nationwide ranking of candidates, yet due to the d'Hondt system she did not get into the Parliament at all. She would have needed to run in a larger district or for a larger party to get in.

From these examples we can see, that a democratic system based on electing representatives will never succeed in fully representing the whole spectrum of views of its citizens. The systems in France, Sweden, US and UK could probably be enhanced simply by a reformation of the election system, say by adopting the d'Hondt system. Or we could all adopt the Single Transferable Vote method, as has already been done by Ireland, Malta, New Zealand and partially by Northern Ireland, Scotland and Australia.

SECOND: Failure to faithfully represent the pre-election commitments after the election

...or put more bluntly: Candidates lying before elections. This is a common problem you will all recognize. While we can try to eliminate the first problems by designing a vote counting system to provide representability, this one is more inherent in the nature of representative democracy itself. Unless we can enforce election candidates to take truth serum when campaigning, there seems this a problem difficult to solve.

But we could also look at this problem from another angle: The problem is not really whether a candidate's election campaign has been honest or not, but the fact that voters cannot re-consider their votes after the election. For instance there may arise completely new issues that were not debated before election - in fact, candidates may wish to avoid some subjects when campaigning. In those cases the elected representant may turn out not to represent his voters at all.

And finally there is again the dilemma that representative democracy can never be a perfect representation of all voter's all opinions. For instance, I may want to vote for a Green candidate to support his policies on reducing carbon dioxide pollutions, but then find out that this party opposes nuclear power while I may have wanted to support it. What should the voter do when no candidate can have exactly the same opinions as he has?

A solution to this problem would be if voters either were able to re-cast their votes at any time after the elections or at least were able to override their representatives vote for a particular issue they disagree with. Or better yet, both of these options.

Direct Democracy as a solution

The 2 problems discussed above have a common denominator, *representative* democracy. It now becomes a logical step to explore whether direct democracy would be a better alternative.

The inspiration to explore direct democracy at this point comes from the revolution in information and communication technology, in particular the rise of the Internet. Historically, the first democracies in ancient Greece were direct democracy systems. It is easy to argue that the reason we do not today have systems of direct democracy is the logistical complexities of such a system in modern nation states. The underlying idea is that ICT technologies might again make direct democracy possible, which provides for exploring the question whether we would desire a return to such a system or not.

Weaknesses of Direct Democracy

While direct democracy - by definition - overcomes the problems related to representation, it introduces problems of its own, which we will now turn our attention to.

A simple implementation of direct democracy would mean all citizens having an

equal vote on all issues to be decided upon. This would clearly lead to chaos. In order to make informed decisions on all kinds of legislation is clearly a full time job. In such a system there would be no citizens left to do productive work. Or more realistically, decisionmaking would be left in the hands of those that don't have anything else to do. A terrible scenario!

A first sketch of the direct democracy system we want

Going back to the conclusions we did above when discussing representative democracy, we can now already sketch the foundations of the system we are looking for. In fact we do want representatives to do most of the decisionmaking for us. But we want the system to

1. Be as fine-grained as possible: My vote should not be lost even if I'm the only one voting for my candidate, it should have the appropriate share of decisionmaking power as part of the whole.
2. I should be able at any time to change my representative.
3. I should be able at any time to use my own vote directly on an issue. In this case the decisionmaking power of my representative is reduced accordingly, he is not representing me on that particular issue.

More criticism of Direct Democracy

Direct democracy has also been criticised on the grounds that modern government is so complex it is better left to *specialists* and that giving citizens the power to directly make uninformed decisions about the fate of their nation is a bad idea.

This argument is in fact not an argument against direct democracy, but an argument against democracy itself. Following this argument would ultimately lead to a government of specialists, not elected representatives. Taking the argument as a proposition for the status quo, it is reasonable to ask whether our current politicians - who often include celebrities like former models and athletes - truly are more intelligent and responsible decisionmakers than the average citizen?

In any case, in the system we are proposing it would still be possible to elect representation, but with the added feature to override your elected representative at any time.

The final criticism of direct democracy is the argument that it would lead to *populist decisionmaking*, implying terrible irresponsible decisions. The behaviour of voters in some referendums certainly seem to support this assumption.

The first counter argument is again based on the idealistic view of democracy. If citizens wish to make stupid decisions, it is certainly their prerogative to do so! Personally I cannot understand why Sweden and Denmark wished to abstain from joining the Euro currency. I think the EU could be criticised for many things, but the common currency is one of the great things we get from it. Yet it is clear that if a majority of Swedes and Danes wished to continue using their own currencies, against the wishes of their own governments, they certainly should have the right to do so.

Looking at the referendums about the new constitution for the EU gives some more insight into this argument. My personal opinion on the constitution is, that while one certainly can be opposed to the EU altogether, it is hard for me to see how the approval of the new constitution would have been any worse than what the EU currently is. And when analysing the negative results of the referenda in France and The Netherlands, it does seem that many voters were not so much expressing their understanding of the actual constitution text, as much as they were expressing their opposition to the EU as a whole, or even worse, resolving some dissatisfaction relating to national issues in a EU referendum.

It seems plausible that in fact the inadequacies of current democratic processes tend to accumulate some general disdain, and on the rare occasions a referendum is organised it turns into an outlet for all the pent-up opposition in the voters. This results in a general tendency to vote against anything that is being proposed by the government, now that the voters finally have a chance to do so.

In this case a reformation to a more direct democracy would in fact not lead to populist decisionmaking, it would reduce it. Since voters could oppose the actual issues they are against, they could also be more ready to vote for the causes they do not oppose.

As a final note it should however be admitted that the majority can turn out to be wrong, as was the case with the Americans and the Iraq war. Such cases are often the result of a malfunction of the free press, which has failed to adequately enlighten the public on the backgrounds on an issue. This is why the Iraq war is such a good example, because the Bush administration in that case managed to spin the whole media establishment of a big nation to not report on facts that were commonly known in the rest of the world. The importance of free speech

and a well functioning independent and unbiased press as part of any democracy cannot be over-emphasized, and in particular as the cornerstone of a direct democracy.

The safeguarding of free speech and the issue of providing for a sufficiently effective and democratic forum to debate issues before they are voted on is beyond the scope of this talk/paper, but again we are optimistic that this is the one thing that the Internet is good at.

A system for Internet enabled Direct Democracy

We will now describe a system for Direct Democracy and then look into whether its requirements are technically implementable or not.

Specification of a Direct Democracy process

1. The system is comprised of the *voters* participating in it.
2. For each issue to be voted on, a voter has a *public vote* and a *private vote*. The private vote is secret.
3. To participate in the vote, a voter may cast his private vote, picking an alternative on the ballot. *The private vote is the actual counting vote* and one voter has one vote.
4. Casting a public vote is not necessary and doing or not doing so does not directly alter the result of the vote. *The public vote accomplishes the mechanism of representation* but it does not itself count as one vote. A person who will be casting public votes can in advance announce himself as a voter that desires to do so, thus letting it be known that others could vote for him.
5. The public vote is separate from the private vote and it is impossible to know whether they are identical or not. The public vote is public.
6. On each issue, a voter may wish to not vote directly on the issue at hand, but instead give his vote to a *representative*. It is possible to give the vote to any other voter who has announced that he will be casting public votes. The value of the public vote is the sum of secret votes behind it.
7. Also the public vote can be either directly on the issue, or for another person. This way *representation can be chained* - Alice votes for Bob, Bob votes for Cedric and Cedric is voting directly on the issue - eventually accumulating to

high profile politicians who'se public vote on the issue will swing a pyramid of thousands of votes.

8. The deadline for casting public votes is an amount of time before the deadline of casting private votes (say 1 week). This safeguards against abuse, it is possible to change ones private vote after public votes are known.

9. Summarising points 1-8: Each voter has a private and a public vote. Both of these can be either a direct vote on the issue, or a vote for another person in the system. The private vote counts as one vote. The public vote does not itself count as a vote, but the contents of the public vote is transfered down to the other voters who have voted for this person, the value of the public vote in essence is the sum of private votes thus connected to it.

10. In addition to individual voters, the system also contains *parties*, which are registered as being part of the system.

11. Each party has 1 public vote but no private vote. The public vote can be directly on the issue or on another party or a person. Thus the party in itself has no voting power. *It's task is to cast public votes* and thus represent voters who have chosen to vote with this party.

12. Voters may *vote for a party similarly as they vote on individual persons* - as an option to voting directly on the issue.

13. The internal organisation and the *decisionmaking rules of a party are undefined*. They could be anything, but obviously it typically makes sense for them to be public, so that voters wishing to vote for a party know what they are getting.

14. In addition to voting on each issue, a voter can also specify a *default vote*. There is both a private and a public default vote. The default vote can only be for other persons or parties.

15. If the voter abstains from voting on an issue, but has specified a default vote, his vote becomes what the default vote is. This happens with both the private and public vote, respectively.

16. The default vote should probably have an *expiration date*, before which it should be renewed or it will be set to empty vote. Otherwise people who abandon participating in the political process, could have their vote being used by a representative they happened to vote on 50 years ago when they were young and the system would be skewed towards a kind of slowness.

17. The voting method should be *Single Transferable Voting*. (This paper does not discuss the merits of various voting methods.)

Discussion of the system

The above process addresses all of the concerns discussed before.

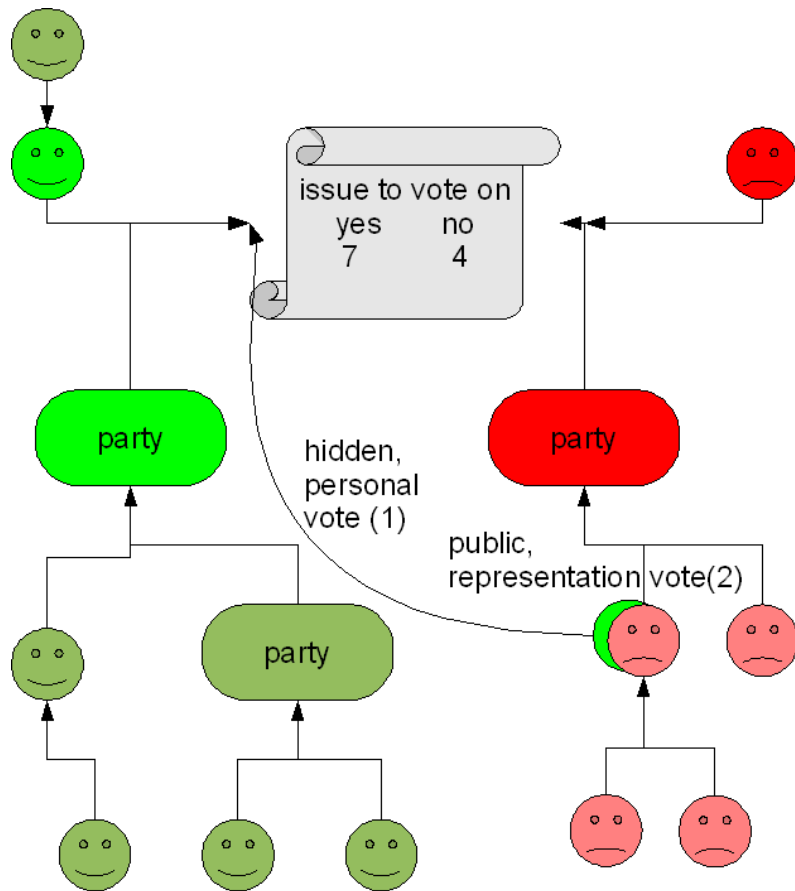
It provides representation, I can vote for a candidate I trust and then forget about politics. If I change my mind, I don't need to regret my choice, I can just go and change my default vote. If I want to be more active, I can also vote directly on some issues.

It also provides very fine grained representation. If a voter, say Alice, has a disdain for voting on any parties or active politicians, he could just vote for "Bob at the office", if Bob has announced he will be casting public votes. Bob on the other hand may have specified his default public vote to go to Cedric, a local politician. Cedric perhaps votes for his party, which votes on the actual issue. On the other hand, on a particular issue Bob may wish to express his own opinion, against the line of Cedric's party. Alice is fine with this, she relies on Bob, not the party. While Bob is swinging only two (or perhaps a handful of votes) this is significant when compared to the current system. Alice does not feel like the party is abusing her vote for the next 4 years.

There is one aspect to the public votes that is not explicit. In addition to providing the mechanism for representation in the voting process, they also provide the mechanism for identifying where power resides in the system, and this is very important. In current election systems, although members of parliament have one vote each in the parliament, in practice some mp's are more influential than others. In the proposed system it would be easy to identify parties and individuals whose public votes typically account for thousands or even millions of votes. This would turn into significant negotiation power for those players. While all voters are equal, it is in fact beneficial to know whose opinions should be listened to in the preparation phase of a vote, because in the negotiations those players really do represent a big share of the voters that will eventually be voting on the issue.

Figure 1 provides an illustration of how the system would work. The dark persons are voting through their representatives and the bright colours directly on the issue. Also one green party is not voting directly on the issue but is voting through the public vote of the other green party. On the right there is one voter who is publicly voting for the red party, but privately is voting directly on the issue opposing the red party. His one private vote is now counted in the yes

column, but his public vote, which is worth 2 votes, is counted in the no column. Note that the sum of all votes is the amount of voters - or the amount of private votes - in the system and the parties do not contribute any votes themselves.



Actively participating voters are bright, passive voters (letting representative decide) are dark

Technical feasibility

We shall now (finally) turn our attention to whether it is technically feasible to device this system. A good starting point is to discuss general requirements of e-voting mechanisms, since that is a well studied subject. There is strong consensus that a good e-voting system should satisfy the following list of requirements:

1. Eligibility: Eligible voters can vote, they can vote only once and no others can. Voters are identified as being who they are.
2. Integrity: All votes are tallied correctly, no valid votes are

discarded and no extra votes have been introduced.

3. Verifiability: All of this can be verified preferably by any observer or at least by enough independent verifiers or so that each voter can verify that his own vote is correctly tallied and that the amount of votes is correct.

4. Privacy: It is not possible to know how a particular voter voted.

5. Receipt-freeness (or non-coercibility): It should be impossible for a voter to prove that he voted in a particular way. (This is to prevent buying of votes or coercion and is complementary to but still different from privacy.)

A common misconception in implementing e-voting systems has been the attitude that "surely e-voting is easy to implement, since we have been doing online banking for years". However, e-voting turns out to be much harder than online banking. A bank only needs to provide privacy (4) and integrity (3) of the participants and their transactions. An e-voting system on the other hand must satisfy all 5 of the above requirements, which is particularly hard considering that at first glance at least 1, 3 and 4 seem to be mutually exclusive.

Fortunately the worlds best cryptography researches have been working on this problem for decades and it seems there are solutions - the needed algorithms are just very different from those used for online banking, that's all. While we cannot discuss the particulars of different algorithms in this paper, a good list of different algorithms can be found at

<http://www.cs.surrey.ac.uk/FMS/evoting/bibliography.php>

It should be noted that one requirement is impossible to satisfy without conducting the voting in safe and controlled locations like a voting booth. So both mail-in ballots and Internet voting are susceptible to attacks against the non-coercibility criterion (5), since we cannot know if there was somebody standing behind the voter and looking over his shoulder when the vote was cast. However, current systems do provide for good workarounds, for instance a homomorphic system allows a voter to re-cast his vote (within the limits of the deadline), so a coercer can never be 100% sure that a voter doesn't replace the vote that was shown to the coercer - Estonia uses such a system to provide online voting.

If we wish to implement a direct democracy system a simple logistical requirement is that we have to rely on online voting mechanisms. This is then a compromise we must be willing to make in order to achieve direct democracy

and it is worth noting that this is a serious drawback to established voting standards.

So without going into further detail, it seems that the basic problem of e-voting as such has been adequately or at least almost solved. Yet the proposed system for direct democracy does introduce some new requirements, which it may not be possible to implement with the current algorithms that are the result of research to facilitate e-voting in a representative democracy system.

As one example, the e-voting algorithms based on homomorphic cryptosystems (again, see link above), though being otherwise attractive, have very limited forms the ballot can take and in practice it would not be possible to use STV for voting method, nor would it be practical to use the representative part of the voting in a nation with millions of citizens.

For all of the available algorithms it is not immediately obvious how to implement the possibility to have a default vote.

So, as a conclusion, in order to be able to transition to an Internet powered Direct Democracy system, some cryptographic research would be needed to develop a voting protocol that is suitable for the new system, taking into account the differences it has with simple e-voting in current elections.