English Assignment 2

As this thesis continues the research by Boixel and Endriss, the same standard formal language of voting theory is used, as well as some definitions defined in the paper of Cailloux and Endriss. This language will be recalled in this section.

Let be a finite set of n voters () and X be the finite set of alternatives with . Let represent the set of strict linear orders on . Moreover, let be the powerset of indicating the possible outcomes. Using the symbol from , the preferences of an electorate can be defined as . Similarly, the preferences of individual voters are defined as.

All voting rules can be interpreted as functions that map a profile to a certain outcome. An example of such a voting rule is the plurality rule: each voter chooses one alternative, the winner(s) is/are the alternative(s) with the most votes. Classically, there are some normative principles that a good voting rule should satisfy.

Despite the fact that these normative principles are expected to hold, no voting rule can satisfy all of them because some axioms even contradict each other. Therefore, the generated justifications in this thesis will be based on axioms rather than on the voting rules.

To clarify the model, seven of these normative principles are explained in this thesis.

* *At least one*; The set of possible outcomes does not contain the empty set
  + - .
* *Pareto Principle*; If all voters prefer x over y (), y should never win.
  + - if .
* *Condorcet* Principle}; If the majority ranks on top, only should win.
  + - If > for all , then .
* *Faithfulness*; If there is one voter, his or her top alternative should win.
* *Cancellation*; If a perfect tie occurs in pairwise comparisons, all alternatives should win.
  + - for all , then .
* *Anonymity*; If profile can be obtained by switching voters names in then should be equal to .
* *Neutrality*; If profile can be obtained by switching all occurrences of those alternatives in then by the same mutation can be obtained from .

*… Some text in-between …*

As mentioned before, the axioms, rather than the voting rules, are used to justify an outcome. More specifically, certain instances of axioms are used; these instances represent the usage of a certain axiom in a concrete situation and are indicated by .

|  |  |
| --- | --- |
| Voter | Preference |
| 1 |  |
| 2 |  |
| 3 |  |

For example, considering the profile above, we can use an instance of the *Pareto Principle* to know that c cannot be a winner: c is ranked lower than alternative a by all players. Note that the Pareto Principle now is used on two out of the three alternatives in a specific profile.

I left out the citations on purpose

In general something I want to ask;

* Are you allowed to say “this thesis discusses”/ “This algorithm shows”?
* What tense should the thesis be written in? (past/ present)

Excellent again, Nienke! Very little to comment on here in this, yet again, almost flawlessly written piece. The above edits/comments identify mostly minor points of formatting or punctuation, with a couple of exceptions worth clarifying. Otherwise, in terms of cohesion / clarity issues from your 1st assignment, these are a little more difficult to find in a text like this, so I can't say if these aspects are improved or not – it's a little difficult to follow in places, but I suspect that's more because of the topic than about your writing.