Final Changes (w.r.t. CIM-SI-2023-0045.R2)

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Here we list the changes addressing reviewer 1's suggestion and resolving writing issues (refining sentences or correcting typos).

From Reviewer 1

- Thanks for changing the mime type as suggested. When opening the article in Google Chrome, the font awesome can still not be loaded, because all.min.js assumes the font awesome fonts (all the ones starting with "fa") to be in a folder called "webfonts". You can either move them into the respective folder or change all.min.js accordingly. Other than that the article is good to go!

  (Hint for avoiding such minor problems: when opening the article in a browser, you can open the developer console [many browsers have it set to f12] and reload the article. The console tab will show warnings and errors that have occurred since opening the console [which is why the tab needs to be reloaded as soon as the dev console has been opened]. This will help to avoid multiple review cycles of such interactive articles. But I am really happy with how this article turned out. Great work!)

- **Response:**

Changes Refining Sentences or Correcting Typos

As to the extended abstract:

- pp. 1: "Specifically, assume that there" → "Specifically, assume there"
- pp. 1: "each agent v_i is represented as a *public preference vector* z_i and a *private preference vector* s_i, ..." → each agent v_i is represented by a *public preference vector* z_i and a *private preference vector* s_i, ...
- pp. 1: "Each dimension of the domain stands for a certain social issue, such that -1 maps to the far-left politics, while 1 maps to far-right politics." → "Each dimension of the domain stands for a certain social issue, where -1 maps to the far-left politics, while 1 maps to far-right politics."

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- pp. 2: "Keeping the opinions" → "By keeping the opinions"
- pp. 2: "from from" → "from"

As to the immersive article:

- Section I: Gradient updates tend to help with the stabilization of dynamics and compare with the abrupt update of one-step optimization, which is deemed the best response. → Gradient updates tend to help stabilize the dynamics compared to the abrupt update of one-step optimization, which is deemed the best response.
- Section II: . . . . . such that a negative value and a positive value in a dimension . . . → . . . where a negative value and a positive value in a dimension . . .
- Section II: Each dimension of the domain stands for a certain social issue, such that -1 maps to far-left politics, . . . → Each dimension of the domain stands for a certain social issue, where -1 maps to far-left politics, . . .
- Section II: Each agent is represented as a public reference vector . . . → Each agent is represented by a public reference vector . . .
- Section II: Moreover, $p_j(\tau)$ increases either when the size of group G_j increases or it can bring more total utility for all the agents . . . → Moreover, $p_j(\tau)$ increases either when the size of group G_j increases or when it can bring more total utility for all the agents . . .
- Section II: the distance $\|s_i - z_i\|_2^2$ → the squared distance $\|s_i - z_i\|_2^2$
- Section III: "Keeping the opinions" → "By keeping the opinions"
- Section IV after Fig. 9: "space; even though" → "space, even though"
- Section III, Figure 4: Click it, then . . . → Click it, and then . . .
- Section III, Figure 6: . . . options of → . . . options for . . .
- Section III, Figure 6: See whether it will have the incentive to . . . → Observe whether it will have the incentive to . . .
- Section IV: The 2-norm constraint that $\|z_i\|_2, \|s_i\|_2 \leq 1$ correlates the dimensions . . . → The 2-norm constraint, $\|z_i\|_2, \|s_i\|_2 \leq 1$, correlates the dimensions . . .
- Section IV: the first derivate → the first derivative
- Section IV: it could be not . . . → it may not be . . .
- Section IV: . . . such a regularization helps the . . . → . . . such regularization helps the . . .
- Section IV: . . . the total time is $O(Tkn)$ in T iterations. → . . . the total time is $O(Tkn)$ over T iterations.
- Section IV: . . . , it requires to compute the . . . → . . . , it requires computing the . . .
- Section IV: Thus, an agent takes $O(kn)$ time to update its opinion in one iteration overall. → Thus, an agent takes $O(kn)$ time to update its opinion in one iteration ~~overall~~.
- Section V: Note that a stable state reached by agents' simultaneously playing online gradient ascent algorithms is not necessarily . . . → Note that a stable state reached by agents simultaneously playing online gradient ascent algorithms is not necessarily . . .
- Section VI: . . . readers can have a better grasp of what a pure-strategy Nash equilibrium in a system of multi-agents is and learn . . . → . . . readers can have a better grasp of what a pure-strategy Nash equilibrium in a system of multi-agents is, and learn . . .