

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

Chuang-Chieh Lin,
Tamkang University, Taiwan

Chih-Chieh Hung*,
National Chung Hsing University Taiwan

Chi-Jen Lu,
Academia Sinica, Taiwan

Po-An Chen,
National Yang Ming Chiao Tung University, Taiwan

We thank the editors and the reviewers for all valuable suggestions. Here we list the changes for 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:** Thank you for your valuable feedback. We appreciate your suggestion and have taken action to address the issue with Font **Awesome** in Google Chrome. To fix this issue, we decided to move all components of Font **Awesome** to local, including font files, `style.css.map`, and `font-awesome.min.css`, and revised necessary piece of codes in the html file. By doing so, we have successfully resolved the problem, and there are no longer any errors reported in the console.

Changes for 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 , ...”

*Corresponding author.

- 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.” \rightarrow “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.”
- pp. 2: “Keeping the opinions” \rightarrow “**By** keeping the opinions”
- pp. 2: “from ~~from~~” \rightarrow “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. \rightarrow 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 $\dots \rightarrow \dots$ **where** a negative value and a positive value in a dimension \dots
- Section II: Each dimension of the domain stands for a certain social issue, such that -1 maps to far-left politics, $\dots \rightarrow$ Each dimension of the domain stands for a certain social issue, **where** -1 maps to far-left politics, \dots
- Section II: Each agent is represented as a public reference vector $\dots \rightarrow$ Each agent is represented **by** a public reference vector \dots
- 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 $\dots \rightarrow$ 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 \dots
- Section II: the distance $\|s_i - z_i\|_2^2 \rightarrow$ the **squared** distance $\|s_i - z_i\|_2^2$
- Section III: “Keeping the opinions” \rightarrow “**By** keeping the opinions”
- Section IV after Fig. 9: “space; even though” \rightarrow “space, even though”
- Section III, Figure 4: Click it, then $\dots \rightarrow$ Click it, **and** then \dots
- Section III, Figure 6: \dots options of $\rightarrow \dots$ options **for** \dots
- Section III, Figure 6: See whether it will have the incentive to $\dots \rightarrow$ **Observe** whether it will have the incentive to \dots
- Section IV: The 2-norm constraint that $\|z_i\|_2, \|s_i\|_2 \leq 1$ correlates the dimensions $\dots \rightarrow$ The 2-norm constraint, **$\|z_i\|_2, \|s_i\|_2 \leq 1$** , correlates the dimensions \dots
- Section IV: the first derivate \rightarrow the first **derivative**
- Section IV: it could be not $\dots \rightarrow$ it **may not be** \dots
- Section IV: \dots such a regularization helps the $\dots \rightarrow \dots$ **such regularization** helps the \dots
- Section IV: \dots the total time is $O(Tkn)$ in T iterations. $\rightarrow \dots$ the total time is $O(Tkn)$ **over** T iterations.
- Section IV: \dots , it requires to compute the $\dots \rightarrow \dots$, it requires **computing** the \dots
- Section IV: Thus, an agent takes $O(kn)$ time to update its opinion in one iteration overall. \rightarrow 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 ...