# Deliberated diet

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May 30, 2020

## 1 Context

This section presents the context of the study. This is a draft proposal open for discussion.

### 1.1 Goal

We aim at studying how we can capture the deliberated judgment of an individual towards a complex, practical topic. The deliberated judgment of an individual towards a topic is the stance she adopts after careful examination of all relevant arguments concerning that topic.

In this exploratory study, we want to try to capture deliberated judgments on a particular question, of many individuals, by confronting them to many arguments, and extract from this lessons about how to capture deliberated judgments more generally, and about the difficulties that such a process gets confronted to.

We proceed as follows. We choose a practical question as our topic. We select two champions, that is, two persons that know the arguments for and against particular stances on that question, and that have opposed positions

on which stance should be the deliberated one. In the *collection* phase, the two champions defend their respective positions by recording their arguments for their position and against other positions in videos. In the *adjudication* phase, we show these videos to individuals, following a well-defined protocol, through a web site. The individual is called a visitor (of the web site). The visitor is questioned during the process of viewing the arguments and counter-arguments displayed in the videos, about the evolution of her judgment, among others.

## 1.2 Topic

We are interested in capturing the deliberated judgment of individuals concerning a practical question in a fictitious setting. Here is the question we chose.

In a fictitious place, a local authority considers building a new public cantine. What kind of menu should the cantine offer to its customers?

1. It should propose only vegan food every day
2. It should propose only vegan food on four days a week and vegan and non-vegan choice on the remaining day
3. It should propose only vegan food on one day per week and vegan and non-vegan choice on the remaining days
4. It should propose vegan and non-vegan choice every day

# 2 Protocol

Assume we have two champions, $C_a$ and $C_b$.

## 2.1 Collection phase

We ask $C_a$ and $C_b$ for their favorite propositions, defined as $t_a$ and $t_b$ respectively (to choose among items 1 to 4 as defined in section 1.2). Hopefully, we have chosen $C_a$ and $C_b$ so that $t_a$ and $t_b$ are at opposite ends of the spectrum.

We ask $C_a$ to produce a video in favor of $t_a$, and label it $s_{1a}$. We send $s_{1a}$ to $C_b$. We give $C_b$ a choice: either produce a reply video (arguing for $t_b$ against the video arguing for $t_a$), or start a new thread in favor of $t_b$, or both. In the first case, we label the argument $s_{1ab}$. In the second case, we label the

argument $s_{1b}$. The scheme is then repeated. We also run a parallel scheme starting with $b$ instead of $a$.

Here is a more precise description of the collection phase.

- At the start of the whole procedure, both champions are fully informed about the procedure and the future use of their arguments, including about the time constraints (effectively as if they received a copy of this whole document, except possibly with a different form more suitable for easy understanding of their role).

- The naming scheme is such that the last letter of a video indicate its author.

- Define init($\alpha$), with $\alpha \in \{a, b\}$, as follows. Precondition: $C_\alpha$ has received no argument of any sort from her opponent. We ask $C_\alpha$ to produce a video in favor of $t_\alpha$, and label the resulting video $s_{1\alpha}$.

- Define next($\alpha$), with $\alpha \in \{a, b\}$, as one plus the greatest integer numbering a start video recorded by $\alpha$ in the whole process so far. For example, if $\alpha = b$, and if a video labeled $s_{3b}$ exists already but no video labeled $s_{4b}$ exists yet, then next($b$) = 4.

- Define reply($S$), with $S$ a set of previously produced videos by a given champion $\alpha$, as follows. We address the champion $\beta$, with $\beta \neq \alpha$. We send her the videos in $S$. We invite her to reply to every videos she wants to reply to by recording new videos, in about two weeks time. A video replying to another video is labeled by suffixing $\beta$ to the label of the video it replies to. For example, if $\alpha = a$, when replying to a video labeled $s_{1aba}$, we label it $s_{1abab}$. The set of replies may be empty. She may also start a new video that is not a reply, that we name $s_{k\beta}$, with $k$ equal to next($\beta$).

- We start with init($a$) and init($b$) in parallel, therefore obtaining $s_{1a}$ and $s_{1b}$. Define $S_{1a} = \{s_{1a}\}$ and $S_{1b} = \{s_{1b}\}$.

- After having obtained a set of videos $S$, if $S \neq \emptyset$, we run reply($S$), and label the set of resulting videos by suffixing the identifier of their author to the label of $S$.

- We repeat the previous step, running two threads in parallel whenever possible, until both participants think that all arguments that is important to form a deliberated judgment has been given.

- When both participants have finished producing videos, we ask them to label briefly (in maximum 30 characters) each of their own videos and select an image from the video that becomes its "thumbnail".

**Example 1** Here is an example run.

1. We start with init($a$) and init($b$) in parallel and obtain $s_{1a}$ and $s_{1b}$. Define $S_a = \{s_{1a}\}$ and $S_b = \{s_{1b}\}$.
2. We apply reply($\{s_{1a}\}$) and obtain $S_{ab} = \{s_{1ab}, s_{2b}\}$.
3. In parallel, we apply reply($\{s_{1b}\}$) and obtain $S_{ba} = \{s_{1ba}\}$.
4. We apply reply($S_{ab}$) (as soon as $S_{ab}$ is available) and obtain $S_{aba} = \{s_{1aba}, s_{2ba}, s_{2a}\}$.
5. We apply reply($S_{ba}$) (as soon as $S_{ba}$ is available), but $C_b$ sees no need to answer those arguments; we obtain $S_{bab} = \emptyset$.
6. We apply reply($S_{aba}$) (as soon as $S_{aba}$ is available), where $C_b$ sees an opportunity for answering; we obtain $S_{abab} = \{s_{2bab}\}$.
7. We apply reply($S_{abab}$) (as soon as the argument is available), $C_a$ sees no need of counter-arguing, and we obtain $S_{ababa} = \emptyset$. □

## 2.2 Adjudication

When the collection phase is over, we put every collected video on a web site and design everything so that the adjudication phase of the protocol can be run, as described in this section. This phase consists, for each visitor, in

An individual $i$ comes to our web site. This visitor has to go through the following two phases: *context presentation* and *deliberation*.

In the context presentation phase, the visitor is explained the context of the study by written text. The following points should be made clear to the visitor.

- We (the team designing the study) are interested in knowing what the visitor considers are the best arguments to form a deliberated judgment on this topic, as judged by himself. Our long-term goal is to help individuals form a well-informed opinion by displaying to them arguments that tend to be considered good by many individuals, taking into account only the quality of the argument and not on the stance that the argument supports.

- We have no conflict of interest and do not try to promote either diet option (contrary to our champions). [OC: It will strike the visitor that we seem biased towards veganism or vegetarianism: the choices are not symmetrical from the POV of a meat-lover; and no champion defend a meat-extensive diet. We should say something about this. What?]
- Two well-known public figures have argued for two specific options. Those champions, contrary to us, actively try to promote one of the options.
- The visitor is shown the question of the topic and the possible choices.
- He is asked whether he is willing to adopt an open mind, that is, to be ready to change his mind if given arguments that he considers good for a side that he does not consider a priori as the "right" choice. [OC: New proposal, to maximize our chance of observing something interesting.]
- He should spend one hour and a half, (mostly) uninterrupted, on this experiment. During this time, he will have to look at videos from both sides, with a balanced time for both champions, and answer questions about his current judgment and about which arguments he finds good [OC: This is a new proposition. The previous version was: invited to spend as much time as he wants watching videos (without restriction of balancing the time spent for each champion) to form an opinion.] [OC: I propose to drop the socio-demographic questions.]
- After this hour and a half, he is free to continue exploring the videos and answering further questions in an unconstrained way.

Only after the visitor has accepted those conditions can he start the controlled deliberation phase.

During the deliberation phase, he can still access the explanations relating to the context presentation if he so desires, but it is not displayed prominently any more as we expect it will not be his main interest in that phase.

The deliberation phase is composed of **video steps** and **questionaire steps**. Here is the description of a video step.

- Each video step starts with an associated set of videos "proposed", $S_P$, and an associated list of videos "seen", $S_S$. The list $S_S$ is possibly augmented at the end of each step while the set $S_P$ is computed at the start of each step from the list $S_S$ resulting from the previous step. Two time counters $\theta_a$ and $\theta_b$ keep track of the time spent so far watching videos of each champion.

- At the start, $S_S = \emptyset$; $\theta_a = 0$; $\theta_b = 0$.
- A "video step" consists in the set $S_P$ being shown to the individual among which he can choose the video he will watch during this step; and he can also watch again videos that are "seen". Each video is displayed as its thumbnail, with its label shown clearly, in a randomized order; the videos from $S_S$ are clearly distinguished and displayed afterwards, in the order they have entered the list (the order they have been marked as "seen"). He clicks on a video and starts watching it. He can navigate in the timeline of the video (a la youtube). The step is finished with one of these possibilities.
  - If the video is watched until the end with no navigation in the timeline, in which case the video is added at the end of $S_S$.
  - The user can also click to mark the video as seen without having watched it entirely, in which case the video is also added at the end of $S_S$.
  - The user can also click to stop the video without marking it as seen; in which case $S_S$ is not modified and the video is added at the end of $S_T$.
- Given a video $s$, define $r(s)$ as the singleton set containing the reply video to $s$ (thus produced by the other champion than the author of $s$), if such a video exists, and $\emptyset$ otherwise. For example, $r(s_{2aba}) = \{s_{2abab}\}$ if such a video exists. At the start of a step where the list of videos seen is $S_S$, $S_N$ (for "next") is defined as the non-seen videos among the starting videos and the videos replying to a video that has been seen, thus, $S_N = \left(\{s_{k\alpha}, k \in \mathbb{N}, \alpha \in \{a, b\}\} \cup \bigcup_{s \in S_S} r(s)\right) \setminus S_S$. The proposed videos in this step are defined as $S_P = S_N$; *except* if the time allowed to watch one of the champions has been exhausted. The visitor has 40 minutes max to spend for each champion. Thus, if $\theta_a \geq 40$ minutes, $S_P$ consists in the videos of champion $b$ among $S_N$.
- At any time (except when watching a video in full-screen), $i$ sees how much time he has spent watching videos of each champion.
- After 90 minutes have passed, $i$ is informed that the controlled deliberation phase is finished. [OC: Check how to count time. What if $i$ gets disconnected and comes back 10 minutes later?]

A questionaire step is defined as asking the following questions to $i$. [OC: New proposition. Previously: At each step, $i$ may click "questionaire" to go to the

questionaire part. In this part he is informed that we suggest he answers these questions only after he has formed a deliberated opinion, but that he can anyway go back to the video part and come back to the questionaire whenever he wants and change his answers. I also removed several questions.] [OC: Decide how to alternate questionaire and video steps.]

- Which answer would you choose if you had to choose now (referring to section 1.2)?
- Which videos did you personally find most helpful to form a deliberated judgement about this question?
- Which videos would you select for displaying to other users to help them form a deliberated judgment about this question, assuming individuals have only a short time for watching the videos?
- Are there some arguments that you think have not been used from either champions and should have? (free text answer)
- Which arguments do you think the other champion has not replied to convincingly? (free text answer) [OC: These two questions should be asked only at the end of the constrained deliberation phase?]

For each of the "which videos" questions, $i$ is shows the list of thumbnails of videos in $S_S$, followed by the thumnails of videos he has partially seen but not marked as seen, and can check any thumnail he wants, from both champions. [OC: Should (or can?) order the videos?]

# 3 Analysis

[OC: We should think already now about some of the analysis that we will want to do, in order to ensure that our protocol is appropriate and to list the requirements on indicators collected during the adjudication phase.]

- Do visitors change mind?
- Do visitors tend to spend more time watching videos from the side they favor a priori? Does this switch when they change their mind? We count the total time spent watching videos from each champion. We count the time really spent playing a video, including replays when $i$ has watched several times the same (part of a) video, and thus not counting fully a video that has been partly watched, even if the video has been included

in $S_S$ because of an explicit demand from $i$. This permits to count time allowed to each champion.

- [OC: Think about this one.] est-ce qu'on peut raisonnablement dire qu'on a capturé le DJ ? Par exemple, sa position est-elle stable face à des arguments puisés dans une BD ? On pourrait comparer l'affirmation de stabilité sans protocole, ou après le protocole. Ou on pourrait comparer notre protocole à un autre et voir lequel amène à une position stable (donc proche du DJ).

- Do people agree on which videos are helpful? Try to cluster people so that they agree on this inside a cluster. Is this usable to shorten the time to deliberate?

# 4 Think

1. Should we grant the right to the champions to discard some of their videos at the end of the collection phase? Or promote some? (They might think that some of their videos are much better than others.)

2. We have to make sure $i$ understands that he will be proposed the "replies" videos only once he has marked the video as "seen".

1. Determine and validate a procedure to build CAC models?