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HOW TO CONDORCET A GOLDMAN

MICHELE PALMIRA
michelepalmira@gmail.com

ABSTRACT

In his 2010 paper "Philosophical Naturalism and Intuitional Methodology", Alvin I. Goldman invokes the Condorcet Jury Theorem in order to defend the reliability of intuitions. The present note argues that the original conditions of the theorem are all unrealistic when analysed in connection to the case of intuitions. Alternative conditions are discussed.

1. INTRODUCTION

In recent years, special attention has been devoted to the role of intuitions in philosophy. In his 2010 paper "Philosophical Naturalism and Intuitional Methodology", Alvin I. Goldman argues for the evidential role of intuitions. His proposal can be outlined as follows. Consider Gettier cases: their upshot is one of the cornerstones of contemporary epistemology, and their philosophical impact is so revolutionary that we often refer to post-Gettier epistemology. There is widespread consensus on the fact that Gettier cases show that a subject can have a justified true belief in a proposition without having knowledge. Goldman maintains that this convergence of opinion could play a crucial role in defending the view that the intuition elicited by Gettier cases is a reliable indicator of the truth of the intuition's content, that is, the proposition that when a subject is Gettier-related to a proposition she has a justified true belief in it without having knowledge. More to the point, the large convergence of opinion is an epistemically relevant fact which enhances the evidential force of the Gettier intuition, and the possession of this socially based evidence may be arguably taken to provide us with a (defeasible) justification for the truth of the content of the Gettier intuition. This train of thought might be taken to provide a *socio-epistemological argument for the reliability of the Gettier intuition* (the socio-epistemological argument for short).

According to Goldman, these considerations can be formally substantiated by the *Condorcet Jury Theorem* (CJT henceforth).[1] Let us state the theorem in its classical version.[2] Let us define the *decision problem* as the task of choosing a correct alternative x given a certain state of the world X, where the state of the world X is a random variable that can take only two values, 0 and 1 (one of the alternatives is factually correct and the other one incorrect). Consider the following two conditions:

1 Goldman (2010).
2 See List and Goodin (2001) for another introduction to the CJT.

1. *Homogeneous Competence*: for each state $x \in \{0,1\}$, each individual's choice C_i has a state-conditional probability of being right greater than 1/2.

$$p_i^x := Pr(C_i = x | X = x) > \frac{1}{2}, \text{ and is the same across } i.$$

2. *Independence*: individuals' choices are independent of one another conditional on X.

When these conditions hold, we can prove both the asymptotic and the non-asymptotic conclusions of the theorem. The asymptotic conclusion says that, for each option, the probability that a majority will choose it, given that the option is correct, converges to 1 as the number of the individuals increases. The non-asymptotic conclusion says that a group is more likely to choose the right option than a single individual (or a smaller group).

Goldman's discussion of the homogeneous competence and the independence conditions is not extensive. And yet, closer inspection reveals that their satisfaction cannot be taken for granted in the context of the Gettier intuition. For one thing, it seems very unlikely to be the case that each individual's intuitive judgement has the same probability of being right. For another, it is far from obvious who can be credited with the required degree of competence about Gettier cases. Moreover, more needs to be said on what it means for individuals' intuitive judgements to be independent in the relevant sense.[3] Thus, while I deem Goldman's idea of drawing upon the CJT to defend the evidential role of the Gettier intuition worth pursuing, I also believe that without a careful analysis of the conditions under which the theorem holds, the appeal to the CJT does not bring us very far. In other words: the unrealistic content of the two conditions, along with the high level of idealisation required to satisfy them jointly, may lead one to suspect that the suggestion of using CJT to formally substantiate the socio-epistemological argument proves a dead end.

The aim of the present paper is to explore to what extent, if any, we can make room for more realistic conditions in connection with the case of intuitions while, at the same time, preserving the role that the CJT plays within Goldman's socio-epistemological argument.

Let us begin with the homogeneous competence condition.

2. HOMOGENEOUS COMPETENCE

The homogeneous competence condition says that each individual's choice C_i is correct with the same probability greater than 1/2. However, it is a widely shared opinion that the assumption that a group's members are homogeneous in competence is unrealistic even when we look at standard applications of the CJT. Clearly, the same holds for the application of the CJT I am exploring here, for it seems implausible that individuals really exhibit the same degree of competence, expressed by a probabilistic value, about the epistemic status of Gettiered subjects.

This problem might be solved by adopting a different version of the CJT that allows for heterogeneity. In their seminal 1983 paper, Grofman, Owen and Feld show that the CJT is applicable to any competence distribution no matter how skewed by taking into account

3 Goldman notices that the independence condition is not trivially satisfied, but he does not examine this issue in detail.

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the group's average competence only.[4] This amounts to making room for a heterogeneous competence condition. Dietrich (2008) aptly formulates such a condition as follows. Let $\bar{p}^x$ indicate the group's average competence:

$$\bar{p}^x := lim_{n\to\infty}(p_1^x + \ldots + p_n^x)n \text{ (exists}^5 \text{ and)} > \frac{1}{2}.$$

This competence condition captures the intuitive contention that members of large groups display different degrees of competence regarding the targeted issue, and it does not alter the asymptotic part of the theorem.

As for the non-asymptotic part, it is commonly held that it does not generally hold when we make room for heterogeneity across individuals. However, under certain assumptions, even the non-asymptotic part of the theorem can be restored. For instance, Ben-Yashar and Paroush (2000) show that if we assume both that the independence condition is met and that each group member's competence exceeds 1/2, but we do not know what the specific distribution of competence within the group is, the probability that the group's choice is correct is greater than the probability of a correct choice made by a member of the group chosen at random.[6]

This brief overview shows that it is possible to make room for a more realistic understanding of how competence is distributed across members of the group: in order to prove the asymptotic conclusion and, under certain conditions, the non-asymptotic conclusion of the CJT, members need not be equally competent.

However plausible the homogeneous competence condition may be, though, it must be stressed that when we focus on intuitions about *philosophicalia* such as the concept of knowledge, the satisfaction of the competence condition cannot be taken for granted, for it is far from clear who can be credited with such an initial competence about Gettier cases in the first place. This worry leads us to discuss the problem of whose intuitions deserve to be taken into account.

A closer look at the literature on philosophical expertise and intuitions reveals that two cases need to be canvassed: on the one hand, the competence condition is satisfied by laymen only; on the other hand, only a group formed by experts, i.e. professional philosophers, can be credited with the required degree of competence.

2.1 *Only laymen satisfy the condition*

In his paper "Philosophical Theory and Intuitional Evidence" (Goldman and Pust 1998), Goldman argues that we have to take into account the intuitions of non-philosophers only. A brief explication of Goldman and Pust's argument to this effect goes as follows:

(1) Epistemology seeks to shed light on the ordinary concept of knowledge we use in everyday life.

4 See Grofman *et al.* (1983).

5 That is, the group's average competence $(p_1^x + \ldots + p_n^x)$ converges as $n \to \infty$.

6 A corollary of the theorem is that even the probability that the choice of three group's members (chosen at random) is correct is greater than the probability of correct choice made by a single member (always sampled at random).

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(2) Laymen do not have specific background assumptions and theoretical preferences to satisfy.
(3) By contrast, philosophers have certain theories to defend and intuitions are distorted accordingly.
(4) Therefore: laymen's intuitions are more valuable, in that they are not theoretically biased.

It must be noticed that the idea that laymen's intuitions are more epistemically valuable than philosophers' plays a pivotal role in experimentally oriented philosophical analyses of Gettier cases. To illustrate this point, let us briefly review Jonathan Weinberg, Shaun Nichols and Stephen Stich's now famous experiment on Gettier cases.[7] The experiment asks subjects belonging to two culturally different groups to establish whether the character in the Gettier case really knows or only believes the targeted proposition. In a population of Rutgers undergraduates, 74% of participants who self-identified as being "Western" said that the character "only believes", while only 43% of East Asian participants and 39% of Indian Subcontinental participants opted for the same verdict. It must be kept in mind that experimental subjects do not have a training in philosophy; so, by looking at the experiment from the perspective of this paper, we could say that relevant groups satisfying the heterogeneous competence condition are formed by laymen.

There is an intense debate about Weinberg, Nichols and Stich's experiment, but it is beyond the scope of this paper to analyse it in depth. Nevertheless, there are two aspects of the experiment that are relevant to the socio-epistemological argument which need to be mentioned.[8] First, one may wonder whether one of these ethnic groups is more competent than the others. Second, one may wonder whether one of these ethnic groups faces a difficult decision environment including, for example, biased evidence. For the time being, I wish to flag these two points and move on: I will get back to them after discussing what competence and independence conditions are more appropriate for the CJT-based socio-epistemological argument.

The idea that the initial competence condition is satisfied by a group formed by laymen only does not by itself jeopardise the CJT-based socio-epistemological argument for the reliability of the Gettier intuition; nevertheless, it leads us to reflect carefully on what conclusion is allegedly established by the argument. Suppose that the appeal to the CJT really carries the day and offers probabilistic support to the socio-epistemological argument: it turns out that the theorem shows that the Gettier intuition is reliable for individuals belonging to Western Culture, whereas it shows that for East Asian or Indian Subcontinental individuals it is not. Thus, if the competence condition is satisfied by groups formed by laymen, and if we take the experiment's results at face value, the CJT cannot be used in the context of an argument which aims to give a justification for the claim that Gettiered subjects do not have knowledge *tout court*.

As I understand his position, Goldman would defend the view that there is no tension between the socio-epistemological argument and the findings of Weinberg, Nichols and Stich's experiment, for the experiment shows that, as a matter of fact, Western people and East Asian people have two different concepts of knowledge.[9] The

7 See Weinberg *et al.* (2001).
8 Thanks to an anonymous referee for pressing me on these points.
9 See Goldman (2007).

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socio-epistemological argument relying on the CJT will thereby provide us with a justification for the truth of the content of the Gettier intuition as far as the "Western concept" of knowledge is concerned.

2.2 *Only philosophers satisfy the condition*

The approach to the competence condition discussed in the previous section is controversial. In an exchange with Goldman, Hilary Kornblith takes issue with the claim that the concept of knowledge varies across cultures. He maintains that if we admitted the possibility of there being two (or more) concepts of knowledge, we should abandon the idea of philosophy as being an ambitious discipline which addresses the question of what knowledge is.[10] Moreover, Kornblith criticises Goldman's take on the epistemic value of philosophers' intuitions by attacking the first step of the argument highlighted in the previous section. Kornblith acknowledges that theoretically loaded intuitions are inadequate if the goal of philosophy is to understand our pre-theoretical concept of knowledge. However, Kornblith maintains that philosophical analysis should not be conceived of as an attempt at understanding our concepts of justification, truth, knowledge, and so on. Instead, the target of our epistemological inquiries is some extra-mental phenomenon,[11] such as the phenomenon of knowledge.[12] When we understand the goal of philosophical inquiry along these lines, it is possible to contend that so long as theoretical considerations are accurate, theoretically oriented intuitions are not *ipso facto* bad intuitions. As Kornblith puts it: "intuitions uninformed by any theory – or only minimally informed by theories common to the folk – would be no more useful here than observations performed by investigators wholly ignorant of relevant background theory in science".[13]

In light of the Goldman–Kornblith dispute, it may be worth evaluating the prospects for a socio-epistemological argument in favor of the reliability of the Gettier intuition which abstracts away from some of the main tenets of Goldman's methodological approach, i.e. the claims that laymen's intuitions are better than philosophers', and that the concept of knowledge varies across cultures.

On reflection, even if Kornblith's observations about philosophers' intuitional expertise are less than conclusive, they seem to offer a way out to those theorists who acknowledge the potential of the socio-epistemological argument while, at the same time, disagreeing with both the idea that philosophy investigates the folk's concept of knowledge and the contention that Weinberg, Nichols and Stich's experiment shows the existence of a plurality of concepts of knowledge. In fact, by relying on those remarks, we might contend that the homogeneous competence condition is satisfied by a group formed by professional philosophers only.

10 See Kornblith (2007).

11 Kornblith (2007: 35)

12 Of course, it is far from obvious that there is such an extra-mental and culturally invariant phenomenon. A discussion of this issue will lead us astray.

13 Kornblith (2007: 34). To forestall misunderstandings, though, it must be said that Kornblith disagrees with the idea that intuitions can play an evidential role for reasons which cannot be fully analysed here. So, in the quoted passage Kornblith is merely objecting to the idea that theoretically contaminated intuitions are epistemically bad intuitions without *ipso facto* defending the evidential status of intuitions.

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To unpack this a little, we can make sense of the competence condition in two ways:[14]

(I) Only laymen satisfy the competence condition.
(II) Only professional philosophers, qua experts, satisfy the condition.

Given Goldman's overall approach to intuitional methodology, we can safely maintain that he would endorse (I). In turn, this option may give rise to two different views:

(Ia) We could maintain – along with experimental philosophers – that the Gettier intuition is not reliable since there is a clash between two majority views, for Westerners say that Gettiered subjects only believe the targeted propositions and Easterners say that Gettiered subjects know the targeted propositions. For this reason, the CJT cannot deliver the verdict that the Gettier intuition is reliable.

(Ib) We could rescue the reliability of the Gettier intuition by saying that it does not track the universal, Platonic form-like concept of knowledge. Rather, epistemology deals with the folk's concept of knowledge. Weinberg, Nichols and Stich's experiment merely indicates that Western and Eastern people should be regarded as different groups having different concepts of knowledge. As far as the Western concept of knowledge is concerned, the Gettier intuition can be shown to be reliable via the CJT-based socio-epistemological argument, since the majority view is that Gettiered subjects only believe the targeted propositions. This means that we should accept the idea that the subject matter of analytic epistemology is the Western folk's concept of knowledge rather than the phenomenon of knowledge itself.

Let us turn now to (II). The thesis that only experts, i.e. professional epistemologists, satisfy the competence condition allows one to restore the idea that philosophical inquiry targets the extra-mental and culturally invariant phenomenon of knowledge rather than different and culturally based concepts of knowledge. On this view, there is no need to accept a plurality of concepts of knowledge to make sense of the result of Weinberg, Nichols and Stich's experiment, for one might contend that the experiment is irrelevant since the chosen experimental groups do not display a sufficient degree of competence. Since only professional philosophers have competent intuitions about Gettier cases, and since there is a great convergence of opinion among professional epistemologists about the reliability of the Gettier intuition, we can deploy the socio-epistemological argument to justify the evidential role of the Gettier intuition.

A proper assessment of the Goldman–Kornblith dispute will lead us astray. Be that as it may, I believe that the point I have been developing in the previous paragraphs, namely that the competence condition can be taken to be satisfied in two rather different ways, strengthens the plausibility of the socio-epistemological argument: one need not subscribe to Goldman's specific standpoint about both philosophical expertise and the target of

14 An anonymous referee suggests to investigate the case in which the competence condition is satisfied both by laymen and philosophers, except that they may differ in competence. As far as I can see, the suggestion relies on a third approach to philosophical expertise and intuitions – halfway between Goldman's and Kornblith's – which has not yet been defended in the current literature. I agree with the referee that this would be a worthwhile option to explore, but responsibility dictates to devote considerable space to a detailed discussion of this alternative take on philosophical expertise; for this reason, I prefer to stick to the Goldman–Kornblith dispute and I postpone the analysis of this third option (and of its consequences for the competence condition) to another separate investigation.

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philosophical inquiry in order to make use of the socio-epistemological argument, for the argument can be run even if we adopt an overall different methodological picture.

Let us take stock. I argued that it is possible to generalise the socio-epistemological argument to other approaches to philosophical methodology than Goldman's own. Depending on the account of the methods and targets of philosophical inquiry one subscribes to, however, the argument establishes different conclusions. According to (Ib), the argument succeeds in providing a justification for the thesis that the Gettier intuition is reliable with respect to the Western concept of knowledge; according to (II), the argument offers a justification for the thesis that the Gettier intuition reliably establishes the truth of the proposition that when a subject is Gettier-related to a proposition she has a true justified belief in it without having knowledge, where "knowledge" is to be understood as referring to an extra-mental phenomenon.

3. INDEPENDENCE

Let us turn now to the independence condition. To begin with, let us say that the notion of independence used in the standard formulation of the CJT is that choices are independent conditional on the state of the world X: we cannot learn anything new about the state if we have already conditionalised on it.[15] This *state-conditional* notion of independence is needed to state the asymptotic part of the theorem. However, many authors in the contemporary literature on the CJT have observed that this conception of independence is unrealistic, in that it does not take into account possible ways in which individuals' choices cannot be independent. Let us consider some examples.

Boland (1989), and Boland *et al.* (1989) notice that individuals can influence each other, thereby making their choices causally (and probabilistically) interdependent. However, as pointed out by Ladha (1992), causal and probabilistic independence can fall apart, since individuals can be interdependent because there is another common cause different from the state of the world. In fact, Ladha (1992) offers a new version of the CJT which preserves heterogeneous competence and replaces the state-conditional independence condition by the condition that choices are correlated in the sense that individuals are influenced by various schools of thought or opinion leaders.[16]

Following the lead of Ladha, several authors have recently explored the possibility of replacing state-conditional independence by alternative independence conditions which are meant to keep track of a multiplicity of factors that can affect the individuals' choices. Let me mention two attempts in this direction which can prove useful to the present investigation.

Dietrich and List (2004) consider the case in which a jury has a shared body of evidence and maintain that when this situation holds, we should make room for an *evidence-conditional* independence condition to the effect that the shared body of evidence is the intermediate common cause of individuals' choices.

Dietrich and Spiekermann (2013a, 2013b) go one step further by claiming that conditionalisation has to include several common causes which can well go beyond shared evidence. The idea, in a nutshell, is that in order to account for all common causes affecting

15 See Grofman *et al.* (1983).

16 See Ladha (1992: 624).

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individuals' choices, we had better adopt a *problem-conditional* notion of independence in which we conditionalise on the entire *decision problem*, conceived here as "the task of *finding a certain correct alternative x (0 or 1) under certain circumstances c*".[17] The notion of a *circumstance* is meant to include both evidential and non-evidential (public or private) factors which affect individuals' choices.

Before going on to establish what notion of independence is best suited for the CJT-based socio-epistemological argument, it must be noticed that revisions of the original independence condition give rise to different versions of the CJT. In general, the original non-asymptotic part of the theorem still holds whereas the original asymptotic part does not. More specifically: in Ladha's CJT, except in rare cases, i.e. when the size of the group is particularly large and opinions are not too highly correlated, the probability that the majority is right does not converge to 1 as the group size increases. When we conditionalise on the shared body of evidence the way Dietrich and List (2004) do, we prove a weaker result than the asymptotic conclusion of the original CJT. That weaker result says that the overall jury reliability at best approaches the probability that the evidence is truth-conducive. This, in turn, can be interpreted as the probability that, from a God's-eye viewpoint, the evidence points to the truth. Its value is typically below 1, reflecting the possibility of misleading evidence. Dietrich and Spiekermann (2013a) prove the classical non-asymptotic conclusion and a new asymptotic conclusion which excludes the idea that large groups are *infallible*, namely that the probability of getting it right tends to 1 as the size of the group increases.

The overview of several treatments of the independence condition pursued so far will enable us to answer the following question: which notion of independence should we endorse in order to develop a realistic socio-epistemological argument in favor of the reliability of the Gettier intuition?

It should be kept in mind that we are considering two cases: on the one hand, the case in which the competence condition is satisfied by a group formed by laymen and the target of epistemological inquiry is the Western concept of knowledge; on the other hand, the case in which the competence condition is satisfied by a group of experts and the target of epistemological inquiry is knowledge itself, and not anyone's concept of knowledge. Let us analyse these two cases in turn.

In order to provide a realistic notion of independence in the first case, it seems plausible to conditionalise on (at least) the following two factors. First: if the upshot of Gettier cases is taken to be possibly a cultural prejudice, then Western laymen's reactions to them are all affected by the fact of being caused by the same culture, as it were. Second: one may claim that since the individuals involved in Weinberg, Nichols and Stich's experiment are all faced with the same Gettier case, they share the same body of evidence. These considerations suggest that the more realistic approach to the independence condition in this scenario is the problem-conditional notion of independence proposed by Dietrich and Spiekermann, for this notion enables us to take into account various common causes, i.e. being part of the same culture and being exposed to the same evidence, that affect individuals' intuitive judgements about Gettier cases.[18]

17 Dietrich (2008: 58).

18 A consequence of problem-conditional independence that is worth flagging is that even experimental subjects' intuitions can be said to be contaminated by a common cause, where the common cause is being part of the same culture.

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The problem-conditional notion of independence affords the means to offer a realistic representation of laymen's independence during the evaluation of Gettier cases; for this reason, we should touch on the features of the version of the CJT stated with such an independence condition which are mostly relevant to the present discussion. To begin with, Dietrich and Spiekermann's CJT involves a revision of the competence condition: competence is conditional on the problem. Secondly, their problem-conditional competence condition takes into account homogeneous groups. Thirdly, the original asymptotic conclusion is weakened. Let us take these three issues in reverse order.

On reflection, the third consequence is not so worrisome for the socio-epistemological argument. Bear in mind that the argument aims to establish the following thesis: the fact that a large group of individuals have the Gettier intuition enhances the evidential status of the intuition to such an extent that it provides us with a defeasible justification for the content of the Gettier intuition. To my mind, infallibility is not required to obtain such a defeasible justification. Therefore, I take this feature of Dietrich and Spiekermann's CJT to be perfectly acceptable in the context of the socio-epistemological argument.

Having clarified this, let us turn to the problem-conditional competence condition. Dietrich and Spiekermann observe that the new problem-conditional competence condition is needed since it is possible to show that, when a problem-conditional notion of independence is coupled with a classical notion of competence, large groups are worse than small groups or single individuals.[19] The notion of problem-conditional competence rests on the tenet that the probability that an individual opts for the right choice depends on how difficult the problem is. The probability exceeds 1/2 when the problem is easy, it is smaller than 1/2 when the problem is difficult, and it is equal to 1/2 on boundary problems. In a nutshell, the probability that an individual chooses the right answer depends on the easiness or on the complexity of the problem at issue. Thus, in order for the probability that each individual will have the right opinion to exceed 1/2, we should countenance the idea that it is easy to establish that the character of Gettier cases does not know the targeted proposition.

Various factors may have a bearing on whether the task of deciding if Gettiered subjects really know or only believe the targeted propositions is easy or difficult. To mention but one, the easiness of the problem may vary depending on the Gettier case one is facing. For instance, one might think that it is fairly easy to establish that in the *Ginet–Goldman's fake barn* scenario the subject does not know that the object she is looking at is a barn while, at the same time, finding the *Chisholm's sheep* scenario more difficult to assess because the intuition that the subject does not know that there is a sheep in the field is less solid, or vice versa. However shaky intuitions may be, though, I will concede that deciding whether a Gettiered subject really knows or only believes the targeted proposition is not a difficult task; in other words, I grant that individuals' competence exceeds 1/2.

In light of these considerations, we can go back over the two aspects of Weinberg, Nichols and Stich's experiment I put aside in section 2.1: namely, whether one of the ethnic groups involved in the Weinberg, Nichols and Stich's trials is more competent than the others, and whether one of these groups faces a (more) difficult decision environment.

As far as I can see, when we consider groups formed by non-philosophically trained individuals only, it is difficult to ascertain whether one group displays more competence

19 See Dietrich and Spiekermann (2013a: 99–100).

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on the task than another, since it is far from clear whether there are specific and culturally determined factors which make the intuitions of a given ethnic group more competent than those of another. Moreover, much of the existing research in experimental philosophy has been operating under the tacit assumption that laymen's intuitions are all equally legitimate. So, we can safely regard different ethnic groups as being alike with respect to their average competence.

As for the decision environment, it seems unlikely that, in this particular case, distinct ethnic groups face radically different decision environments. For one thing, they deal with the same task, viz. answering the question whether a Gettiered subject really knows or only believes the targeted proposition. It also seems that individuals are all exposed to the same evidence on the problem: they are presented with the same Gettier case, and there is no group that displays more familiarity with Gettier cases, for experimental subjects are undergraduates without any training in philosophy. Furthermore, we can exclude the possibility that one of the ethnic groups faces a difficult decision environment because of misleading opinion leadership: as a matter of fact, there are no recognised leaders in these groups, nor is it plausible to hold that for example the Western group is biased because influenced by the opinion of a well-known analytic epistemologist who thinks that Gettiered subjects do not have knowledge, since Western participants are laymen without any familiarity with contemporary epistemology.

Having clarified this, let us turn now to the fact that the problem-specific competence condition is defined for homogeneous groups. Let us state this condition more precisely. First, notice that for each individual i, Dietrich and Spiekermann consider an event R_i, which is the event that an individual i chooses correctly. This is but a notational convenience, for choices and correct choosing events are interdefinable given x.[20] Dietrich and Spiekermann define an individual i's (problem-specific) competence as $p_i^\pi = Pr(R_i|\pi)$, the probability that i chooses correctly conditional on the problem π: the value varies depending on how easy the problem is.

Surely, homogeneity is a limitation of Dietrich and Spiekermann's CJT: as pointed out in section 2, the homogeneity condition is highly unrealistic in our case, and it is often rejected in standard applications of the CJT. Yet, homogeneity should not be regarded as a necessary condition for this version of CJT, and I believe that it is possible to widen the span of Dietrich and Spiekermann's CJT to encompass heterogeneous groups.

The mathematical development of such a more general version of CJT will have to be deferred to further works. However, let me briefly outline a general strategy. The key move will be to replace problem-conditional competence by *average problem-conditional competence*.[21] More precisely, let $\bar{p}^\pi$ indicate the average problem-specific competence:

$$\bar{p}^\pi = lim_{n\to\infty}(p_1^\pi + \ldots + p_n^\pi)n > \frac{1}{2}.$$

That is, the average problem-specific competence condition is the limit of the finite-group average problem-specific competence. This formulation of the average problem-specific competence condition is the natural extension of Dietrich's 2008 average competence: it

20 See Dietrich and Spiekermann (2013a: 91).

21 I am grateful to Frantz Dietrich for mentioning this option to me.

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is an extension since it conditionalises on the entire decision problem, whereas Dietrich's 2008 competence condition conditionalises on the state only.

I submit that it is reasonable to expect that after dropping the homogeneity group competence condition, the probability that the majority is right in choosing a certain option given that the chosen option is correct would continue not to converge to 1 as in the previous asymptotic conclusion of Dietrich and Spiekermann's CJT (bear in mind, however, that this weaker conclusion does not undermine the socio-epistemological argument for the reason offered above). As for the non-asymptotic conclusion, it would cease to hold if we simply dropped the homogeneity condition, just as in the classical CJT. Yet, more sophisticated ways of modeling heterogeneity might recover the non-asymptotic conclusion, just as described in the case of the classical CJT in section 2.[22]

This completes my analysis of the CJT-based socio-epistemological argument for the reliability of the Gettier intuition in the case where laymen satisfy the competence condition and the target of epistemological inquiry is the Western concept of knowledge. Let us turn now to specify the conditions that must be met in order for the CJT-based socio-epistemological argument to hold in the second case, where the target is the extra-mental phenomenon of knowledge and the group is composed of professional philosophers only.

The original state-conditional independence condition does not seem to square with the current philosophical practice. One can point to the fact that being an analytic philosopher, one might share possible biases or methods of inquiry proper of analytic philosophy. In this sense, all analytic philosophers cannot be said to be independent of each other. Moreover, a philosopher can certainly benefit from the interaction with other philosophers working on the same topic, since the exchange of ideas and feedback have a positive impact on the development of one's own ideas. There is much more to be said about philosophical practice, but these remarks suffice to support the claim that it is unrealistic that professional philosophers satisfy the original state-conditional independence condition: hence, if we want to avail ourselves of the CJT in the case where the competent group is composed of philosophers, we had better adopt a problem-conditional independence condition, for such a condition requires us to conditionalise on common causes which may be arguably taken to affect philosophers' intuitive judgements, such as having the same methods, being influenced by the same *school of thought* (i.e. analytic philosophy), and so on and so forth. This entails that even when we appeal to the CJT-based socio-epistemological argument in this second case, we should develop a more general CJT which includes both the realistic problem-conditional independence condition proposed in Dietrich and Spiekermann (2013a) and the average problem-conditional competence condition suggested above.

22 I cannot parse here all possible differences between the CJT with homogeneous problem-conditional competence and the CJT with heterogeneous problem-conditional competence, so let me mention just one difference. Dietrich and Spiekermann offer a precise expression of the limiting probability of the majority being correct, averaged over all problems (2013a: 103):

$$Pr\left(p^{\pi} > \frac{1}{2}\right) + \frac{1}{2} Pr\left(p^{\pi} = \frac{1}{2}\right)$$

This expression will no longer be defined in the heterogeneous case, for we drop the assumption that the value of p^{π} is the same for all individuals. Thanks to Frantz Dietrich for pointing this out to me.

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4. CONCLUSION

In this paper, I aimed at shedding new light on Goldman's suggestion that the CJT could play a role in the context of a socio-epistemological argument for the reliability of intuitions, such as the Gettier intuition. I pointed out that Goldman's original proposal is implausible, in that it relies on a version of the CJT which holds under unrealistic conditions. Nonetheless, this does not make the socio-epistemological argument *ipso facto* doomed. I explored other formulations of the conditions of the CJT by drawing on the ongoing debates on philosophical methodology. In particular, I proposed to modify the conditions by taking into account two different views on the target of philosophical areas of inquiry such as epistemology, and on philosophical expertise. So, where does the foregoing discussion leave us?

I claimed that the most appropriate version of the CJT for the socio-epistemological argument should have a problem-conditional independence condition and a heterogeneous problem-conditional competence condition, and I ventured a tentative hypothesis on how this CJT can be developed. But it remains an open question how to fill out the mathematical details of this new CJT. Be that as it may, if my analysis has provided any insight into the CJT-based socio-epistemological argument for the reliability of the Gettier intuition and has placed it on the table as a real option, I will rest content for now and leave the mathematical development of a more general CJT as a topic for future research.[23]

REFERENCES

Ben-Yashar, R. and Paroush, J. 2000. 'A Nonasymptotic Condorcet Jury Theorem.' *Social Choice and Welfare*, 17: 189–99.

Boland, P. J. 1989. 'Majority Systems and the Condorcet Jury Theorem.' *Journal of the Royal Statistical Society*, 38: 181–9.

——, **Proschan, F., and Tong, Y.** 1989. 'Modelling Dependence in Simple and Indirect Majority Systems.' *Journal of Applied Probability*, 26: 81–8.

Dietrich, F. 2008. 'The Premises of Condorcet's Jury Theorem Are Not Simultaneously Justified.' *Episteme*, 58: 56–73.

—— **and List, C.** 2004. 'A Model of Jury Decisions Where All Jurors Have the Same Evidence.' *Synthese*, 142: 175–202.

—— **and Spiekermann, K.** 2013a. 'Independent Opinions? On the Causal Foundations of Belief Formation and Jury Theorems.' *Mind*, 122: 655–85.

—— **and** —— 2013b. 'Epistemic Democracy with Defensible Premises.' *Economics and Philosophy*, 29: 87–120.

Goldman, A. I. 2007. 'Philosophical Intuitions: Their Target, Their Source and Their Epistemic Status.' *Grazer Philosophische Studien*, 74: 1–25.

—— 2010. 'Philosophical Naturalism and Intuitional Methodology.' In *Reliabilism and Contemporary Epistemology*, pp. 280–316. Oxford: Oxford University Press.

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—— **and Pust, J.** 1998. 'Philosophical Theory and Intuitional Evidence.' In M. Depaul and W. Ramsey (eds), *Rethinking Intuition: The Psychology of Intuition and its Role in Philosophical Inquiry*, pp. 271–92. New York, NY: Rowman and Littlefield.

Grofman, B., Owen, G. and Feld, S. L. 1983. 'Thirteen Theorems in Search of the Truth.' *Theory and Decision*, 15: 261–78.

Kornblith, H. 2007. 'Naturalism and Intuitions.' *Grazer Philosophische Studien*, 74: 27–49.

Ladha, K. K. 1992. 'The Condorcet Jury Theorem, Free Speech, and Correlated Votes.' *American Journal of Political Science*, 36: 617–34.

List, C. and Goodin, R. E. 2001. 'Epistemic Democracy: Generalizing the Condorcet Jury Theorem.' *Journal of Political Philosophy*, 9: 277–306.

Weinberg, J., Nichols, S. and Stich, S. 2001. 'Normativity and Epistemic Intuitions.' *Philosophical Topics*, 29: 429–60.

MICHELE PALMIRA is a postdoctoral fellow at the Centre for Research on Ethics (McGill University and University of Montreal). His research interests include disagreement, relativism, and moral expertise.

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