The Speech Act of Presumption by Reversal of Burden of Proof


This paper clarifies the connection between presumption and burden of proof by refining the speech act analysis modeling how the putting forward of a presumption in a conversational exchange essentially works by reversing the burden of proof already operative in the exchange. To help the reader really understand how presumptions work, three everyday examples and two legal examples of presumptions are given in the first section. Clarifications of terminology are offered in the second section, where presumptions are distinguished from assumptions, assertions, presuppositions and defeasible reasoning. In the third section, a brief explanation of the relationship between presumption and burden of proof is given. In the fourth section, the theory that the speech act of making a presumption works essentially by reversal of burden of proof is explained and defended. In the fifth section, the theory is applied to the five examples.

1. Five Examples of Presumptions.

Art normally leaves the office to walk home every day at 4:00 PM. Betty normally meets Art on Wellington Crescent at exactly 4:30 PM every weekday in order to give him a lift home. But sometimes they need to cancel this arrangement, for example if Art wants to walk all the way home, or if there is very bad weather. To make this arrangement work, it would be tedious if they had to phone each other every day to confirm pickup or not. For this reason they adopted the convention that if one does not hear from the other on any given day before 4:00 PM, the presumption in place is that they will meet on Wellington Crescent at 4:30 PM.

The second example, summarized from the more detailed account given in (Walton 1992, 62) is often taken to be the classic case of a presumption. David Livingstone left England in 1866 on an expedition to try to find the source of the Nile. Subsequently, very little was heard of him but he was thought to be in a certain area near Lake Tanganyika. Henry Morton Stanley reached this area in 1871 and saw a pale, gray bearded white man wearing a navy cap in the center of a large crowd of tribesmen and Arabs who came rushing toward him. At that point Stanley uttered his famous words, “Dr. Livingstone I presume.”

In the third example, summarized below from (Walton 1992, 69), a memo was sent to all university faculty members from the library telling them that a large backlog of old examination papers no longer being used by students had piled up. The memo went on to say that unless the sender hears from any faculty that anyone still wishes to keep these papers, they will be withdrawn from circulation.

The fourth example is presumption of death in law. For example, suppose that a person has disappeared, and no trace has been found of him. Should we assume that he is still alive, or after a number of years, can it be assumed that he is dead? In order to deal with issues concerning wills and estates, the courts in a particular jurisdiction may rule that a person is presumed to be dead for legal purposes if there has been no evidence that he is still alive for the last X years. In such a case, there is a presumption that the person is dead, even though there is no hard evidence to support it, apart from his having disappeared without a trace X years ago.

The fifth example is a kind of case often cited as an example in textbooks on evidence law. In this version (summarized from Park, Leonard and Goldberg, 1998, 107) the plaintiff suffered a fall on a dark stairway in an apartment building. He sued the defendant, the building’s owner, claiming that she did not keep the stairway in a safe condition, because the lighting did not work properly. To prove notice, the defendant claimed she mailed a letter to the plaintiff, informing him that several of the lights in the stairway no longer worked.
The legal ruling on the letter example (quoted from Park, Leonard and Goldberg, 1998, 103) was that the letter is presumed to have been received. A legal rule states that a letter properly addressed, stamped, and deposited in an appropriate receptacle is presumed to have been received in the ordinary course of the mail. Unless the presumption created by this rule is rebutted, the properly addressed, stamped, and deposited letter will be deemed to have been received in what is considered to be the ordinary amount of time needed in that delivery area.

2. Distinguishing Presumptions from Related Notions

The first task of any theory of presumption is to distinguish between presumptions and associated notions such as assumptions, assertions, presuppositions, and defeasible reasoning. According to the account given in Walton 1992, chapter 2, a presumption is a special kind of assumption that, like an assumption, needs to be backed up by evidence if challenged, but the burden of proof in the two cases is different. The proponent of an assumption has to give some argument to back it up if the respondent requires that prior to acceptance. In the case of a presumption, the burden of proof is the other way around. The proposition put forward with the presumption is taken for granted as accepted by both parties unless the respondent comes up with some reason for rejecting it.

An assertion is different both from an assumption and a presumption (Walton 1992, 45). If an assumption is challenged, the proponent may reply that it’s just an assumption, and she really has no evidence, at least right now, to back it up so that it needs to be accepted by both parties. But she can still argue that it is worthwhile going ahead hypothetically with this assumption, because it will lead somewhere interesting. An assertion on the other hand, carries with it an immediate burden of proof to either provide backup evidence or to immediately give up the assertion. Failure to do this means that the proponent can no longer hold it as an assertion, although she might still hold it as an assumption.

A presumption is different from a presupposition. To understand the difference, you have to visualize a dialogue sequence of questions and replies containing argumentation between two parties, conventionally called the proponent and the respondent. Such a dialogue essentially involves turn taking, so that as each party makes its move, the other party is expected to reply to that move in an appropriate way, and then the first party has a chance to reply to the reply, and so forth. Presupposition essentially refers to the sequence of moves prior to the particular mode which is the case in point. For example, the question ‘Why did you kill the victim?’ presupposes that there was a victim and that the answerer killed the victim. In other words, the asking of this question presupposes a prior sequence of dialogue between the two parties in which the answerer committed himself to the proposition that he killed the victim (Macagno, 2015). Hence we say that this proposition was a presupposition of the question.

Presumption, in contrast, is directed toward the future sequence of such a dialogue. The putting forward of a proposition as a presumption influences how the respondent can or must reply at the next move. If the respondent makes no move to deny the presumption, giving a reason for the denial, it will be assumed by all parties that the respondent accepts the presumption, and it will be lodged in place as a proposition henceforth accepted by the speaker and hearer. However, it leaves open the possibility that the hearer can deny that the presumption holds, provided that he can offer some reason supporting this denial. You could say that both presumption and presupposition have a certain structure as moves embedded in an orderly sequence of dialogue in which two parties are taking turns engaging in argumentation with each other.

Reasoning on the basis of accepting a presumption is a species of defeasible reasoning, but is not the same thing as defeasible reasoning. Defeasible reasoning is provisional acceptance of the
conclusion where the argument used to derive the conclusion has at least one premise that is a
generalization that is subject to exceptions. For example consider the following argument: birds
fly; Tweety is a bird; therefore Tweety flies. This argument is classified as a defeasible one on
the basis that if new evidence comes in informing us that although Tweety is a bird, Tweety is a
penguin, a type of bird that does not fly. The argument still holds in general, but is defeated as
applied to the case in point, namely the case where Tweety is a penguin. Some would say that
this argument is presumptive by claiming that the universal generalization that birds fly is only
presumptively acceptable because it can be defeated in special cases, such as the case where
Tweety is a penguin. However this is not quite right. The universal generalization still holds,
even though the argument defaults in the case where Tweety is a penguin.

A distinction might be drawn here between a broader and narrower sense of the term
‘presumption’. In the broader sense, the Tweety example does represent what might be called
presumptive reasoning. But it is not appropriate to classify the defeasible universal
generalization that birds fly as a presumption, even though it can be made inapplicable by
pointing to an exception in the given case. What this discussion suggests is that there is a broader
sense of the term ‘presumption’ in which all instances of defeasible reasoning are presumptive in
nature, meaning that they can default if evidence comes in to show that they do not hold a
particular case at issue.

3. Presumption and Burden of Proof

It has long been known that there is close connection between presumption and burden of
proof (Godden and Walton, 2007), but the precise nature of the connection has proved to be
evasive and slippery before its recent clarification in formal dialectical models of argumentation.
Rescher wrote (2006, 6) that a presumption is not a form of evidence arising from factual
knowledge, but rather something we take to be acceptable on a tentative basis in a situation
where there is a lack of evidence for not accepting it. On his account, “a presumption indicates
that in the absence of specific counter-indications we are to accept how things as a rule are taken
as standing” (Rescher, 1977, 30). On his theory, presumption needs to be understood in relation
to two kinds of burden of proof (Rescher, 1977, 27). The first kind is what he called the
probative burden of proving an initiating assertion. Basically this requires that when a participant
in a dialogue makes a claim that is the subject of disputation representing the topic of a dialogue
he or she incurs a continuing burden of supporting it with an argument. Second, there is the
burden of coming forward with the evidence (Rescher, 2006, 27). This burden is also often called
the burden of producing evidence in law. What Rescher called the probative burden of proving
an initiating assertion is comparable to what is called ‘the burden of persuasion law’.

The probative burden of an initiating assertion remains constant during the entire dialectical
proceeding. This burden expresses the rule that whoever initiates an assertion in a dialogue has
the burden of supporting it with argument. The contrasting burden is called the evidential burden
of further reply in the face of contrary considerations. This burden of going forward with
evidence shifts from side to side as particular moves are made in the course of the dialogue as the
argumentation proceeds (Rescher, 1977, 27). Having defined burden of proof in this dialectical
fashion, Rescher (2006) went on to define presumption in the framework of a context of dialogue
where burden of proof is operative. Presumption is defined (2006) as a device that shifts the
burden of proof from one side to the other during a disputation. Thus if one side puts forward a
claim where there is insufficient evidence to prove it, presumption can be used as a device to
gain tentative acceptance of the claim by shifting the burden of coming forward with evidence
against the other side to provide counter-evidence. If the other side cannot provide such counter-
evidence, the claim should be held tentatively acceptable to both sides, assuming that there is
some evidence supporting the claim, and no stronger evidence refuting it (Macagno and Walton, 2012).

The general default rule in law is that the party who makes the claim has the burden of proof. However, many legal systems recognize two types of burden of proof, the burden of persuasion and the other type variously called the burden of production, the burden of producing evidence, or the evidential burden (Strong, 1992, 425). The burden of persuasion is set at the opening state in a trial where the judge instructs the jury (in a jury trial) on how they should carry out their task. The judge has to instruct the jury on what standard of proof needs to be met for a side to win the trial. The standard in a criminal trial is beyond a reasonable doubt. In a civil trial, the standard is the preponderance of the evidence. The evidential burden refers to the liability of an adverse ruling if evidence required to make its case is not offered by one side or the other (Strong, 1992, 425). The burden of persuasion is fixed at the beginning of the trial, but the evidential burden shifts from side to side as the trial proceeds.

A parallel distinction in legal argumentation has been drawn by Prakken and Sartor (2009, 228). On their account, the burden of persuasion in a trial specifies which party has to prove the statement at issue in the trial to a degree specified by the proof standard for that type of trial. In civil law, it is the preponderance of the evidence standard. They describe this burden of persuasion as being in place throughout the whole trial and as being the criterion used at the final stage to determine which side has won or lost. In contrast, they describe a local burden, called the burden of production, sometimes also called the evidential burden, which specifies which party has to offer evidence on different points being disputed as the trial itself proceeds.

4. The Speech Act of Making a Presumption

According to the dialectical theory of presumption presented in (Walton, 1992, 56-61), presumption is a kind of speech act in dialogue that is in the middle between assertion and assumption. When a proponent in a dialogue asserts a proposition, if the respondent asks for justification, the proponent must either give an argument to justify the proposition, or she must retract the proposition. This requirement is often called the burden of proof. What it means is that if you assert something, you are committed to the truth or acceptability of what you asserted. Hence you are obliged to back it up, if you are challenged. This requirement then is a kind of rationality assumption that defines the nature of assertion as a speech act in dialogue. Assumption may be contrasted with assertion. You are free to assume any proposition you like in a dialogue. There is no burden of proof attached. You can assume that the moon is made of green cheese, for purposes of a discussion. There is no “cost” or “burden” attached. Presumption is a dialectical notion that fits in between assertion and assumption. If you presume that something is true, you don’t have to prove that it is true, or offer evidence to prove it. But you do have to give it up if the other party can prove it is false. Simply put, the dialectical function of a presumption is to reverse a burden of proof.

Others, including Rescher (1977, 2006), Ullman-Margalit (1983), Cohen (1992) and Freeman (2005) appear to agree with this principle of presumption. Freeman’s theory of presumptive acceptability (Freeman, 2005, 21) is based on a concept of presumption tracing back to the account given by Cohen (1992, 4) stating that a presumption is a proposition that may be taken for granted in the absence of reasons against doing so (Godden and Walton, 2007, 329). Rescher (1977, 32) is broadly be in agreement with this model of presumption when he writes that defeasible presumptions are closely interconnected with notion of burden of proof. In fact he appears to be advocating the key defining feature of this model when he writes that defeasible presumption can be simply characterized as “the reverse” of an evidential burden of proof.
According to the dialectical theory of presumption presented in (Walton, 1992, 280-282), there are four kinds of conditions governing the operation of the speech act of presumption in a dialogue. The preparatory conditions state that a proponent and a respondent are engaged in a dialogue in which a proposition $A$ is a useful assumption. The placement condition states that $A$ is brought forward for acceptance by the proponent, that the respondent has an opportunity to reject $A$, and that as long as he fails to reject it, $A$ becomes a commitment of both parties. The retraction conditions state that the respondent can retract commitment to $A$ at any point in the succeeding dialogue, provided that he can give evidence to support such a rejection. But the retraction condition also states that the respondent is obliged to let the presumption stay in place in the discussion unless he can give such evidence. The burden conditions state two requirements. One is that at any given point in the dialogue, the proponent has the burden of showing that assuming $A$ has some practical value in moving the discussion forward. The other requirement is that past this point in the dialogue the respondent must let the presumption stay in place long enough for the proponent to make whatever use of it he has proposed.

In formal dialogue systems the speech acts are the locutions, such as making an assertion, asking a question, or putting forward an argument, that are permissible to make at each move of a dialogue. Each speech act in a dialogue has protocols that define what kinds of moves are allowed and what kinds of responses the other party in the dialogue is allowed to make immediately afterwards. Making a presumption can be defined as a distinctive type of speech act in a persuasion dialogue that is different from the simpler speech act of making an assertion. When a party in a dialogue makes an assertion, that party immediately incurs a burden of proof to provide an argument supporting the assertion if the other party questions the assertion. This requirement of fulfilling burden of proof stems from the global burden set at the beginning of the dialogue, but it is a local burden because it pertains to a specific move, or a local sequence of moves, during some segment of the argumentation stage.

The list of preparatory conditions, placement conditions, retraction conditions and burden conditions (Walton, 1993, 139-140) defines the protocols for the speech act of putting forward a presumption as well as the protocols for responding appropriately to it. This set of speech act conditions defines the notion of presumption itself by specifying the requirements on how a presumption has to be put forward, and on whether or not it is deemed to be acceptable at points in a dialogue later than the particular point where it was put forward. This set of defining conditions can be briefly summed up in the following five points.

1. At some point in a dialogue a proposition can be brought forward by the proponent as a presumption, meaning that the proponent is asking the respondent to tentatively accept this proposition for the sake of argument.

2. The proponent does not have to prove this proposition in order to make it acceptable as a presumption, but the respondent has the opportunity to reject it.

3. However, the respondent can only reject this proposition as a presumption if he offers an appropriate argument against it.

4. Essentially then, the local burden of proof for presumption is reversed from the normal distribution of the local burden of proof for the speech act of making an assertion.

5. During the rest of the dialogue exchange, unless the respondent discharges the burden of proof to rebut the presumption, the proposition that is presumed stays in place as tentatively accepted by both parties.

The question remains open of how strong the rebutting argument needs to be in order to dislodge the presumption. This question is taken up in the last section of the paper.
This dialectical model of shifting of the burden of proof by presumption can be summarized very simply. Presumption is like assertion except that the burden of proof is reversed. When you make an assertion, you are obliged to prove it. But when you make a presumption you are not obliged to prove it. You are only obliged to give it up if the other party can disprove it (or, on the other standard, give evidence against it). Those familiar with fallacies will immediately recognize a relationship between presumption and the argument known as the argument from ignorance - the *argumentum ad ignorantiam* in the logic textbooks (Walton, 2008). This form of argument, better called the argument from lack of evidence, has the following argumentation scheme: \( A \) has not been proven to be true (false), therefore, \( A \) is false (true). Rescher (1976, 1977, 2006) also appreciated the connection between the notion of presumption and the argument from lack of evidence. On his theory, presumptions arise from a situation of there being a lack of counter-evidence to refute a claim even though there is insufficient evidence to prove it.

5. Application to the Examples

In the first example, if neither person calls the other during the day, it is presumed that Betty will be in the designated location on Wellington Crescent at 4:30 pm that day, and that Art will leave at 4:00 pm as usual, and so will arrive there at 4:30 pm. In this case the presumption is put in place by acceptance of an earlier general convention (rule) between the two parties. Unless one party contacts the other and cancels the conventional agreement temporarily for that particular day, it is assumed that the convention is to be taken as applicable by both parties on that day. In this example, in the absence of evidence of any exception to the general rule, the convention adopted by both of them, is taken to imply that the presumption holds.

In the second example it is interesting to conjecture what the evidential basis for the reasonableness of the presumption is. One basis was that it would be reasonable to expect that there would be very few or no other persons having the appearance of this person except Livingstone in this area at this time. Thus even though it is possible that this person could be someone other than Livingstone, it is certainly a reasonable presumption that in fact he was Livingstone. The proposition that this man was in fact Livingstone is subject to some doubt, but the evidence supporting it is the basis of a defeasible argument for the conclusion. But even so, Stanley did not ask the individual whether he was in fact it Livingstone or not. Perhaps for reasons of politeness he told the man he was presuming that he was Livingstone. This left Livingstone room to deny it, if in fact he wished to do so. But if he made no response of this sort, Stanley would draw the reasonable conclusion that it was indeed Livingstone that he was facing.

The third example shows that absence of evidence of anyone expressing disagreement with the proposal to withdraw the old examination paper from circulation will be taken as constituting support for going ahead. This use of a presumption shifts an evidential burden onto the disagreeing party to offer some reason why the papers should not be withdrawn.

In the fourth example, the problem is that it can’t be proved that the person is dead - for example, by finding the body. But legally it can be presumed that he is dead, based on a law in a jurisdiction specifying an unexplained absence some conventionally accepted time period. Why is such a presumption reasonable to act on? There are two basic reasons. One is that if he were alive, then presumably there would be some evidence that he is alive. The other is that there is no such positive evidence. Hence we draw the conclusion, by presumptive inference, that he is not alive, i.e. that he is dead. Once again, this is an argument from negative evidence (ignorance, or absence of evidence) that shifts the evidential burden to the other side. Note that the argument is defeasible. If evidence turns up suggesting that the man is or might be alive, the presumption could be refuted.
In the fifth example, the two arguments, the plaintiff’s and the defendant’s, are pitted against each other. Since this is a civil case, all she has to do to win is to prove to the standard of the preponderance of the evidence that the defendant is liable for injuries she sustained while walking down a dark stairway in a building that he owned. This seems like a strong argument because it is supported by evidence that the lighting in the stairway did not work properly and therefore the stairway was unsafe. Moreover the owner of the building, the defendant, is responsible for keeping the stairways in a safe condition. The structure of the sequence of argumentation composed of three sub-arguments is shown in Figure 1.

![Figure 1: The Plaintiff's Argument](image)

How could the defendant produce a counterargument? As it turned out he had some evidence that could produce a counterargument but there was a weak link in the chain. If he could argue that he had warned the plaintiff that the stairway was unsafe, this could be a strong enough argument to defeat the defendant’s argument. He did have such an argument, but there was a weakness in it. He could argue that he had mailed a letter to the plaintiff informing her that several of the lights in the stairway no longer worked. But the problem is that simply his statement that he had mailed such a letter, even with evidence backing it up, is only a probabilistic basis for concluding that the plaintiff actually received the letter and was therefore warned about the lights no longer working. However, because there is a presumption in law that a letter properly addressed stamped and deposited in an appropriate receptacle is presumed to have been received by the person it was addressed to, he could argue that on a balance of probabilities the plaintiff did receive this letter. And if she did receive it, it can be presumed that she was warned that the stairway was unsafe because the lighting was not working.
If we look at the argument diagram for the defendant’s argument shown in figure 2, we see that in the main structure of the argumentation, three arguments are involved, labeled a1, a2 and a3. The first of these arguments a1 has a defeasible modus ponens form, but one of its premises is questionable. Why would there be reason to believe that the defendant had informed the plaintiff that the lights no longer worked? The backup argument a2 supporting this premise also has the defeasible modus ponens form, but one of its premises needs further support, the claim that the plaintiff received the letter from the defendant. Here the defendant is in a weak position because he might be able to support his claim that he mailed a letter to the plaintiff warning her that the lights no longer worked in the stairway, but this claim is not enough to substantially support the conclusion that she actually received the letter. Still, he can invoke the legal presumption stated in the other premise, to the effect that if one party has mailed a properly addressed, stamped letter to another, it is presumed that the other party received it. The argument based on these two premises, a3, may not be strong enough however, to make the preponderance of evidence standard. It needs a boost, in order for it to even be considered relevant. To provide this boost, argument a3 is considered to be an acceptable presumptive inference, and so it can take its place in the sequence of argumentation leading to the defendant’s ultimate conclusion.

![Argument Diagram](image)

Given that the presumption is acceptable, the argument as a whole might be strong enough to support the opposite conclusion, the proposition that the defendant is not liable to the plaintiff for the injuries she sustained while walking down the dark stairway in the building that he owned. The final outcome depends on which argument is stronger, the plaintiff’s argument or the defendant’s. That will be decided by the judge.
Notice however that the *modus ponens* argument a3 is not a deductive type of *modus ponens* argument but a defeasible one. It could be that even though the lighting did not work properly, there might be some reason defeating the argument to the conclusion that the stairway was not safe. For example it is possible that lighting from the room leading to the stairway sufficiently lighted the stairway so that it was arguably not unsafe under these conditions. The lighting in the stairwell not working does not give a conclusive reason for the claim that the stairway was unsafe.

In this case the defendant’s argument is not very strong because even if he put the letter in the mail, it does not follow by deductive logic that she received the letter, read it and was warned. But it shifts a burden of proof to her side. Unless she can provide some evidence that she did not receive the letter, his argument, as imperfect as it is deductively, might stand a good chance of prevailing on a basis of the balance of probabilities.

6. Rebutting Presumptions

How much evidence does it take to refute a presumption? Two theories of presumption have been offered in law on this matter (Park, Leonard and Goldberg, 1998, chapter 4, ‘Burdens and Presumptions’). According to the so-called Bursting Bubble (Thayer-Wigmore) theory of presumption, the presumption is cancelled by evidence challenging it. This theory says that presumptions are “like bats flitting in the twilight, but disappearing in the sunshine of actual facts” (Park et al., 1998, 109). It says that a presumption should have no effect once “rebuted” with evidence with evidence challenging the presumed fact. Suppose that the respondent did not challenge the proponent’s proper addressing, stamping and mailing of the letter, but testified that during the whole period, he picked up and diligently read his mail each day, and he never saw the letter. On the bursting bubble theory, the presumption that the respondent received the letter is cancelled. The jury would now be left “to apply its sense of logic and experience” to determine whether the respondent received the letter or not (Park et al., 1998, 110).

According to the other theory, the Morgan-McCormick theory, once a presumption is raised by its proponent, the burden of proof shifts to the opponent (Park et al., 1998, 111-112), or otherwise the presumption stands. This theory holds that the bursting bubble theory gives too “slight and evanescent” effect to presumptions (Park et al., 1998, 111). On this theory, “if the jury finds that the proponent properly addressed stamped, mailed and the letter sufficiently in advance of the accident, the respondent must prove it more likely than not he received the letter or suffer a finding that he did”( Park et al., 1998, 112).

Thus there are differing theories in law on how much evidence it should take to rebut a presumption. One approach requires that a presumption is refuted by any evidence offered by an opponent. The other says that the burden of proof shifts, and that the opponent has to disprove the presumption. The question of how much evidence it should take to rebut a presumption is a very interesting one for evaluating evidential weights in everyday argumentation outside legal settings. Using extensive case studies of complex arguments, Prakken and Sartor (2006), and Walton (2014) use graph structures, essentially argument diagrams, along with other tools along with formal argumentation models to offer answers to this general question.

Basically the evaluation of argumentation in given cases is weighed by the global burden of persuasion set at the opening stage, as well as other factors determined by the argument graph representing the structure of the sequence of argumentation around the local area where the presumption is operative. The graph links up the chain of argumentation in a given case, propagating the argumentation forward to the ultimate conclusion to be proved. Along the way, some propositions could be useful as premises but they that are too weakly supported to meet the appropriate evidential standard of proof. Still, they carry some evidential weight, and could be
used if none of the parties in the dialogue care to dispute them. In such as case, the usual standard could be relaxed by the putting forward of a presumption reversing the burden of proof, according to the protocols of the model. So whether a proposition is acceptable as a presumption depends on the burden of proof, which in turn depends on the standard of proof, on the weight of the evidence for it, and on the weight of the evidence against it. To sum up, conditions are right for putting it forward and even for accepting it as a presumption (1) if there is not enough evidence supporting it as a claim (assertion), (2) but there is some evidence supporting it, even if it is only negative evidence, and (3) there is no evidence against it.

Acknowledgements

The author would like to thank the Social Sciences and Humanities Research Council of Canada for support of the work in this paper through Insight Grant 435-2012-0104.

References


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