**SUPREME COURT OF CANADA**

**CITATION:** R. *v.* Gibson, 2008 SCC 16

**DATE:** 20080417
**DOCKET:** 31546, 31613

**BETWEEN:**

**Robert Albert Gibson**
Appellant
v.
**Her Majesty the Queen**
Respondent
- and -
**Attorney General of Ontario**
Intervener

**AND BETWEEN:**

**Martin Foster MacDonald**
Appellant
v.
**Her Majesty the Queen**
Respondent
- and -
**Attorney General of Ontario**
Intervener

**CORAM:** McLachlin C.J. and Bastarache, Binnie, LeBel, Deschamps, Fish, Abella, Charron and Rothstein JJ.

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| **REASONS FOR JUDGMENT:** (paras. 1 to 33) | Charron J. (Bastarache, Abella and Rothstein JJ. concurring) |
| **REASONS CONCURRING IN THE RESULT:** (paras. 34 to 82) | LeBel J. (McLachlin C.J. and Fish J. concurring) |
| **DISSENTING REASONS:** (paras. 83 to 99) | Deschamps J. (Binnie J. concurring) |



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**Indexed as: R. *v.* Gibson**

**Neutral citation: 2008 SCC 16.**

File Nos.: 31546, 31613.

2007: October 15; 2008: April 17.

Present: McLachlin C.J. and Bastarache, Binnie, LeBel, Deschamps, Fish, Abella, Charron and Rothstein JJ.

on appeal from the court of appeal for nova scotia

on appeal from the court of appeal for alberta

*Criminal law – Evidence – Operation of vehicle with blood alcohol level exceeding legal limit – Criminal Code providing that, absent evidence to the contrary, breathalyzer reading above 80 mg of alcohol per 100 ml of blood is proof that blood alcohol concentration exceeded the legal limit at the time of driving – Expert opinion evidence placing accused's blood alcohol concentration in range that straddled legal limit at time of driving – Whether expert evidence of alcohol elimination rates in general population and "straddle evidence" can rebut presumption – Whether expert evidence of post-offence testing of alcohol elimination rate of accused can rebut presumption — Criminal Code, R.S.C. 1985, c. C-46, s. 258(1)(d.1).*

The accused, G and M, were charged with driving "over 80" after failing a breathalyzer test. The first breath sample taken from G provided a reading of 120 mg and the second a reading of 100 mg. The two breath samples taken from M each produced a reading of 146 mg. At their respective trials, G and M testified as to their pattern of drinking at the material time and adduced expert evidence to rebut the presumption in s. 258(1)(*d*.1) of the *Criminal Code* that the breathalyzer readings provided proof that their blood alcohol concentrations exceeded the legal limit at the

time of driving. The expert opinion evidence concerning the accused's blood alcohol concentration at the time of driving was expressed in terms of a range of possible blood alcohol concentrations, given the amount of alcohol consumed, the pattern of drinking, and the accused's age, height, weight and gender. In each case, the range of hypothetical blood alcohol concentrations "straddled" the legal limit of 80 mg. G's expert testified that, if the pattern of consumption described by G was accurate, his blood alcohol concentration would have been between 40 and 105 mg at the time of driving. M's expert provided a range of between 64 and 109 mg. In addition, the expert called on behalf of M tested his elimination rate more than six months after the alleged offence. On the basis of this test, the expert determined that M's elimination rate was 18.5 mg per hour and that M's blood alcohol concentration would have been 71 mg when he was stopped by the police.

The trial judge accepted both the evidence of G's consumption and the expert evidence. He was left with a reasonable doubt that G's blood alcohol content had exceeded the legal limit, and acquitted him. The Supreme Court upheld the acquittal. The Court of Appeal held that evidence of a hypothetical person's elimination rates was not capable of rebutting the presumption in s. 258(1)(*d*.1), set aside the acquittal and ordered a new trial.

The trial judge convicted M on the basis that the expert evidence did not tend to show that his blood alcohol content had not exceeded 80 mg. Both the Court of Queen's Bench and the Court of Appeal upheld the conviction.

*Held* (Binnie and Deschamps JJ. dissenting): The appeals should be dismissed.

*Per* Bastarache, Abella, **Charron** and Rothstein JJ.: Straddle evidence constitutes an attempt to defeat the statutory presumption in s. 258(1)(*d*.1) and, as such, does not tend to show that the accused's blood alcohol concentration did not exceed the legal limit at the time of the alleged offence. Straddle evidence merely confirms that the accused falls into the category of drivers targeted by Parliament — namely, those who drive having consumed enough alcohol to reach a blood alcohol concentration exceeding 80 mg. Parliament, in creating this offence, clearly regarded driving with this level of consumption as posing sufficient risk to warrant criminalization. It is therefore not enough to show, based on evidence about the accused's pattern of consumption of alcohol during the relevant time period, that the accused consumed enough alcohol to exceed the legal limit, albeit in a quantity that would place him within a range that may be somewhat different from that which could be extrapolated from the breathalyzer reading. It is clear from the wording of s. 258(1)(*d*.1) that the presumption can only be rebutted by evidence that tends to show that the accused's blood alcohol concentration did not exceed the legal limit and, hence, that the accused was not in the targeted category of drivers. In order to displace the presumption, the evidence must show, therefore, that based on the amount of alcohol consumed, the accused's blood alcohol concentration would not have been above the legal limit at the time of driving, regardless of how fast or slowly the accused may have been metabolizing alcohol on the day in question. The court need not be convinced of that fact; it is sufficient if the evidence raises a reasonable doubt. Furthermore, because it is scientifically undisputed that absorption and elimination rates can vary from time to time, nothing is really gained by post-offence testing of an

accused's elimination rate. It is because of these inherent variations in absorption and elimination rates that the presumption of identity is needed in the first place. In order to facilitate proof of the offence, the presumption treats all persons as one person with a fixed rate of elimination and absorption. Short of reproducing the exact same conditions that existed at the time of the offence, assuming this is even possible, any expert opinion evidence based on actual tests would have to be given with the qualification that absorption and elimination rates vary from time to time, and therefore the accused's blood alcohol level at the material time cannot be measured with precision. Ultimately, the best evidence an expert can provide is likely to be a range reflecting average elimination rates. The Court should not interpret this legislative scheme, which is intended to combat the social evils resulting from drinking and driving, as requiring accused persons, some of whom may well be battling with alcohol addiction, to submit to drinking tests in order to make out a defence. [3] [5-8]

In the present appeals, the expert opinion evidence, in placing the accused's blood alcohol concentration both above and below the legal limit at the time of driving depending on the accused's actual rate of absorption and elimination on the day in question, did no more than confirm that the accused fell within the category of drivers targeted by Parliament and did not rebut the statutory presumption under s. 258(1)(*d*.1). Consequently, M's conviction is upheld and, in G's case, the order for a new trial is confirmed. [33]

*Per* McLachlin C.J. and **LeBel** and Fish JJ.: Both expert evidence of alcohol elimination rates in the general population and straddle evidence can be relevant and are therefore not inherently inadmissible for the purpose of rebutting the presumption in s. 258(1)(*d*.1). However, the probative value of evidence based on

rates in the general population will often be so low that it fails to raise a reasonable doubt that the accused had a blood alcohol content exceeding 80 mg. Not only do elimination rates vary between individuals, but each individual's rate will vary depending on such factors as the amount of food consumed, the type of alcohol consumed and the pattern of consumption. Thus, evidence that the blood alcohol content of an average person of the sex, age, height and weight of the accused would have been at a certain level or within a certain range will rarely be sufficiently probative to raise a reasonable doubt about the presumed fact that the actual blood alcohol content of the accused at the time of the offence exceeded the legal limit. Expert evidence of the elimination rate of the accused as established by a test is potentially more probative of the blood alcohol content he or she had while driving than evidence based on elimination rates in the general population. However, because an individual's elimination rate varies over time based on a number of factors, the probative value of evidence based on the elimination rate of the accused will logically depend on the number of variables controlled for in the elimination rate test. Evidence of the elimination rate of the accused at the time of the offence would be more likely to rebut the presumption in s. 258(1)(*d*.1) than mere evidence of the elimination rate of the accused under testing conditions. [34] [67-68]

Straddle evidence will rarely suffice on its own to raise a reasonable doubt as to the accuracy of a breathalyzer result. Once straddle evidence is admitted, it will be left to the trier of fact to determine whether that evidence, considered in light of the evidence as a whole, raises a reasonable doubt as to the accuracy of the breathalyzer result. Straddle evidence and the other evidence relied on by the defence will warrant an acquittal only if it tends to prove that the blood alcohol level of the accused at the relevant time did not exceed 80 mg. A wide straddle range cannot be considered

evidence to the contrary of the breathalyzer result, since it does not tend to prove that the accused was at or under the legal limit. Similarly, a range that is overwhelmingly above the legal limit may be of limited probative value. The more that is known about probabilities within the range, the more probative the evidence may be. To foreclose the possibility of straddle evidence raising a reasonable doubt and rebutting the presumption in s. 258(1)(*d*.1) would inappropriately restrict the ability of an accused to defend him- or herself. The wording of the provision gives no indication of a legislative intent to render the fictional presumption absolute or irrebutable in practice. It also leaves open the possibility of discrepancies between test results obtained at the time of testing and the blood alcohol content of the accused at the time of the offence. A mandatory presumption that requires the accused to raise a reasonable doubt about a fact that has not been proved by the Crown may *prima facie* be a limit on the presumption of innocence protected by s. 11(*d*) of the *Canadian Charter of Rights and Freedoms* that needs to be justified under s. 1. [73] [75-76]

In these cases, the expert's straddle evidence adduced by G is sufficiently relevant to be admissible and is not without foundation. However, given that it is based on elimination rates in the general population, consists of a wide range of values and includes values significantly above the legal limit, it does not, as is required to rebut the presumption in s. 258(1)(*d*.1), raise a reasonable doubt that G's blood alcohol content actually exceeded 80 mg. Although the expert evidence adduced by M was also admissible, it would have been unreasonable for the trial judge to find that the straddle evidence indicating a range of 64 to 109 mg was capable of raising a reasonable doubt. The evidence of M's own elimination rate, which supported a blood alcohol content of 71 mg, was also rejected by the trial judge because the test used to determine the elimination rate had not sufficiently approximated the conditions at the

time of the alleged offence, which limited its relevance to the fact M was seeking to prove. There is no reason to interfere with that finding. In the result, M's conviction is upheld and, in G's case, the order for a new trial is confirmed. [78-79] [81-82]

*Per* Binnie and **Deschamps** JJ. (dissenting): Evidence that tends to show that the blood alcohol concentration of the accused at the time of interception did not exceed the legal limit based on an elimination rate of 15 mg per hour, or on the actual elimination rate of the accused according to test results, will suffice to raise a reasonable doubt. There is a body of scientific evidence that shows that members of the general population tend to eliminate alcohol at a rate faster than 15 mg per hour. It would therefore be speculative to assume, without any evidence, that a given accused is different from the majority of the general population and is a slow eliminator. Unless the scientific information that supports using 15 mg as a marker is contradicted by persuasive expert evidence, a judge should acquit if the prevailing direction of the straddle range favours a level that does not exceed the legal limit. The prevailing direction approach affords the accused a defence that is sufficiently complete without requiring post-offence testing. As a matter of judicial policy, requiring accused persons to submit to drinking tests should not be encouraged by the courts. Nevertheless, post-offence testing is not, *per se*, irrelevant or lacking in probative value. Just as evidence of average elimination rates in the general population is not discredited simply because such rates do not replicate the situation of an accused, evidence of post-offence testing designed to determine the elimination rate of an individual accused should not be rejected for that reason alone. An elimination rate based on test results may constitute evidence that tends to show that an accused eliminates alcohol at a rate faster than 15 mg per hour. Although the weight given to post-offence testing may depend on a number of variables, this should

not be interpreted as requiring replication of the conditions of absorption. [84] [90-91]

In G's case, the expert for the defence testified that G's blood alcohol content while he was driving would, based on average elimination rates, have been between 40 and 105 mg. There is agreement with the trial judge's finding that the prevailing direction of the range favoured a level that did not exceed the legal limit, and that this was sufficient evidence for an acquittal. Therefore, G's acquittal should be restored. [93]

In the case of M, the Crown failed to undermine the weight of evidence of post-offence testing by either cross-examining the expert or adducing contradictory expert evidence at trial. Although M's elimination rate according to the expert's test may not be the same as his rate on the day of the offence, nothing in the record suggests that any variation between the actual and tested elimination rates would be material or would cast doubt on the usefulness of the expert evidence. Nevertheless, the expert's post-offence tests can constitute evidence to the contrary only if M's consumption scenario is found to be credible. Here, the trial judge made no express findings on this issue. He rejected the expert's evidence on the basis that the midpoint of the straddle range was above the legal limit and that the food and the type of alcohol consumed had not been taken into account in the post-offence tests. As he had dismissed the expert testimony, the trial judge found M guilty without making any findings concerning his credibility. Since this Court cannot enter an acquittal, as a finding on M's credibility would have had to be made first, a new trial should be ordered on the charge of driving with a blood alcohol level exceeding the legal limit. [98-99]

**Cases Cited**

By Charron J.

**Distinguished:** *R. v. Boucher*, [2005] 3 S.C.R. 499, 2005 SCC 72; **referred to:** *R. v. Heideman* (2002), 168 C.C.C. (3d) 542; *R. v. Gibson* (1992), 72 C.C.C. (3d) 28; *R. v. St. Pierre*, [1995] 1 S.C.R. 791; *R. v. Proudlock*, [1979] 1 S.C.R. 525; *R. v. Moreau*, [1979] 1 S.C.R. 261; *R. v. Noros-Adams* (2003), 175 Man. R. (2d) 68, 2003 MBCA 103; *R. v. Gaynor* (2000), 272 A.R. 108, 2000 ABPC 104; *R. v. Déry*, [2001] Q.J. No. 3205 (QL).

By LeBel J.

**Distinguished:** *R. v. Boucher*, [2005] 3 S.C.R. 499, 2005 SCC 72; **approved:** *R. v. Dubois* (1990), 62 C.C.C. (3d) 90; **considered:** *R. v. Heideman* (2002), 168 C.C.C. (3d) 542; **referred to:** *R. v. Phillips* (1988), 42 C.C.C. (3d) 150; *R. v. St. Pierre*, [1995] 1 S.C.R. 791; *R. v. Proudlock*, [1979] 1 S.C.R. 525; *R. v. Mohan*, [1994] 2 S.C.R. 9; *R. v. K. (A.)* (1999), 45 O.R. (3d) 641; *R. v. Abbey*, [1982] 2 S.C.R. 24; *R. v. Lavallee*, [1990] 1 S.C.R. 852; *R. v. Déry*, [2001] Q.J. No. 3205 (QL); *R. v. Gibson* (1992), 72 C.C.C. (3d) 28; *R. v. Seaboyer*, [1991] 2 S.C.R. 577; *R. v. Latour* (1997), 116 C.C.C. (3d) 279; *R. v. Moen* (2007), 48 C.R. (6th) 361, 2007 BCSC 376; *R. v. Noros-Adams* (2003), 190 Man. R. (2d) 161, 2003 MBCA 103.

By Deschamps J. (dissenting)

*R. v. Heideman* (2002), 168 C.C.C. (3d) 542; *R. v. Abbey*, [1982] 2 S.C.R. 24; *R. v. Lifchus*, [1997] 3 S.C.R. 320; *R. v. Dubois* (1990), 62 C.C.C. (3d) 90; *R. v. Déry*, [2001] Q.J. No. 3205 (QL); *R. v. Bellemare*, [2001] Q.J. No. 3304 (QL); *R. v. Nault*, [2001] Q.J. No. 3201 (QL); *R. v. Thiffeault*, [2001] Q.J. No. 3198 (QL); *R. v. Gibson* (1992), 72 C.C.C. (3d) 28; *R. v. Milne* (2006), 43 M.V.R. (5th) 167, 2006 ABPC 331; *R. v. Hughes*, [2007] A.J. No. 740 (QL), 2007 ABPC 180.

**Statutes and Regulations Cited**

*Canadian Charter of Rights and Freedoms*, ss. 1, 11(*d*).

*Criminal Code*, R.S.C. 1985, c. C-46, ss. 253, 258(1)*c*), (*d*.1), (*g*).

*Interpretation Act*, R.S.C. 1985, c. I-21, s. 25.

**Authors Cited**

Solomon, Robert and Erika Chamberlain. "Calculating BACs for Dummies: The Real-World Significance of Canada's 0.08% Criminal BAC Limit for Driving" (2004), 8 *Can. Crim. L.R.* 219.

APPEAL from a judgment of the Nova Scotia Court of Appeal (Saunders, Oland and Fichaud JJ.A.) (2006), 243 N.S.R. (2d) 325, 208 C.C.C. (3d) 248, 30 M.V.R. (5th) 161, [2006] N.S.J. No. 178 (QL), 2006 CarswellNS 181, 2006 NSCA 51, setting aside the accused's acquittal and ordering a new trial. Appeal dismissed, Binnie and Deschamps JJ. dissenting.

APPEAL from a judgment of the Alberta Court of Appeal (Fraser C.J.A. and Ritter and O'Brien JJ.A.), [2006] 9 W.W.R. 711, 60 Alta. L.R. (4th) 205, 391 A.R. 140, 209 C.C.C. (3d) 481, 32 M.V.R. (5th) 163, [2006] A.J. No. 706 (QL), 2006 CarswellAlta 792, 2006 ABCA 177, affirming the accused's conviction. Appeal dismissed, Binnie and Deschamps JJ. dissenting.

*Joshua M. Arnold*, *Michael S. Taylor* and *Stanley W. MacDonald*, for the appellant Robert Albert Gibson.

*Alan D. Gold*, for the appellant Martin Foster MacDonald.

*William D. Delaney* and *Frank Hoskins, Q.C.*, for the respondent Her Majesty The Queen (31546).

*Eric J. Tolppanen* and *David C. Marriott*, for the respondent Her Majesty The Queen (31613).

*Philip Perlmutter* and *James V. Palangio*, for the intervener the Attorney General of Ontario.

The reasons of Bastarache, Abella, Charron and Rothstein JJ. were delivered by

CHARRON J. —

1. Overview

[1] These appeals raise the question of whether expert opinion evidence which says that the accused's blood alcohol concentration may have been over or may have been within the legal limit at the material time, depending on the accused's actual rates of absorption and elimination on the day in question, is capable of rebutting the statutory presumption set out in s. 258(1)(*d*.1) of the *Criminal Code*, R.S.C. 1985, c. C-46. This type of evidence will be referred to as "straddle evidence" because the range of possible blood alcohol concentrations straddles the legal limit of 80 mg of alcohol per 100 ml of blood.

[2] LeBel J. concludes that depending on a number of factors, straddle evidence may or may not provide a sufficiently probative evidentiary basis to rebut the presumption arising from the accused's failure of the breathalyzer test. These factors may include evidence about the accused's own rate of elimination as tested post-offence. I agree with LeBel J. that the straddle evidence adduced in both cases under appeal failed to rebut the presumption and that consequently both appeals should be dismissed. However, I arrive at this conclusion for different reasons.

[3] As I will explain, it is my view that in *all* cases straddle evidence merely constitutes an attempt to defeat the statutory presumption itself and, as such, does not tend to show that the accused's blood alcohol concentration did not exceed the legal limit at the time of the alleged offence within the meaning of s. 258(1)(*d*.1). I also conclude, on the basis of the undisputed scientific fact that absorption and elimination rates vary continuously, that post-offence testing of the accused's own elimination rate

will rarely, if ever, add anything of value to the expert opinion evidence and, for obvious policy reasons, should not be encouraged, let alone required.

[4] It is undisputed that the human body absorbs and eliminates alcohol over time, and that absorption and elimination rates vary, not only from person to person, *but also from time to time for the same individual*, depending on a number of factors, some of which concern the person's digestive process at the relevant time. It is therefore impossible to ascertain the precise rate at which the accused was metabolizing alcohol at the time of the alleged offence. Parliament can be assumed to have known that blood alcohol levels are subject to these inherent variations. Yet, it saw fit to implement the presumption. The legislative scheme must be interpreted in this context.

[5] Because absorption and elimination rates continually vary, it is readily apparent that a breathalyzer reading of 95 mg, for example, may not reflect the *actual* concentration of alcohol in the accused's blood at the time of the alleged offence — it would depend on the rate at which the particular accused is metabolizing the alcohol during the relevant time period on the day in question. Yet, it can be no defence for an accused to say that the actual alcohol concentration at the material time may have been less than the legal limit based on this variable alone. To admit such a defence would obviously fly in the face of the presumption itself. It is because of these inherent variations in absorption and elimination rates that the presumption of identity is needed in the first place. In order to facilitate proof of the offence, the presumption treats all persons as one person with a fixed rate of elimination and absorption.

[6] Straddle evidence puts the accused in no better position. It merely confirms that the accused falls into the category of drivers targeted by Parliament — namely, those who drive having consumed enough alcohol to reach a blood alcohol concentration exceeding 80 mg. Parliament, in creating this offence, clearly regarded driving with this level of consumption as posing sufficient risk to warrant criminalization. It is therefore not enough to show, based on evidence about the accused's pattern of consumption of alcohol during the relevant time period, that the accused consumed enough alcohol to exceed the legal limit, *albeit* in a quantity that would place him within a range that may be somewhat different than that which could be extrapolated from the breathalyzer reading. It is clear from the wording of s. 258(1)(*d.*1) that the presumption can only be rebutted by evidence that tends to show that the accused's blood alcohol concentration *did not exceed the legal limit* and, hence, that the accused was not in the targeted category of drivers.

[7] In order to displace the presumption, the evidence must show, therefore, that based on the amount of alcohol consumed, the accused's blood alcohol concentration would not have been above the legal limit at the time of driving, *regardless* of how fast or slow the accused may have been metabolizing alcohol on the day in question. Of course, the court need not be convinced of that fact. It is sufficient if the evidence raises a reasonable doubt.

[8] Further, because it is scientifically undisputed that absorption and elimination rates can vary from time to time, nothing is really gained by post-offence testing of an accused's elimination rate. Short of reproducing the exact same conditions that existed at the time of the offence, assuming this is even possible, any expert opinion evidence based on actual tests would have to be given with the

qualification that absorption and elimination rates vary from time to time, and therefore the accused's blood alcohol level at the material time cannot be measured with precision. Ultimately, the best evidence an expert can provide, as the expert opinion evidence adduced in Mr. MacDonald's case exemplifies, is likely to be a range reflecting average elimination rates. In any event, it is my view that this Court should not interpret this legislative scheme, which is intended to combat the social evils resulting from drinking and driving, as requiring accused persons, some of whom may well be battling with alcohol addiction, to submit to drinking tests in order to make out a defence. Surely, Parliament cannot have so intended.

2. The Proceedings Below

[9] LeBel J. has described the facts in some detail and summarized the findings of the courts below and I need not repeat this information here. For the purpose of my analysis, I will only briefly summarize the evidence.

[10] In each case under appeal, the accused was charged with driving "over 80" after failing a breathalyzer test. The first breath sample taken from Mr. Gibson provided a reading of 120 mg and the second a reading of 100 mg. The two breath samples taken from Mr. MacDonald each produced a reading of 146 mg. At their respective trials, Mr. Gibson and Mr. MacDonald testified as to their pattern of drinking at the material time and adduced expert evidence to rebut the presumption that the breathalyzer readings provided proof that their blood alcohol concentrations exceeded the legal limit at the time of driving. As is usually the case, the expert opinion evidence concerning the accused's blood alcohol concentration at the time of driving was expressed in terms of a range of possible blood alcohol concentrations,

given the amount of alcohol consumed, the pattern of drinking, and the accused's age, height, weight and gender. In each case, the range of hypothetical blood alcohol concentrations "straddled" the legal limit of 80 mg. Mr. Gibson's expert testified that, if the pattern of consumption described by Mr. Gibson was accurate, his blood alcohol concentration would have been between 40 and 105 mg at the time of driving. Mr. MacDonald's expert provided a range of between 64 and 109 mg.

[11] In addition, the expert called on behalf of Mr. MacDonald tested his elimination rate more than six months after the alleged offence, explaining that this test was required of him by the Alberta Court of Appeal. The test did not involve beer or a similar pattern of drinking as on the date of the offence, but rather required Mr. MacDonald to consume a quantity of diet soda and vodka over a period of five minutes, then give breath samples periodically until his blood alcohol concentration reached a target range of between 50 and 60 mg. On the basis of this test, the expert determined that Mr. MacDonald's elimination rate was 18.5 mg per hour. Assuming this elimination rate to be operative at the material time, the expert estimated that Mr. MacDonald's blood alcohol concentration would have been 71 mg when he was stopped by the police. However, the expert added that "medically it's clear" that an individual's elimination rate can "vary from occasion to occasion", and that food consumption and alcohol type affect alcohol absorption rates. He therefore stated that "if the rate of elimination was not 18.5 likely it would fall between 10 and 20, again, because most of the population would break alcohol down within that range" (A.R., at p. 70).

3. Analysis

[12] Before discussing the effect of straddle evidence, it may be helpful to briefly describe the evidentiary presumptions in s. 258(1) of the *Criminal Code* in the context of the legislative scheme and to review some of this Court's jurisprudence on the presumptions and the nature of the evidence capable of rebutting them.

3.1 *The Legislative Scheme and the Statutory Presumptions*

[13] It is a criminal offence under s. 253 of the *Criminal Code* for a person to operate a motor vehicle while his or her ability to operate the motor vehicle is impaired by alcohol. It is equally an offence under the same provision for a person to operate a motor vehicle having consumed alcohol in such a quantity that the concentration in the person's blood exceeds 80 mg. In criminalizing the conduct of persons who drive with a blood alcohol concentration in excess of 80 mg, *regardless* of whether those persons are actually impaired at the time, it can be presumed that Parliament regarded driving with this level of consumption as being of sufficient risk to warrant criminalization. Wakeling J.A. captured this point well in his dissenting reasons in *R. v. Gibson* (1992), 72 C.C.C. (3d) 28 (Sask. C.A.), at pp. 45-46:

> As a starting point in the consideration of this appeal, it is useful to remember the basis for the legislation in question. The decision to create an .08 standard as establishing intoxication to a point of impairment necessarily rejects an element of individuality in order to meet the higher social advantage of effectively dealing with the serious hazard created by those who drive when they have been drinking and are impaired as a consequence. Inherent in the acceptance of .08 as a standard is the recognition that alcohol does not have the same impact on everyone, depending on such differences as gender, age, weight and individual tolerance levels, but that the extent of the social concern created by impaired drivers and the tragic consequences of a failure to control that problem, dictated the change from an emphasis on an individual's reaction to alcohol to an emphasis on a standard of general application. The standard is not intended as an absolute one in the sense that it is an accurate assessment of everyone's state of impairment, as is evident from the fact some jurisdictions have set the figure at .100 (some states in the

U.S.A.) and others as low as .06 (some states in Australia).

[14] Section 258(1) of the *Criminal Code* establishes three evidentiary presumptions which simplify the prosecution of the offence of driving "over 80". In *R. v. St. Pierre*, [1995] 1 S.C.R. 791, Iacobucci J. explained that the presumptions are "legal or evidentiary shortcuts designed to bridge difficult evidentiary gaps" (para. 23). More recently, Deschamps J. described the legislative scheme as creating "two presumptions of identity and one presumption of accuracy" (*R. v. Boucher*, [2005] 3 S.C.R. 499, 2005 SCC 72, at para. 14).

[15] The presumption of accuracy is contained in s. 258(1)(*g*). It provides that a technician's certificate stating the accused's blood alcohol concentration at the time of the breathalyzer test is presumed to be accurate, in the absence of any evidence to the contrary. Although s. 258(1)(*g*) does not expressly include the words "in the absence of any evidence to the contrary", this phrase is included by implication because of s. 25(1) of the *Interpretation Act*, R.S.C. 1985, c. I-21, which states as follows:

> **25.**(1) Where an enactment provides that a document is evidence of a fact without anything in the context to indicate that the document is conclusive evidence, then, in any judicial proceedings, the document is admissible in evidence and the fact is deemed to be established in the absence of any evidence to the contrary.

[16] The first presumption of identity is contained in s. 258(1)(*c*). Section 258(1)(*c*) states that in the absence of evidence to the contrary, where breath alcohol samples have been taken in accordance with certain technical requirements, the accused's blood alcohol concentration at the time of the breathalyzer test is presumed

to be the same as his blood alcohol concentration at the time of the alleged offence. In *St. Pierre*, this Court considered the statutory presumption in s. 258(1)(*c*) and concluded that in order to rebut the presumption, the accused need only demonstrate that his blood alcohol concentration at the time of driving was different than at the time of the test. Iacobucci J. explained the Court's reasoning in the following manner (para. 46):

> The section clearly does not say that the accused must show that he or she was not over .08 for the presumption not to apply. As stated earlier, the presumed fact deals with presuming blood alcohol levels to be the same at two different times. Evidence to the contrary must therefore be defined in relation to what is being presumed.

Following *St. Pierre*, Parliament enacted s. 258(1)(*d.*1), which effectively overruled the majority decision in that case. Section 258(1)(*d.*1) adds that where the breathalyzer test produces a reading above 80 mg, the accused's blood alcohol concentration is presumed to have exceeded 80 mg at the time of the alleged offence, absent evidence "tending to show" that the accused's blood alcohol concentration did not in fact exceed 80 mg. As a result, in order to rebut the statutory presumptions of identity in s. 258(1), an accused whose breathalyzer reading exceeds 80 mg must now show not only that his blood alcohol concentration was different at the time of driving than at the time of the test, but also that his blood alcohol concentration did not exceed 80 mg at the time of the alleged offence.

3.2 *Rebutting the Presumptions*

[17] It is well established that the standard of proof required to rebut the statutory presumptions is reasonable doubt. The expressions "evidence to the contrary" in s. 258(1)(*c*), "any evidence to the contrary" implicit in s. 258(1)(*g*) and

"evidence tending to show" in s. 258(1)(*d.1*) reflect this same standard. In *Boucher*, the Court emphasized that the burden of proof never shifts to the accused. Rather, "it will be sufficient if, at the conclusion of the case on both sides, the trier of fact has a reasonable doubt" (*Boucher*, at para. 15, citing *R. v. Proudlock*, [1979] 1 S.C.R. 525, at p. 549).

[18] Of course, the crucial factual foundation upon which expert opinion evidence of this kind usually stands or falls is the accused's evidence about the amount of alcohol he or she consumed and the pattern of drinking over the relevant period of time. If this factual basis is not credible and is rejected by the trial judge, the expert opinion evidence about the accused's blood alcohol level at the time of the offence, although relevant and admissible at the time it is proffered, has no probative value and need not be considered by the court in arriving at a verdict. The issue of whether the expert opinion evidence "tends to show" that the accused's blood alcohol level did not exceed 80 mg at the material time only arises if the accused's evidence of consumption is believed.

[19] A review of the previous decisions of this Court demonstrates that Parliament's intention in enacting this legislation has played a prominent role in determining what kind of evidence is capable of rebutting the presumptions in s. 258(1). In *R. v. Moreau*, [1979] 1 S.C.R. 261, the accused was charged with "over 80 " following a breathalyzer test which showed that his blood alcohol concentration was 90 mg. Moreau was convicted, but on appeal by way of a trial *de novo*, he adduced expert evidence that the breathalyzer was subject to a margin of error of 10 mg. The case was appealed to the Court of Appeal and then to this Court, where the majority concluded that expert evidence of the breathalyzer's margin of error could not

constitute "evidence to the contrary" for the purposes of s. 258(1)(*c*). Beetz J. provided the following explanation for why such evidence was incapable of rebutting the presumption (pp. 533-34):

> What evidence there is, tendered on behalf of the accused, is expert evidence from which Courts are asked to conclude, contrary to what the Code explicitly prescribes, that the result of the chemical analysis is not or ought not to be proof of the proportion of alcohol in the blood of the accused at the time when the offence was alleged to have been committed. This, in my opinion, is not evidence aimed at rebutting the presumption provided for in the section but at denying its very existence. "Evidence to the contrary" cannot be evidence solely directed at defeating the scheme established by Parliament under ss. 236 and 237.
>
> This elaborate legislative scheme contemplates and provides for elements of positive certainty such as the official approval of certain kinds of instruments, the designation of analysts and qualified technicians, a maximum time period between the commission of the alleged offence and the taking of a breath sample, and the reading by a qualified technician on an approved instrument of a proportion of alcohol in the blood in excess of a specified proportion. Once the conditions prescribed or contemplated by this scheme are fulfilled, a presumption arises against the alleged offender which he can rebut by tendering "evidence to the contrary". But in my opinion, no evidence is "evidence to the contrary" when its only effect is to demonstrate in general terms the possible uncertainty of the elements of the scheme or the inherent fallibility of instruments which are approved under statutory authority. Thus, the proof by expert evidence that, for physiological reasons of a general nature, the maximum time period of two hours between the commission of an offence and the taking of a breath sample is too long would not be "evidence to the contrary". [Emphasis added.]

[20] In *St. Pierre*, Iacobucci J. made a similar finding with respect to s. 258(1)(*c*). In that case, the accused consumed two small bottles of vodka between the time she was stopped by police and when the breathalyzer test was administered. The Court concluded that this evidence was sufficient to rebut the presumption of identity. In limiting what could constitute "evidence to the contrary", however, Iacobucci J. noted that evidence of the "normal process of absorption and elimination" could not

be "evidence to the contrary". Otherwise, "the presumption would be useless, since it could always be rebutted". He further explained (para. 61):

> The effect of normal biological processes of absorption and elimination of alcohol cannot of and by itself constitute "evidence to the contrary", because Parliament can be assumed to have known that blood alcohol levels constantly change, yet it saw fit to implement the presumption. Therefore, as Arbour J.A. states [in the Court of Appeal below], to permit this to become "evidence to the contrary" would, in effect, be nothing more than an attack on the presumption itself by showing that it is a legal fiction and therefore should never be applied. In my view, such an attack on the presumption should not be allowed. [Emphasis added.]

[21] These excerpts are instructive on the question that occupies us concerning the effect of straddle evidence. The evidence referred to in *Moreau* and at para. 61 of *St. Pierre* was not probative of the blood alcohol level of the particular accused, but was instead an attack on the presumptions themselves. In both cases, this Court concluded that it did not advance the accused's case to show that the presumptions were legal fictions, since this was self-evident.

[22] The determinative question in these cases, therefore, is whether straddle evidence is truly evidence which "tends to show" that the accused's blood alcohol level did not exceed 80 mg at the time of driving, or whether it is evidence akin to that referred to in *Moreau* and *St. Pierre* which, in effect, merely attacks the presumption itself.

### 3.3 *Three Approaches to Straddle Evidence*

[23] Three main approaches to straddle evidence have developed in the case law. These different approaches were discussed by the courts below, most effectively and succinctly by Tufts J., the trial judge who presided over Mr. Gibson's trial ((2004),

225 N.S.R. (2d) 16; 2004 NSPC 40). The three lines of analyses are the following.

[24] One approach to straddle evidence may be called the *Heideman* line of analysis, based on the Court of Appeal for Ontario's decision in *R. v. Heideman* (2002), 168 C.C.C. (3d) 542. In *Heideman*, a toxicologist gave evidence that an average person of the accused's height and weight who consumed alcohol in the same manner as the accused would have had a blood alcohol concentration of 71 mg at the time of driving. However, if the accused was a slow or a fast eliminator, his blood alcohol concentration could have fallen between 47 and 95 mg. The defence argued that the accused should be acquitted because it was more likely than not that his blood alcohol concentration was below 80 mg at the relevant time. Carthy J.A. (Abella and MacPherson JJ.A. concurring) rejected this argument and held that straddle evidence can never rebut the presumption in s. 258(1)(*d*.1). Rather, the entire range of hypothetical values must fall below 80 mg for the presumption to be set aside. The court reasoned as follows (paras. 12-14):

> Parliament must be taken to know that the body eliminates alcohol over time and that different persons eliminate at different rates. In applying the test levels to an offence time up to two hours earlier Parliament has built the elimination factor into the choice of 80 milligrams as a standard and, in doing so, has treated all drivers as one. In other words, Parliament may have inserted into the formula a slower than average elimination rate and, as a balance, a higher offence level than might otherwise have been imposed.
>
> These contextual considerations lead me to conclude that "tending to show" does not mean evidence "bearing on the subject", or evidence that "could show". On the other hand, it need not be persuasive. The guilt or innocent stage has not been reached. However, the evidence must be probative of the issue before the court; that is, probative of the level of alcohol in this person's blood at the time of the offence. The opinion must offer a choice to acceptance of the certificate as indicating the blood level at the time of the offence, and must indicate that the level was below .08.
>
> The expert evidence in *Carter* showed that the accused was below .08, if his evidence was accepted, because the same opinion would apply

> to all persons of his height and weight drinking the amounts stated over the same period of time. The evidence in this case does not exonerate all persons — only those who are not slow eliminators. It is therefore not probative of this appellant's blood level at the time of the offence.
>
> The appellant seeks to say that he is an average person but cannot establish that fact. Absorption and elimination rates vary not only from person to person but also from time to time with each individual. Thus this element of fact cannot be established. Yet it is as essential to the opinion as the number of drinks consumed, as evidenced by the range from 71 to 95 milligrams within the group of slow eliminators. To put it another way, the opinion is not supported by the evidence any more than if the appellant had said that he's not sure how many drinks he had consumed but on average it was five and sometimes seven. The only probative opinion would have to relate to seven drinks.

[25] The *Heideman* approach has been followed by the courts in Ontario and by the summary conviction appeal court in Manitoba in *R. v. Noros-Adams* (2003), 175 Man. R. (2d) 68. The Alberta Court of Appeal expressly endorsed the *Heideman* approach in Mr. MacDonald's case, stating that to conclude otherwise "flies directly in the face of the obvious legislative intent of the presumptions" ((2006), 60 Alta. L.R. (4th) 205, 2006 ABCA 177, at para. 55). O'Brien J.A. explained as follows (para. 58):

> The offence created by s. 253(*b*) is not the quantity of alcohol consumed, but rather is the consumption resulting in an alcohol concentration exceeding 80 mg in 100 ml. The section applies equally to slow absorbers and eliminators and to fast absorbers and eliminators. In my view, the presumptions are legislated to avoid arguments based upon whether an accused is a fast or slow absorber and eliminator and the presumption of accuracy is not rebutted by demonstrating a range of possible alcohol levels, giving rise to conjecture as to whether or not the blood alcohol content was within the legal limit at the material time. Conjecture does not tend to show anything. Something more is needed to rebut the statutory presumption of the accuracy of the breathalyzer. [Emphasis added.]

[26] The Nova Scotia Court of Appeal expressly declined to address the straddle evidence issue in Mr. Gibson's case, preferring to base its conclusion on certain passages from this Court's decision in *Boucher*. On this point, I agree with

LeBel J. (at para. 29) that these appeals are distinguishable from *Boucher* and I have nothing to add to the clarification provided by my colleague. I find it interesting to note however, that the Nova Scotia Court of Appeal expressed the view that the passages from *Boucher*, upon which it founded its conclusion that the expert opinion evidence did not rebut the presumption in Mr. Gibson's case, "echo the Ontario Court of Appeal's view in *Heideman*" ((2006), 243 N.S.R. (2d) 325, 2006 NSCA 51, at para. 20).

[27] Another line of cases have adopted what could be called the "prevailing direction" approach. Under this approach, courts have accepted that straddle evidence can rebut the statutory presumption if the accused's range of possible blood alcohol concentrations is more below the legal limit than above. This is essentially the approach adopted by Deschamps J. in her reasons. It was also adopted by the Alberta Provincial Court in *R. v. Gaynor* (2000), 272 A.R. 108. In *Gaynor*, Davie Prov. Ct. J. consulted dictionaries to determine the ordinary meaning of "tend" in the phrase "evidence tending to show" in s. 258(1)(*d*.1) of the *Criminal Code*. He concluded that "tend" meant "having a prevailing direction" or "to have a leaning". He then considered these definitions in the context of straddle evidence (para. 38):

> [I]n straddle cases such as the case at bar, it is not any straddle evidence which will disarm the presumption. One cannot point to any particular part of the range of possibilities to constitute evidence to the contrary. One must look at the evidence; that is, the whole range of possible readings and ask:
>
> > Does the range of possibilities have a leaning or prevailing direction which makes it clear that the accused's blood-alcohol level was not over .08? If it does, or if the Court is left with a reasonable doubt on the issue, then the evidence amounts to "evidence to the contrary" and the presumption is disarmed.

[28] The "prevailing direction" approach has also been adopted by other trial courts in Alberta and Prince Edward Island, and was the approach taken by the trial judge in Mr. MacDonald's case. Kirkpatrick Prov. Ct. J. noted that the midpoint of the range of possible blood alcohol concentrations provided by the expert was above the legal limit at 86.5 mg. Adopting the prevailing direction approach as explained in *Gaynor*, Kirkpatrick Prov. Ct. J. concluded that the expert evidence did not "tend to show" that the accused's blood alcohol level was below the legal limit at the time of driving (2003 Carswell Alta 1986).

[29] On my reading of LeBel J.'s analysis, the approach he adopts is somewhat akin to the prevailing direction approach in that it allows straddle evidence to disarm the presumption at the imprecise point when the court finds it sufficiently probative to raise a reasonable doubt. I find nothing offensive in principle with the notion that a reasonable doubt admits of no precise boundaries, but I raise the following query: if indeed straddle evidence does not fly in the face of the legislative regime and is capable of rebutting the presumption, why would evidence that Mr. Gibson's blood alcohol concentration may have been as low as 40 mg and Mr. MacDonald's as low as 64 mg not suffice to raise a reasonable doubt? Indeed, under the third approach developed in the case law, which I describe next, this evidence, if accepted by the trial court, would effectively rebut the presumption.

[30] The third approach to straddle evidence, which could be called the "some evidence" approach, was suggested by L'Heureux-Dubé J., writing in dissent in *St. Pierre*. To rebut the statutory presumption under the "some evidence" approach, it is sufficient for the accused to point to evidence which tends to show that his blood alcohol concentration could have been below 80 mg at the time of the alleged offence.

As L'Heureux-Dubé J. explained (para. 103):

> In the context of an "over 80" charge, it will be necessary for the accused to point to credible evidence which tends to show that his blood alcohol level could have been under the legal limit. This evidence will typically take the form of expert evidence to the effect that the alcohol consumed after driving (or immediately before embarking) would generally affect a person of the accused's sex, height and body weight within a certain range of values. Thus, for instance, an accused may adduce expert evidence indicating that when the effect of alcohol allegedly consumed after driving is subtracted from the actual blood alcohol reading on the breathalyzer, it would bring the accused's blood alcohol level to anywhere between 70 and 120 mg of alcohol per 100 ml of blood. This evidence would amount to "evidence to the contrary" of the presumption in s. 258(1)(*c*), and the Crown would no longer be able to rely on that presumption to prove its case against the accused. There is no need for the accused to demonstrate that his blood alcohol level is actually below .08. He need only adduce credible evidence tending to show that this is possible under the circumstances. [Emphasis added; emphasis in original deleted.]

This approach was adopted by the Saskatchewan Court of Appeal in *Gibson* and the Quebec Court of Appeal in *R. v. Déry*, [2001] Q.J. No. 3205 (QL). Under this approach, straddle evidence, when accepted by the trial court, will suffice to rebut the presumption because it provides some evidence that the accused's blood alcohol concentration did not exceed 80 mg at the time of the alleged offence. This is the approach endorsed by the trial judge in Mr. Gibson's case, hence his acquittal at trial (in fact, the trial judge concluded that the statutory presumption was rebutted on either the "prevailing direction" or the "some evidence" approach).

[31] Without question, the "some evidence" approach is the most favourable to the accused and, as such, appears at first blush to be the correct one. However, in my view, when considered in the context of the legislative scheme and the nature of the expert opinion evidence in question, it becomes clear that straddle evidence, in effect, is simply an attack on the presumption itself and that it cannot constitute evidence

"tending to show" that the accused's blood alcohol level did not exceed 80 mg at the material time.

[32] As I stated in my introductory remarks, it cannot be disputed that the presumption is a legal fiction and that a breathalyzer reading that exceeds the legal limit may not be reflective of the *actual* concentration of alcohol in the accused's blood at the time of the offence because it always depends on the rate at which the particular accused is metabolizing the alcohol during the relevant time period on the day in question. Yet the offence is clearly made out. The breathalyzer test provides legal proof that the accused "consumed alcohol in such a quantity" that it put him or her over 80 mg contrary to s. 253 of the *Criminal Code*. The accused cannot rebut the presumption by relying on inherent variations in absorption and elimination rates. Straddle evidence puts the accused in no better position. Evidence that merely confirms that alcohol was consumed in a sufficient quantity to produce a blood alcohol concentration that exceeds the prescribed limit, *whether or not it be within the same range that could be extrapolated from the breathalyzer reading*, cannot rebut the presumption under s. 258(1)(*d*.1). When considered in this sense, straddle evidence, in effect, is tantamount to arguing, for example, that the accused should not be convicted because he or she only drank a sufficient quantity of alcohol to reach a 90-mg concentration rather than a 95-mg concentration as recorded by the breathalyzer. Parliament, by creating this offence, clearly regarded driving with this level of consumption as posing sufficient risk to warrant criminalization. To hold otherwise would be to defeat the presumption itself and it cannot be allowed.

4. Disposition

[33] Therefore, in each case before the Court, the expert opinion evidence, in

placing the accused's blood alcohol concentration both above and below the legal limit at the time of driving depending on the accused's actual rate of absorption and elimination on the day in question, did no more than confirm that the accused fell within the category of drivers targeted by Parliament and did *not* rebut the statutory presumption under s. 258(1)(*d*.1) of the *Criminal Code*. Consequently, I would dismiss Mr. Gibson's appeal and confirm the order for a new trial. I would also dismiss Mr. MacDonald's appeal and uphold his conviction.

The reasons of McLachlin C.J. and LeBel and Fish JJ. were delivered by

[34] LEBEL J. — These appeals raise the question of what constitutes evidence to the contrary for the purpose of rebutting the presumption in s. 258(1)(*d*.1) of the *Criminal Code*, R.S.C. 1985, c. C-46. That provision states that, absent evidence to the contrary, a breathalyzer reading over 80 mg of alcohol in 100 ml of blood is proof that the accused had a blood alcohol content exceeding 80 mg at the time of the offence. This Court has been asked to decide in particular whether the presumption can be rebutted using expert evidence of alcohol elimination rates in the general population and "straddle evidence", or evidence of a range of possible blood alcohol levels lying both below and above the legal limit. For the reasons that follow, both expert evidence of alcohol elimination rates in the general population and straddle evidence can be relevant and are therefore not inherently inadmissible for the purpose of rebutting the presumption in question. However, the probative value of such evidence will often be so low, as is the case in these two appeals, that it is not sufficient to rebut the presumption in s. 258(1)(*d*.1). Both appeals are dismissed on this basis.

I. Facts and Judgments Below

A. *Gibson*

[35] Mr. Gibson was charged with operating a vehicle while having over 80 mg, contrary to s. 253(*b*) of the *Criminal Code*. At trial in the Nova Scotia Provincial Court, the arresting officer testified that he saw Mr. Gibson driving his all-terrain vehicle on the highway, that he stopped him at 8:59 p.m. on July 13, 2003, that Mr. Gibson's breath smelled of alcohol, and that his speech was slurred. The officer administered two breathalyzer tests, which indicated that Mr. Gibson's blood alcohol content was 120 mg at 10:12 p.m. and 100 mg at 10:21 p.m.

[36] Mr. Gibson testified that he had consumed ten beers over a period of seven hours on the day in question and had consumed five of them shortly before being stopped by the police. His testimony was corroborated by another witness. An expert witness for the defence testified that, assuming that the pattern of consumption attested to by Mr. Gibson and the corroborating witness was accurate and based on the average alcohol elimination rates of men of Mr. Gibson's age, height and weight, Mr. Gibson would have had a blood alcohol content of between 40 and 105 mg at 8:59 p.m., when he was stopped by the police.

[37] The trial judge accepted both the evidence of Mr. Gibson's consumption and the expert evidence. He held that the evidence that Mr. Gibson's blood alcohol content would have been between 40 and 105 mg at the time he last operated the vehicle was evidence to the contrary that rebutted the presumption in s. 258(1)(*d*.1). The trial judge was left with a reasonable doubt that Mr. Gibson's blood alcohol

content had exceeded the legal limit, and acquitted him ((2004), 225 N.S.R. (2d) 16, 2004 NSPC 40).

[38] The Nova Scotia Supreme Court upheld the acquittal despite the Crown's submission that expert evidence based on elimination rates in the general population could not constitute evidence to the contrary ((2004), 227 N.S.R. (2d) 165, 2004 NSSC 228). The court held that, since it is practically impossible for an accused to accurately determine his or her elimination rate at the time of the alleged offence, to reject evidence of elimination rates in the general population would amount to making the presumption in s. 258(1)(*d*.1) an irrebutable one, which could lead to false convictions.

[39] The Nova Scotia Court of Appeal allowed the appeal, set aside the acquittal and ordered a new trial ((2006), 243 N.S.R. (2d) 325, 2006 NSCA 51). It cited this Court's decision in *R. v. Boucher*, [2005] 3 S.C.R. 499, 2005 SCC 72, for the proposition that an expert opinion based on average tendencies of the population is without foundation and thus inadmissible. Therefore, the Court of Appeal held that the Nova Scotia Supreme Court had erred in finding that evidence of a hypothetical person's elimination rates was capable of rebutting the presumption in s. 258(1)(*d*.1).

B. *MacDonald*

[40] Like Mr. Gibson, Mr. MacDonald was charged with operating a vehicle while his blood alcohol concentration exceeded 80 mg, contrary to s. 253(*b*) of the *Criminal Code*. On February 26, 2003, he was stopped at a check stop, where a police officer noted that Mr. MacDonald smelled of alcohol, was talking in a deliberate

manner and had some difficulty in walking. Two breath tests produced identical readings of 146 mg, which were rounded down to 140 mg for purposes of the charge.

[41] Mr. MacDonald testified that he had consumed six cans of beer over four and a half hours and had consumed the last can five minutes before being stopped by the police. A friend corroborated this evidence.

[42] At trial, Mr. MacDonald adduced expert evidence that, according to a test conducted several months after he was charged, his elimination rate was 18.5 mg per hour and that, assuming he had eliminated alcohol at the same rate on the night of the alleged offence, his blood alcohol content would have been 71 mg — below the legal limit — at the relevant time. In testing Mr. MacDonald's elimination rate, the expert did not attempt to re-create the conditions on the night Mr. MacDonald was charged as regards the type and pattern of alcohol consumption and the amount of food consumed. Instead, the expert had Mr. MacDonald drink a mix of Diet Seven-Up and vodka over a period of five minutes until he reached a target range of between 50 and 60 mg. The expert then plotted Mr. MacDonald's blood alcohol readings on a chart. In addition to testifying that Mr. MacDonald's blood alcohol content would have been 71 mg, the expert stated that a man of Mr. MacDonald's age, height and weight who eliminated alcohol at an average rate would have had a blood alcohol content of 64 to 109 mg at the relevant time.

[43] The trial judge convicted Mr. MacDonald on the basis that the expert evidence did not tend to show that his blood alcohol content had not exceeded 80 mg (2003 CarswellAlta 1986). In his opinion, Mr. MacDonald's alcohol elimination rate according to the expert's test did not raise a reasonable doubt, because it did not reflect

the type of alcohol or the amount of food consumed, and the expert had testified that these factors would influence a person's elimination rate. The trial judge also noted that, based on elimination rates in the general population, the midpoint of the range of blood alcohol levels was 86.5 mg, which is over the legal limit.

[44] The Alberta Court of Queen's Bench upheld the conviction for the reason that the "straddle evidence" — that is, evidence of a range of possible blood alcohol levels lying both below and above the legal limit — was speculative and was not probative of Mr. MacDonald's blood alcohol content at the time of the offence ((2004), 47 Alta. L.R. (4th) 242, 2004 ABQB 629). The court added that to rebut the presumptions in s. 258(1)(*c*), (*d*.1) and (*g*), an accused must adduce evidence that would "eliminate a scenario whereby the accused's blood-alcohol level is over 80 [mg] at the time of driving" (para. 37).

[45] The Alberta Court of Appeal agreed, relying in part on *Boucher*. It stated that evidence of blood alcohol content that disregards the personal characteristics of the accused at the time of the alleged offence constitutes an attack on the fictional nature of the presumption and is inadmissible. It therefore also rejected the use of average elimination rates and of straddle evidence — at least to the extent that straddle evidence is based on elimination rates in the general population ((2006), 60 Alta. L.R. (4th) 205, 2006 ABCA 177).

II. Analysis

[46] The first issue on these appeals is the admissibility of expert evidence of

alcohol elimination rates and the use that can be made of such evidence in rebutting the presumptions in s. 258(1) — and in particular that in s. 258(1)(*d*.1). The second, related issue concerns whether straddle evidence may constitute evidence to the contrary for the purpose of rebutting those presumptions. In addressing these issues, it will be necessary to review the scheme of s. 258(1), the principles concerning the admissibility and relevance of expert evidence in general, and the nature of the expert evidence in question in these appeals.

A. *Scheme of Section 258(1)*

(1) Presumptions

[47] In combatting the serious problem of drinking and driving in Canada, the Crown benefits from evidentiary presumptions of accuracy and identity when prosecuting the offences provided for in s. 253 of the *Criminal Code* (operating a motor vehicle while impaired or with a blood alcohol content over 80 mg). These presumptions are set out in s. 258(1)(*c*), (*d*.1) and (*g*) of the *Criminal Code*. Deschamps J. explained the nature of the presumptions in *Boucher*:

> Where samples of an accused's breath have been taken pursuant to a demand made under s. 254(3) *Cr. C.*, Parliament has established separate presumptions in s. 258(1) *Cr. C.* to facilitate proof of the accused's blood alcohol level: two presumptions of identity and one presumption of accuracy. According to the presumption of identity in s. 258(1)(*c*) *Cr. C.*, the accused's blood alcohol level at the time when the offence was alleged to have been committed is the same as the level at the time of the breathalyzer test. According to s. 258(1)(*d*.1) *Cr. C.*, where the alcohol level exceeds 80 mg at the time of the test, there is a presumption that it also exceeded 80 mg at the time when the offence was alleged to have been committed. The presumption of accuracy in s. 258(1)(*g*) *Cr. C.* establishes *prima facie* that the technician's reading provides an accurate determination of the blood alcohol level at the time of the test. These presumptions have certain similarities, but they remain distinct

presumptions. [para. 14]

I will now add a few comments on the purpose and effect of the presumptions.

[48] Under s. 258(1)(*g*), blood alcohol tests are presumed to be accurate, provided that certain procedures are followed. This presumption, as well as the presumption established under s. 258(1)(*c*), was adopted by Parliament after a review of the scientific evidence then available about the reliability of the tests and their fairness to the accused (*R. v. Phillips* (1988), 42 C.C.C. (3d) 150 (Ont. C.A.), at pp. 159-63). It is known as the presumption of accuracy. Although the text of the provision does not mention evidence to the contrary, s. 25 of the *Interpretation Act*, R.S.C. 1985, c. I-21, states that when a document is presumed to establish a fact, the presumption applies only "in the absence of any evidence to the contrary". The presumption is therefore rebuttable, but s. 258(1)(*g*) is silent as to whether evidence of mere inaccuracy can rebut it. It is now well settled that inaccuracy is not sufficient (see *R. v. St. Pierre*, [1995] 1 S.C.R. 791, at para. 48). Rather, evidence to the contrary must tend to show that the blood alcohol content of the accused did not exceed the legal limit at the time of the breathalyzer test. Otherwise, one is only challenging the presumption itself without providing any exculpatory evidence.

[49] Under s. 258(1)(*c*), the blood alcohol content of the accused while he or she was driving is presumed to have been the same as at the time a blood alcohol test was administered, provided that certain procedures were followed and "in the absence of evidence to the contrary". This is often referred to as the presumption of (temporal) identity. Like s. 258(1)(*g*), s. 258(1)(*c*) does not specify whether rebutting the presumption requires evidence that the accused was not over the legal limit or whether evidence of mere difference over time will suffice. In *St. Pierre*, a majority of this

Court held that evidence of any difference other than one based only on normal absorption and elimination might constitute evidence to the contrary for the purpose of rebutting s. 258(1)(*c*).

[50] Shortly after this Court's decision in *St. Pierre*, Parliament enacted s. 258(1)(*d*.1), which establishes the presumption that, in the absence of evidence tending to show that the accused had a blood alcohol content of 80 mg or less while driving, a blood alcohol analysis indicating a result of over 80 mg is proof that the accused had a blood alcohol content of over 80 mg while driving. The presumption provided for in s. 258(1)(*d*.1) has been referred to as an "additional" presumption of identity, but its effect is not simply to resolve the concerns raised in *St. Pierre* (although it does do that, as Deschamps J. noted in *Boucher*). Rather, it applies regardless of whether the accused is challenging the accuracy of the blood alcohol test or the presumption of identity. This is because s. 258(1)(*d*.1) applies even if the requirements of s. 258(1)(*g*) are met. For example, let us consider the case of an accused who rebuts the presumption of accuracy in s. 258(1)(*g*) with evidence both that his or her blood alcohol content at the time of the breathalyzer test was different than that indicated by the machine (as required by s. 258(1)(*g*)) and that it did not exceed the legal limit *at the time of testing* (as required by the common law). In such a situation, s. 258(1)(*d*.1) will nevertheless apply, which means that the accused must also prove that his or her blood alcohol content did not exceed the legal limit *at the time of the alleged offence* in order to rebut the presumption. The Alberta Court of Queen's Bench therefore correctly held, at para. 15 of its reasons in *MacDonald*, that "there is now no significant difference as to what must be adduced or pointed to in respect to the two presumptions". Thus, in the present appeals, although Mr. Gibson was primarily challenging the presumption of identity and Mr. MacDonald was

challenging the presumption of accuracy, they both had to adduce evidence that their blood alcohol levels did not exceed the legal limit while they were driving in order to rebut the presumption in s. 258(1)(*d*.1). The distinction between the presumptions of accuracy and identity continues to exist in theory, but has lost much of its importance in practice.

(2) Meaning of Evidence to the Contrary in Section 258(1)(*d*.1)

[51] Section 258(1)(*d*.1) presents a significant hurdle for an accused, but the presumption it provides for is not absolute, nor could it be without threatening the presumption of innocence. It creates a legal fiction, but not an absolute one. The presumption in s. 258(1)(*d.1*) can still be rebutted by adducing "evidence tending to show that the concentration of alcohol in the blood of the accused ... did not exceed eighty milligrams ..." at the time the offence was allegedly committed. In *R. v. Dubois* (1990), 62 C.C.C. (3d) 90 (Que. C.A.), at p. 92, Fish J.A. (as he then was) put the matter this way:

> ... s. 258(1)(*c*) of the Code does not impose an "ultimate" or "persuasive" burden of proof on the accused. The "evidence to the contrary" to which it refers must *tend to show* – but it need not *prove* – that the blood-alcohol level of the accused did not exceed the statutory limit at the relevant time. The exculpatory evidence, in other words, must have *probative value*, but it need not be so cogent as to *persuade the court*. [Emphasis in original.]

I agree with these observations.

[52] The appellant MacDonald argues that the difference in wording between "(any) evidence to the contrary", as in s. 258(1)(*c*) of the *Criminal Code* and as in s. 25 of the *Interpretation Act*, and "evidence tending to show", as in s. 258(1)(*d*.1),

suggests a "looser inferential relationship", such that "evidence tending to show" is broader than "evidence to the contrary". I do not find this argument convincing. In my view, for the reasons that follow, the difference in wording is not meaningful for the purpose of determining what type of evidence will rebut these presumptions.

[53] This Court confirmed in *Boucher* that evidence to the contrary is evidence that is capable of raising a reasonable doubt as to the presumed fact, and that this standard applies to s. 258(1)(*c*), (*d*.1) and (*g*). Thus, in Deschamps J.'s opinion, the enactment of s. 258(1)(*d*.1) did not change the type of evidence required to rebut the presumption of identity, but reinforced that presumption (para. 22). This conclusion is supported by the fact that the expression "tending to show" has been used by the courts for decades in the context of evidence to the contrary (see, for example, *R. v. Proudlock*, [1979] 1 S.C.R. 525). The reason for the difference in wording is most likely related not to an intent to broaden the scope of evidence to the contrary, but to a structural requirement, as Carthy J.A. suggested in *R. v. Heideman* (2002), 168 C.C.C. (3d) 542 (Ont. C.A.), at para. 6:

> There was a semantic requirement of the restructured sentence which is now directed at the blood-alcohol level at the time of the offence rather than, as previously, the reading at the time of testing. It is no longer a question of being "contrary" to the test.

[54] The standard for rebutting the presumptions in s. 258(1)(*c*), (*d*.1) and (*g*) has always been evidence that could raise a reasonable doubt as to the presumed fact: in the case of s. 258(1)(*d*.1), the presumed fact is that the accused had a blood alcohol content of over 80 mg while driving. However, this is only a starting point. The parties disagree about what kind of evidence is capable of raising a reasonable doubt. In particular, they differ on whether straddle evidence and expert evidence based on

alcohol elimination rates in the general population are capable of raising a reasonable doubt that the accused had a blood alcohol content of over 80 mg. The courts, too, have disagreed on this issue.

[55] As we will see in the following paragraphs, the usual approach to determining admissibility and weight applies to straddle evidence and to evidence based on alcohol elimination rates in the general population. As a result, such evidence is not inherently inadmissible for the purpose of rebutting the presumptions in s. 258(1). However, in the absence of evidence tending to show that the blood alcohol level *of the accused* at the time of the offence was below the legal limit, that evidence will rarely have sufficient probative value to rebut the presumptions.

B. *Relevance and Foundation of Expert Evidence*

[56] The approach to determining whether expert evidence is admissible and whether it can be given weight is well settled. This Court held in *R. v. Mohan*, [1994] 2 S.C.R. 9, that to be admissible, expert evidence must: (a) be necessary, in that it provides information outside the experience of the trier of fact; (b) be relevant, both in terms of logical relevance and in the sense that its prejudicial effects are outweighed by its probative value; (c) be given by a properly qualified expert; and (d) not be subject to any exclusionary rules.

[57] The only one of the *Mohan* criteria that is at issue in the present appeals is relevance. In *R. v. K. (A.)* (1999), 45 O.R. (3d) 641 (C.A.), Charron J.A., as she then was, stated that in conducting the relevance inquiry for expert evidence, it is necessary to begin by asking two questions (at para. 77):

(a) Does the proposed expert opinion evidence relate to a fact in issue in the trial?

(b) Is it so related to a fact in issue that it tends to prove it?

If the answer to both these questions is "yes", the judge must ask whether the probative value of the evidence outweighs its prejudicial effect. If this question is also answered in the affirmative, the expert evidence is considered relevant for the purpose of determining whether it is admissible. Thus, the inquiry into the relevance branch of the test for admissibility is not conducted differently for expert evidence than for non-opinion evidence. Nevertheless, as noted in *Mohan*, this inquiry is of particular significance where the admissibility of expert evidence is in issue, because of the risk that such evidence will be accepted uncritically and given more weight than it deserves.

[58] Relevance is distinct from foundation. Even admissible expert evidence cannot be given any weight without a proper factual foundation: as this Court stated in *R. v. Abbey*, [1982] 2 S.C.R. 24, "the facts upon which the opinion is based must be found to exist" (*per* Dickson J., at p. 46). In *R. v. Lavallee*, [1990] 1 S.C.R. 852, the Court added that as long as there is some admissible evidence to establish a foundation for it, the expert's opinion may be accepted. The purpose of the factual foundation requirement is to ensure that expert evidence is reliable. In *Boucher*, for example, the expert's testimony as to the indicia of impairment that a man of the defendant's age, height and weight would be expected to exhibit after consuming the amount the defendant claimed to have consumed was without foundation, because the defendant's evidence of consumption had been rejected by the trier of fact. Absent credible evidence of consumption, the expert's opinion was based on facts that had been found

not to exist and was therefore entitled to no weight.

[59] Where expert evidence is adduced to rebut the presumption in s. 258(1)(*d*.1), the courts have sometimes confused the principle of relevance with the requirement that expert evidence have a factual foundation. I will now consider how these principles apply to expert evidence of alcohol elimination rates and to straddle evidence.

C. *Expert Evidence of Alcohol Elimination Rates and Blood Alcohol Content*

(1) Evidence in Respect of the General Population

[60] There has been disagreement among the courts regarding the relevance of and foundation for expert evidence of alcohol elimination rates in the general population adduced to rebut the presumptions in s. 258(1) of the *Criminal Code*. In *MacDonald*, the Alberta Court of Appeal held that such evidence is irrelevant and therefore inadmissible. In *Gibson*, the Nova Scotia Court of Appeal held that the evidence of elimination rates in the general population was without foundation and therefore not entitled to any weight. In contrast, the Quebec Court of Appeal, in *R. v. Déry*, [2001] Q.J. No. 3205 (QL), and the Saskatchewan Court of Appeal, in *R. v. Gibson* (1992), 72 C.C.C. (3d) 28 — as well as the Nova Scotia Provincial Court and the Nova Scotia Supreme Court in *Gibson* — found that the expert evidence was admissible and that it was capable of rebutting the presumption.

[61] In both cases at bar, the respondent submits that the expert evidence of alcohol elimination rates in the general population is without foundation and can therefore be given no weight. I disagree. It is important to bear in mind what the

expert evidence consists of in these appeals. The experts testified as to what the blood alcohol content of a person of each appellant's age, sex, height and weight would have been, assuming that he eliminated alcohol at a rate within the range observed in members of the general population, and based on the consumption pattern to which the appellant testified. The foundation for the evidence includes: the range of possible elimination rates, of members of the population as a whole; the fact that the appellant is a member of the population of a particular height and weight; and the appellant's evidence of consumption. Thus, the expert evidence was not without foundation in the cases at bar.

[62] These appeals are therefore distinguishable from *Boucher*, where there was no credible evidence of consumption on which to base the expert opinion on blood alcohol content. It is clear from *Boucher*, *Dubois* and *Proudlock* that if the evidence of consumption is not credible, the presumptions in s. 258(1) cannot be rebutted. However, the evidence of consumption was accepted in *Gibson* and was at least not explicitly rejected in *MacDonald*.

[63] The issue relating to evidence of rates in the general population is therefore not whether such evidence is reliable (which evidence without a factual foundation may not be), but whether it is relevant for the purpose of establishing the blood alcohol content of the accused. In light of the principles discussed above for determining whether evidence is admissible, expert evidence that the blood alcohol content of someone of the age, sex, height and weight of the accused would fall in a particular range is relevant for the purpose of rebutting the presumptions in s. 258(1) of the *Criminal Code*.

[64] The following example is illustrative: if an expert testifies that every person of the sex, age, height and weight of the accused would, on consuming the amount in question, have a blood alcohol content below the legal limit, this is clearly relevant for the purpose of rebutting the presumption in s. 258(1)(*d*.1). That is, such evidence is logically relevant to the defence's claim that the blood alcohol content of the accused was not, in fact, over 80 mg at the relevant time. Furthermore, the requirement for the exclusion of defence evidence according to *R. v. Seaboyer*, [1991] 2 S.C.R. 577, at pp. 609-11 — that the prejudicial effect of admitting the evidence, such as the consumption of additional court resources, substantially outweighs its probative value — will rarely be met in such a case. If the expert testifies that most people would have been below the legal limit or even that some people would have been below the limit, the evidence does not become irrelevant but will, rather, be less probative. Thus, expert evidence based on alcohol elimination rates in the general population is not inherently irrelevant and is therefore not inherently inadmissible for the purpose of rebutting the presumption in s. 258(1)(*d*.1).

[65] This Court's pronouncements in *Boucher* on evidence of rates in the general population are not inconsistent with the relevance and admissibility of such evidence, although that case has sometimes been interpreted as standing for the proposition that evidence of "statistical averages" is not admissible for the purpose of rebutting the presumptions in s. 258(1). The Court's rejection of "average figures" in para. 31 of *Boucher* was limited to a context in which evidence of consumption is disbelieved. In fact, that paragraph suggests that if a judge did believe the evidence of consumption adduced by the accused, the expert evidence would be relevant and admissible.

[66] At para. 34 of *Boucher*, the Court again rejected "statistical averages" as irrelevant, relying in part on the Ontario Court of Appeal's decision in *R. v. Latour* (1997), 116 C.C.C. (3d) 279. However, this rejection was limited to a context in which blood alcohol content is established on the basis of indicia of impairment. Such indicia are insufficient as evidence of blood alcohol content where, as in *Boucher*, no evidence of tolerance is adduced. Evidence of elimination rates in the general population, on the other hand, is relevant to — although certainly not conclusive of — the blood alcohol content of the accused even in the absence of evidence of his or her elimination rate. Thus, *Boucher* and *Latour* did not reject outright the use of evidence of rates in the general population to rebut the s. 258(1) presumptions, but, rather, rejected it in a context in which blood alcohol content is assessed on the basis of indicia of impairment in the absence of evidence of alcohol tolerance, or in which evidence of consumption is disbelieved.

[67] Of course, admissibility is only the first hurdle; admissible evidence may be given little or no weight. The probative value of evidence based on rates in the general population will often be so low that it fails to raise a reasonable doubt that the accused had a blood alcohol content exceeding 80 mg, as indicated by an approved instrument for measuring blood alcohol content. Not only do elimination rates vary between individuals, but each individual's rate will vary depending on such factors as the amount of food consumed, the type of alcohol consumed and the pattern of consumption. Thus, evidence that the blood alcohol content of an average person of the sex, age, height and weight of the accused would have been at a certain level or within a certain range will rarely be sufficiently probative to raise a reasonable doubt about the presumed fact that the actual blood alcohol content of the accused at the time of the offence exceeded the legal limit.

(2) Evidence of the Elimination Rate of the Accused

[68] Expert evidence of the elimination rate of the accused as established by a test is potentially more probative of the blood alcohol content he or she had while driving than evidence based on elimination rates in the general population. However, because an individual's elimination rate varies over time based on a number of factors, as was confirmed by Mr. MacDonald's own expert (see para. 6 of the trial judgment), the probative value of evidence based on the elimination rate of the accused will logically depend on the number of variables controlled for in the elimination rate test. For example, an elimination rate test that fails to take into account the type of alcohol consumed, the pattern of consumption and any food consumed by the accused may be no more helpful for the purpose of establishing his or her elimination rate under different conditions than a simple average of elimination rates in the general population. If it were possible to provide credible evidence of the elimination rate of the accused at the time of the offence, though, that evidence would be more likely to rebut the presumption in s. 258(1)(*d*.1) than mere evidence of the elimination rate of the accused under testing conditions.

D. *Straddle Evidence*

[69] Straddle evidence, as indicated above, is evidence of a range of blood alcohol levels whose lowest value lies below the legal limit and whose highest value lies above it. Like evidence of elimination rates in the general population, straddle evidence has been treated inconsistently, but generally with suspicion, by the courts. Since *Heideman*, in 2002, the practice in Ontario has been not to admit it. Similarly, British Columbia's courts have generally rejected it (see *R. v. Moen* (2007), 48 C.R.

(6th) 361, 2007 BCSC 376). However, at least two appellate courts have admitted straddle evidence — the Saskatchewan Court of Appeal in *Gibson* and the Quebec Court of Appeal in *Déry* — but their decisions have not always been followed.

[70] Even though in the majority of cases the courts have held that straddle evidence cannot be used to rebut the statutory presumptions, some of the leading cases on this point, such as *Heideman,* have been decided at least in part on the basis that the straddle evidence was based on elimination rates in the general population. The court in *Heideman* rejected both straddle evidence (of a range of 47 to 95 mg) and evidence of an average person's blood alcohol content (71 mg) for the reason that the expert's evidence was based on population averages unrelated to the accused and was therefore "not probative of this appellant's blood level at the time of the offence" (para. 14). In subsequent cases, such as *R. v. Noros-Adams* (2003), 190 Man. R. (2d) 161, 2003 MBCA 103, courts have cited *Heideman* for the principle that "in order to rebut the presumption the evidence must satisfy a court that the accused's blood alcohol content could not have been above .08 " (para. 9). With respect, I do not believe that *Heideman* supports this conclusion. Rather, the court in *Heideman* stated that the expert evidence "must indicate that the level was below .08" (para. 13). This is not the same as requiring the elimination of a scenario in which the blood alcohol content of the accused was over 80 mg, to paraphrase the Alberta Court of Queen's Bench in *MacDonald.* The former is consistent with the concept of straddle evidence, while the latter is not.

[71] Although it appears to be true that in the canvassed cases, the straddle evidence was based on a range of elimination rates in the general population, this result is not logically inevitable, and it is important to distinguish the straddle evidence

issue from that of evidence of elimination rates in the general population. I have already stated that evidence based on such rates is neither inherently irrelevant nor generally inadmissible. The question remains, however, whether the fact that the range of blood alcohol levels adduced by the expert straddles the legal limit renders the evidence incapable of rebutting the presumption in s. 258(1)(*d*.1).

[72] Let us consider a case in which an expert testifies that the blood alcohol content of the accused at the relevant time would have been between 40 and 82 mg. This evidence is relevant — both in terms of logical relevance and in the sense that its prejudicial effect does not substantially outweigh its probative value — for the purpose of rebutting a presumption that the blood alcohol content of the accused was above 80 mg. It is not conclusive, but it may be capable of raising a reasonable doubt. Other straddle evidence may be less probative, but it will usually be sufficiently relevant to pass the threshold for admissibility.

[73] Thus, the usual principles must be applied to determine whether straddle evidence is admissible. However, the weight given to such evidence by a trier of fact will depend on the nature of the evidence itself. A wide "straddle range", such as those in the present appeals (40-105 mg for Mr. Gibson and 64-109 mg for Mr. MacDonald), cannot be considered evidence to the contrary of the breathalyzer result, since it does not tend to prove that the accused was at or under the legal limit. Similarly, a range that is overwhelmingly above the legal limit may be of limited probative value. A narrower range, or one whose values lie overwhelmingly below the legal limit, will generally have greater probative value. In the end, the more that is known about probabilities within the range, the more probative the evidence may be.

[74] Another factor going to weight is whether the breathalyzer result is consistent with the straddle range. If it is, the Crown can argue that the straddle evidence supports the breathalyzer result. Although such evidence would be admissible, it is difficult to imagine that it could leave the trier of fact with a reasonable doubt. If, on the other hand, the breathalyzer result is inconsistent with the straddle range, this is simply another factor to be considered by the trier of fact. It could support either the contention that the breathalyzer reading was inaccurate, or the contention that the expert's testimony is poor evidence of the actual blood alcohol content of the accused while he or she was driving. That being said, it should be recalled that in cases where an accused may have continued to absorb alcohol between the time of the alleged offence and that of the breathalyzer test, the breathalyzer reading may be consistent with the straddle range even if it lies outside the range.

[75] In sum, straddle evidence is by its very nature consistent with both innocence and guilt. Accordingly, such evidence will rarely suffice on its own to raise a reasonable doubt as to the accuracy of a breathalyzer result admitted in accordance with the relevant provisions of the *Criminal Code*. For the reasons given, however, it is not inadmissible on that ground. Evidence that does not in itself tend to show that the blood alcohol ratio of the accused was at or under the legal limit cannot be excluded for that reason. Here as elsewhere, ultimate sufficiency and threshold admissibility are conceptually distinct issues. Once straddle evidence is admitted, it will be left to the trier of fact to determine whether that evidence, considered in light of the evidence as a whole, raises a reasonable doubt as to the accuracy of the breathalyzer result. And I hasten to add that the straddle evidence and the other evidence relied on by the defence will warrant an acquittal only if it tends to prove that the blood alcohol level of the accused at the relevant time did not exceed 80 mg. In

cases where the range of possible blood alcohol levels is based on average elimination rates across the population as a whole, straddle evidence will rarely be sufficient in itself to raise a reasonable doubt about the presumed fact that the blood alcohol level of the accused exceeded the legal limit. It nevertheless remains admissible for the reasons given and may, bearing in mind the evidence as a whole, constitute evidence to the contrary for the purpose of rebutting the presumption in s. 258(1)(*d*.1). Whether a reasonable doubt exists must be assessed in light of all the evidence, given that the Crown has adduced evidence, in the form of a breathalyzer test result, of a blood alcohol content over the legal limit at the time of the offence.

[76] In my opinion, if we were to foreclose the possibility of straddle evidence raising a reasonable doubt and rebutting the presumption in s. 258(1)(*d*.1), as Justice Charron would do, we would, by emphasizing the fictional nature of the presumption of identity, inappropriately restrict the ability of an accused to defend him or herself. As I mentioned above, the wording of the provision gives no indication of a legislative intent to render the fictional presumption absolute or irrebutable in practice. It also leaves open the possibility of discrepancies between test results obtained at the time of testing and the blood alcohol content of the accused at the time of the offence. Although I will not delve too far into constitutional issues that have not been raised in this appeal, a mandatory presumption that requires the accused to raise a reasonable doubt about a fact that has not been proved by the Crown may *prima facie* be a limit on the presumption of innocence protected by s. 11(*d*) of the *Canadian Charter of Rights and Freedoms* that needs to be justified under s. 1. For example, in *Phillips*, the Ontario Court of Appeal, held that the presumption of identity, the equivalent of today's s. 258(1)(*c*), was *prima facie* unconstitutional. However, the presumption was

saved under s. 1 of the *Charter*, in part because it was rebuttable by means of evidence to the contrary.

[77] The approach of my colleague, Charron J., is also problematic as regards the interpretation of the *Criminal Code*. She simply reads out of the *Criminal Code* the legislative distinction between the alcohol level at the time of the offence and the alcohol level at the time of testing. In so doing, she denies the possibility that the blood alcohol level of the accused changed between the time of the alleged offence and the time of testing. In practical terms, this approach eliminates defences that Parliament decided, despite the argument that they are liable to raise a degree of uncertainty in the law, to leave open to the accused in the present version of the *Criminal Code*. Straddle evidence is not and ought not to be declared inadmissible. The choice whether to submit to testing after being charged belongs to the accused. He or she retains the right to introduce such evidence despite its weaknesses.

E. *Application to the Facts*

[78] Mr. Gibson's two breathalyzer readings indicated blood alcohol levels of 120 and 100 mg. According to the expert evidence adduced by the defence, based on the range of elimination rates in the male population of Mr. Gibson's age, size and weight, and assuming Mr. Gibson's evidence of consumption to be true, his blood alcohol content while he was driving was between 40 and 105 mg. This evidence is sufficiently relevant to be admissible and is not without foundation, so it can be given weight by the trier of fact. However, given that the expert's straddle evidence is based on elimination rates in the general population, consists of a wide range of values and includes values significantly above the legal limit, it does not, as is required to rebut

the presumption in s. 258(1)(*d*.1), raise a reasonable doubt that Mr. Gibson's blood alcohol content actually exceeded 80 mg. Therefore, for these reasons, I agree with the Court of Appeal that Mr. Gibson's acquittal should be quashed and he should be retried.

[79] The expert evidence adduced by Mr. MacDonald included straddle evidence based on elimination rates in the general population, and evidence based on Mr. MacDonald's own elimination rate according to tests conducted subsequently to the offence. The straddle evidence indicated a range of 64 to 109 mg. Again, this evidence is admissible. However, it is clear from the trial judge's reasons that despite this evidence, he did not have a reasonable doubt that Mr. MacDonald's blood alcohol had been over the limit at the relevant time. Although it is not clear whether this was because he rejected the evidence of consumption or because the straddle evidence itself was not sufficiently convincing, the trial judge was entitled to decide on either basis. In my opinion, it would have been unreasonable for him to find that the straddle evidence in this case was capable of raising a reasonable doubt.

[80] The fact that Mr. MacDonald's blood alcohol content according to the police, who measured it at 140 mg, is inconsistent with the straddle range does not necessarily imply that the breathalyzer reading was inaccurate. The trial judge appears to have concluded, rather, that the range attested to by the expert did not reflect Mr. MacDonald's actual blood alcohol content while he was driving. This may be because the trial judge did not believe the evidence of consumption or because he simply did not accept the expert evidence. Even if the straddle evidence did necessarily imply that the breathalyzer reading was inaccurate, it is well established that this would not be sufficient to rebut the presumptions in s. 258(1) in the absence

of evidence that the blood alcohol content of the accused did not exceed 80 mg at the time of the alleged offence. It was open to the trial judge to conclude that the straddle evidence did not raise a reasonable doubt on this issue.

[81] The evidence of Mr. MacDonald's own elimination rate, which supported a blood alcohol content of 71 mg, was also rejected by the trial judge because the test used to determine the elimination rate had not sufficiently approximated the conditions at the time of the alleged offence, which limited its relevance to the fact Mr. MacDonald was seeking to prove. Thus, although based on Mr. MacDonald's elimination rate, the evidence of a blood alcohol content of 71 mg was not sufficient to raise a reasonable doubt that Mr. MacDonald's blood alcohol content had exceeded 80 mg. I see no reason to interfere with that finding, which was upheld by the Court of Queen's Bench and by the Court of Appeal.

III. Disposition

[82] In the result, both appeals are dismissed.

The following are the reasons delivered by

[83] DESCHAMPS J. — The Court is asked to determine what weight is to be given to "straddle evidence". In these reasons, I will discuss the appeals of both Mr. Gibson and Mr. MacDonald. The trial judge in Mr. Gibson's case summarized the three approaches taken by the courts with respect to straddle evidence ((2004), 225 N.S.R. (2d) 16; 2004 NSPC 40). According to the first approach, as held in *R. v. Heideman* (2002), 168 C.C.C. (3d) 542 (Ont. C.A.), expert evidence based on average

elimination rates will suffice only if the entire range of blood alcohol levels does not exceed the legal limit; advocates of this view reject straddle evidence on the basis that it cannot raise a reasonable doubt. According to the second approach, the "prevailing direction" approach, as I understand it, straddle evidence can constitute evidence to the contrary if an elimination rate of 15 mg of alcohol per 100 ml of blood per hour, which is the midpoint of the range of elimination rates in the general population, places the accused at a level that does not exceed the legal limit. Finally, according to the third approach, the "some evidence" approach, if any part of the "straddle range" falls below the legal limit, the accused is entitled to an acquittal.

[84] I have read Charron J.'s reasons and I accept her description of the legislative scheme and the presumptions. She adopts the *Heideman* approach, which is the most stringent one. In my view, that approach does not take into account the current state of scientific expertise and the current wording of the *Criminal Code*. I have also read LeBel J.'s reasons. He would adopt a fourth approach that, although based on the prevailing direction approach, is narrower. With respect, I prefer a standard that gives greater guidance concerning its application and is consistent with the reasonable doubt rule. I adopt the prevailing direction approach. Evidence that tends to show that the blood alcohol concentration of the accused at the time of interception did not exceed the legal limit based on an elimination rate of 15 mg per hour, or on the actual elimination rate of the accused according to test results, will suffice to raise a reasonable doubt.

[85] Experts have an important role to play in drinking and driving trials. Courts rely on their expertise, because measuring the blood alcohol concentration of an accused clearly falls outside a judge's experience and knowledge: *R. v. Abbey*, [1982]

2 S.C.R. 24, at p. 42. Expert testimony has been accepted for decades on the basis that it can raise a doubt as to whether the blood alcohol concentration of an accused was over the legal limit. An expert will typically give an opinion on the blood alcohol concentration of an accused by taking into consideration his or her sex, age, height and body weight, and the drinking pattern on the day of the alleged offence. The estimated blood alcohol concentration is, in most cases, based on average elimination rates between 10 mg per hour, for slower eliminators, and 20 mg, for faster eliminators. It is generally agreed that most people eliminate alcohol within that range. This type of expert evidence is presented as a range of blood alcohol levels which will either fall entirely below the legal limit or "straddle" that limit. Experts can also conduct post-offence tests in which they attempt to calculate the personal elimination rate of the accused, and then use that rate to estimate a blood alcohol concentration. What is at issue in these appeals is the probative value of straddle evidence and of elimination rates obtained from post-offence testing.

[86] In my view, the prevailing direction approach can be used to justify an acquittal, because the evidence presented at trial need only raise a reasonable doubt. "[A] reasonable doubt is a doubt based on reason and common sense which must be logically based upon the evidence or lack of evidence": *R. v. Lifchus*, [1997] 3 S.C.R. 320, at para. 30 (emphasis added). The following comment by Fish J.A., as he then was, is apposite to the present appeals: "[t]he 'evidence to the contrary' to which it refers must tend to show — but it need not prove — that the blood-alcohol level of the accused did not exceed the statutory limit at the relevant time. The exculpatory evidence, in other words, must have probative value, but it need not be so cogent as to persuade the court" (*R. v. Dubois* (1990), 62 C.C.C. (3d) 90 (Que. C.A.), at p. 92 (emphasis added; emphasis in original deleted)). Therefore, when an accused adduces

straddle evidence, that evidence need not prove his or her blood alcohol level at the time of interception. It is sufficient that the evidence tends to show that the blood alcohol level of the accused did not exceed the legal limit at the material time.

[87] There is nothing arbitrary, imprecise or new about using an average elimination rate of 15 mg per hour as a marker when evaluating the probative value of straddle evidence. Dr. Jerry L. Malicky, Mr. MacDonald's expert, testified that *most* of the 5,000 people he has tested eliminated alcohol in the range between 15 mg and 20 mg. Dr. Malicky further indicated that the American Medical Association has adopted an average elimination rate of 18 mg and that the RCMP. Crime Laboratory has adopted a rate of 15 mg. Dr. Malicky's expert testimony provides scientific information falling outside a judge's experience and knowledge according to which members of the general population tend to eliminate alcohol at a rate faster than 15 mg. Unless such evidence is undermined during cross-examination by a circumstance specific to the case that renders it inapplicable, or is contradicted by other expert evidence, a judge can acquit an accused if the prevailing direction of the straddle range favours a level that does not exceed the legal limit. A conclusion, based on an elimination rate of 15 mg, that the blood alcohol concentration of an accused did not exceed the legal limit would be based on credible and persuasive expert evidence. This evidence would tend to show that it is more likely than not that the blood alcohol level of the accused did not exceed that limit. The 15 mg marker offers an easily applicable standard on the basis of which an accused need only raise a reasonable doubt to the effect that his blood alcohol content may not have exceeded the legal limit.

[88] For this Court to accept Dr. Malicky's position would amount only to acknowledging the factual findings of trial judges across the country. R. Solomon and

E. Chamberlain note in "Calculating BACs for Dummies: The Real-World Significance of Canada's 0.08% Criminal BAC Limit for Driving" (2004), 8 *Can. Crim. L.R.* 219, at p. 232, that an elimination rate of 15 mg per hour "seems to be widely accepted as 'average' in Canada". These authors consider 15 mg to be a more conservative estimate than the figures used by the U.S. National Highway Traffic Safety Administration ("NHTSA") (p. 233). According to the NHTSA, the average elimination rate for moderate drinkers is 17 mg, whereas the average rate for heavy drinkers is 20 mg. The NHTSA also indicates that less than 20 percent of the population would exhibit an elimination rate of 12 mg (p. 230). These figures correspond to those of Dr. Malicky and suggest that most members of the general population tend to eliminate alcohol at a rate faster than 15 mg.

[89] Dr. Malicky's testimony is also consistent with the expert evidence endorsed by the Quebec and Saskatchewan courts of appeal. In *R. v. Déry*, [2001] Q.J. No. 3205 (QL) (C.A.), the expert evidence adduced at trial showed that the blood alcohol level of the accused would have been in a range straddling the legal limit. However, the expert testified that, according to his own and other scientific studies, an elimination rate of 15 mg per hour applied to 95 percent of the population. The Quebec Court of Appeal accordingly accepted that expert evidence based on an elimination rate of 15 mg could constitute evidence to the contrary: *Déry*, at paras. 28-32; *R. v. Bellemare*, [2001] Q.J. No. 3304 (QL) (C.A.), at paras. 15-20; *R. v. Nault*, [2001] Q.J. No. 3201 (QL) (C.A.), at paras. 19-22; *R. v. Thiffeault*, [2001] Q.J. No. 3198 (QL) (C.A.), at paras. 16-20. Similarly, in *R. v. Gibson* (1992), 72 C.C.C. (3d) 28 (Sask. C.A.), expert evidence showed that the range of the accused straddled the legal limit. However, the expert had testified at trial that, although the range straddled the legal limit, the blood alcohol content of the accused would, based on an average,

have been 79 mg. The majority of the Saskatchewan Court of Appeal concluded that such evidence could constitute evidence to the contrary.

[90] According to critics, straddle evidence is unpersuasive because it does not exonerate everyone, as it does so only for those who are not slow eliminators. They add that straddle evidence establishes a range of possible blood alcohol levels without indicating the actual level of the accused. These are legitimate concerns. However, as can be seen from Dr. Malicky's testimony, there is a body of scientific evidence that shows that members of the general population tend to eliminate alcohol at a rate faster than 15 mg per hour. It would therefore be speculative to assume, without any evidence, that a given accused is different from the majority of the general population and is a slow eliminator. Unless the scientific information that supports using 15 mg as a marker is contradicted by persuasive expert evidence, a judge should acquit if the prevailing direction of the straddle range favours a level that does not exceed the legal limit. The accused has no persuasive burden and accordingly does not need to prove that his or her blood alcohol level actually did not exceed the legal limit. This in turn means that the accused need not definitely establish that he or she is not a slow eliminator of alcohol.

[91] The prevailing direction approach affords the accused a defence that is sufficiently complete without requiring post-offence testing. As a matter of judicial policy, I agree with Charron J. that requiring accused persons to submit to drinking tests should not be encouraged by the courts. If an accused chooses to submit to post-offence testing, care should be taken to strike an appropriate balance between the need for the evidence and the concern for his or her safety and health. Nevertheless, post-offence testing is not, *per se*, irrelevant or lacking in probative value. I take issue

with the view that since the conditions prevailing at the time of the offence cannot be replicated, there is nothing to be gained from post-offence testing. This view is unsupported by evidence. Just as evidence of average elimination rates in the general population is not discredited simply because such rates do not replicate the situation of an accused, evidence of post-offence testing designed to determine the elimination rate of an individual accused should not be rejected for that reason alone. An elimination rate based on test results may constitute evidence that tends to show that an accused eliminates alcohol at a rate faster than 15 mg per hour. Although the weight given to post-offence testing may depend on a number of variables, this should not be interpreted as requiring replication of the conditions of absorption, which is an issue that arises in Mr. MacDonald's case.

[92] I will now say a few words on the application of the principles to Mr. Gibson's case before turning to Mr. MacDonald's appeal.

[93] At Mr. Gibson's trial, the expert for the defence testified that Mr. Gibson's blood alcohol content while he was driving would, based on average elimination rates, have been between 40 and 105 mg. The trial judge was satisfied that the prevailing direction of the range favoured a level that did not exceed the legal limit, and he believed that this was sufficient evidence for an acquittal. I agree. I would therefore allow the appeal, set aside the decision of the Court of Appeal and restore the Nova Scotia Supreme Court's decision to affirm the trial judge's judgment acquitting Mr. Gibson on the charge of driving with a blood alcohol level exceeding the legal limit.

[94] In Mr. MacDonald's case, Dr. Malicky testified that Mr. MacDonald's blood alcohol concentration would, based on average elimination rates, have been

between 64 and 109 mg. However, Mr. MacDonald's post-offence test established that his blood alcohol content should have been 71 mg based on a personal elimination rate of 18.5 mg per hour.

[95] The test conducted by Dr. Malicky involved absorbing, under fasting conditions, enough alcohol over a period of five minutes to get the subject's blood alcohol content into a target range of around 50 or 60 mg (A.R., at p. 80). Then, using an approved instrument, he took 11 samples of the subject's breath and prepared a graph showing the relationship between blood alcohol and time. He subsequently estimated the subject's elimination rate (A.R., at p. 78). Dr. Malicky also testified that he never uses beer as a testing beverage because it takes a significant amount of time for beer to be absorbed. He instead uses vodka mixed with soft drinks, which allows for fairly rapid absorption to occur. The use of vodka rather than beer insures that the subject has absorbed all the alcohol (A.R., at p. 73).

[96] As Solomon and Chamberlain point out, a blood alcohol concentration "is simply the ratio of the weight of pure alcohol in a given volume of blood" (Solomon and Chamberlain, at pp. 223 and 230 (emphasis added; emphasis in original deleted)). Consequently, using a liquid that contains 40 percent pure alcohol, like most types of liquor, instead of one that contains 5 percent, like most types of beer, or 12 percent, like many types of wine, will not affect the value of the test. Only "pure alcohol" is relevant for the purpose of determining the blood alcohol concentration. Moreover, post-offence testing under fasting conditions is less favourable to the accused: "If an individual eats before or while drinking, this would slow down the rate at which the alcohol is absorbed into the blood and, thus, *lower* the individual's peak [blood alcohol concentration]" (A.R., at p. 73, and Solomon and Chamberlain, at pp. 230 and 233).

[97] Because Dr. Malicky was concerned with the elimination rate and not the absorption rate, he did not attempt to reproduce Mr. MacDonald's drinking pattern on the day of the alleged offence (A.R., at p. 81). Although he acknowledged that elimination rates can vary from occasion to occasion (A.R., at p. 70) and that the post-offence test may not represent Mr. MacDonald's rate of elimination at the material time (A.R., at p. 81), nothing in his testimony suggests that factors such as fasting or type of alcohol will lead to a higher elimination rate. The record is silent on how these variables affect elimination rates. I find it highly troubling and offensive for a court to impeach an expert's credibility by dismissing post-offence testing, without an indication that the testing conditions were inadequate, on the basis that it does not adequately replicate the conditions at the time of interception. Testing conditions are in the domain of experts, not of the courts. Courts need evidence in order to question the weight of expert testimony. Moreover, Dr. Malicky's testimony in other cases where the Crown questioned testing conditions demonstrates how perilous it is for courts to speculate that the result of a post-offence test is biassed in favour of an accused: *R. v. Milne* (2006), 43 M.V.R. (5th) 167, 2006 ABPC 331, and *R. v. Hughes*, [2007] A.J. No. 740 (QL), 2007 ABPC 180.

[98] It is open to the Crown to undermine the weight of evidence of post-offence testing by either cross-examining the expert or adducing contradictory expert evidence. The Crown failed to do so at Mr. MacDonald's trial. I am unable to conclude, based on the expert evidence presented in court, that Dr. Malicky's post-offence testing is unpersuasive. Although Mr. MacDonald's elimination rate according to Dr. Malicky's test may not be the same as his rate on the day of the offence, nothing in the record suggests that any variation between the actual and tested elimination rates would be material or would cast doubt on the usefulness of the expert evidence.

[99] Nevertheless, Dr. Malicky's post-offence tests can constitute evidence to the contrary only if Mr. MacDonald's consumption scenario is found to be credible. The trial judge made no express findings on whether he accepted Mr. MacDonald's testimony about his consumption. He rejected Dr. Malicky's evidence on the basis that the midpoint of the straddle range was above the legal limit and that the food and the type of alcohol consumed had not been taken into account in the post-offence tests. Since he had dismissed Dr. Malicky's expert testimony, the trial judge found Mr. MacDonald guilty without making any findings concerning his credibility. This Court cannot enter an acquittal, as a finding on Mr. MacDonald's credibility would have had to be made first. I would therefore allow the appeal, set aside the Court of Appeal's decision and order a new trial on the charge of driving with a blood alcohol level exceeding the legal limit.

## APPENDIX

*Criminal Code*, R.S.C. 1985, c. C-46

**258.** (1) In any proceedings under subsection 255(1) in respect of an offence committed under section 253 or in any proceedings under subsection 255(2) or (3),

...

(*c*) where samples of the breath of the accused have been taken pursuant to a demand made under subsection 254(3), if

(i) [Not in force]

(ii) each sample was taken as soon as practicable after the time when the offence was alleged to have been committed and, in the case of the first sample, not later than two hours after that time, with an interval of at least fifteen minutes between the times when the samples were taken,

(iii) each sample was received from the accused directly into an approved container or into an approved instrument operated by a qualified technician, and

(iv) an analysis of each sample was made by means of an approved

instrument operated by a qualified technician,

evidence of the results of the analyses so made is, in the absence of evidence to the contrary, proof that the concentration of alcohol in the blood of the accused at the time when the offence was alleged to have been committed was, where the results of the analyses are the same, the concentration determined by the analyses and, where the results of the analyses are different, the lowest of the concentrations determined by the analyses;

(*d*.1) where samples of the breath of the accused or a sample of the blood of the accused have been taken as described in paragraph (*c*) or (*d*) under the conditions described therein and the results of the analyses show a concentration of alcohol in blood exceeding eighty milligrams of alcohol in one hundred millilitres of blood, evidence of the result of the analyses is, in the absence of evidence tending to show that the concentration of alcohol in the blood of the accused at the time when the offence was alleged to have been committed did not exceed eighty milligrams of alcohol in one hundred millilitres of blood, proof that the concentration of alcohol in the blood of the accused at the time when the offence was alleged to have been committed exceeded eighty milligrams of alcohol in one hundred millilitres of blood;

(*g*) where samples of the breath of the accused have been taken pursuant to a demand made under subsection 254(3), a certificate of a qualified technician stating

(i) that the analysis of each of the samples has been made by means of an approved instrument operated by the technician and ascertained by the technician to be in proper working order by means of an alcohol standard, identified in the certificate, that is suitable for use with an approved instrument,

(ii) the results of the analyses so made, and

(iii) if the samples were taken by the technician,

(A) [Not in force]

(B) the time when and place where each sample and any specimen described in clause (A) was taken, and

(C) that each sample was received from the accused directly into an approved container or into an approved instrument operated by the technician,

is evidence of the facts alleged in the certificate without proof of the signature or the official character of the person appearing to have signed the certificate;

*Appeals dismissed,* BINNIE *and* DESCHAMPS JJ. *dissenting.*

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