FOR ELECTRONIC DELIVERY

THE COURT OF APPEAL

Edwards J.
McCarthy J.
Kennedy J.

Record No: 67/2018

THE PEOPLE (AT THE SUIT OF THE DIRECTOR OF PUBLIC PROSECUTIONS)

RESPONDENT

V

EAMONN CUMBERTON

APPELLANT

JUDGMENT of the Court delivered on the 19th of May 2020 by Mr Justice Edwards

Introduction

1. The appellant was convicted of murder by the Special Criminal Court on the 29th of January, 2018, following a twenty-one day trial. He was sentenced on the same day to the mandatory penalty of imprisonment for life.

2. The Notice of Appeal filed by the appellant initially indicated that grounds of appeal were to follow. Subsequently a document entitled "Grounds of Appeal" was filed with the Court of Appeal office, listing twenty-eight discrete grounds of appeal to which more detailed reference will be made later in this judgment. However, it is sufficient to state at this point that we were advised by counsel for the appellant at the commencement of the appeal hearing that it was not intended to proceed with grounds of appeal no's 1, 15, 21 and 27, respectively, as set out in that document, and we were grateful to receive that indication. We were further advised that while it was the intention of counsel for the appellant to speak to some of the remaining grounds in the course of the appeal hearing, he would not be speaking to all of them. That did not mean he was abandoning those not specifically addressed in oral argument but rather that he was simply relying on his written submissions in respect of those.

3. This is a case in which the prosecution case against the appellant was entirely circumstantial, and unsurprisingly many of the grounds of appeal related to how the alleged circumstantial evidence against the appellant was treated by the court of trial. This case provides an opportunity for this court to, *inter alia*, reiterate the position in Irish law with respect to how circumstantial evidence which is relied upon in a criminal trial is properly to be approached, and to clarify in some respects how the relevant rules should apply in practice.

The evidence on foot of which the appellant was convicted

4. On the 25th of April, 2016, a Mr Michael Barr was shot dead whilst he was in the Sunset House, a licensed premises on Summerhill Parade in Dublin 1. The circumstances were that between approximately 8:30 PM and 9:30 PM on that date, two armed men wearing boiler suits and masks entered the premises. They then fired gunshots at Mr Barr's head

and neck before running out of the premises. The subsequent post-mortem conducted by the Deputy State Pathologist, Dr Michael Curtis, indicated that Mr Barr received seven gunshot wounds, including five to the head; one to the shoulder and; one to the leg. The evidence of an advanced paramedic who attended at the scene was that the injuries sustained by Mr Barr were totally incompatible with life and that he died almost instantly at the scene.

5. A short time later, gardaí received reports from members of the public, including residents of Walsh Road in Dromcondra, Dublin 9, that the three occupants of a silver Audi A6 car had been observed attempting to set it alight on Walsh Road before running towards another vehicle, which was then used to flee the scene. The evidence was that gardaí arrived on Walsh Road a short time later and managed to extinguish the fire in the Audi A6 before it had properly taken hold and before the car was completely destroyed. A Garda Harkin had used a fire extinguisher from a patrol car to tackle the fire, and in the course of doing so had opened the front passenger door and discharged the fire extinguisher into the front passenger foot well and seat of the vehicle. Having discharged that fire extinguisher, Garda Harkin obtained a second fire extinguisher from another patrol car and also discharged that into the vehicle.

6. Gardaí subsequently conducted a search of the fire damaged car and recovered a number of items from it. These included a number of firearms (some of which were loaded and cocked); ammunition in magazines; some loose bullets; masks; balaclavas; boiler suits; a baseball cap and; a red petrol can amongst other items. Later during the investigation, the appellant was forensically linked to two items found in the vehicle, namely the baseball cap (designated SOD66) and a rubber mask (designated SOD68). No fingerprints were recovered from the vehicle.

7. The firearms recovered included two 9mm Makarov pistols with silencers attached (SOD33 and SOD34, respectively), and two 9mm Glock pistols (SOD35 and SOD36, respectively). In the case of SOD33 it had an empty magazine, and in the case of SOD34 the magazine contained six 9mm bullets. In the case of SOD35 the magazine contained eight 9mm bullets, and in the case of SOD36 the magazine contained seven 9mm bullets. In addition, there was a loose bullet found with each of the loaded weapons. There was evidence from a ballistics expert that the significance of the single loose bullets is that even when a pistol's magazine is full, an extra or spare round can be loaded and carried in the breech.

8. In addition, a black Nokia mobile phone, a live round of 9mm ammunition, and a green petrol container were found on the ground close to the vehicle. While gardaí were attempting to put out the fire, the black Nokia mobile phone rang, drawing the attention of a Garda to it. The Garda noted the caller's number as displayed on the mobile phone's screen. It subsequently rang two more times and again the number displayed on these occasions was noted. The number displayed was the same on two of the occasions that the phone rang, and on the third occasion it was the same save for the last digit which

was a 6 on this occasion rather than a 7, indicating that calls had been received from phones with sequential telephone numbers.

9. A subsequent ballistics examination of the firearms found in the vehicle revealed that one of them had discharged the shots which had killed Mr Barr. Several spent rounds, or parts thereof, were recovered from the body of the deceased at post-mortem and were sent for ballistics examination. In addition, a number of discharged rounds, or parts thereof, were recovered at the scene of the shooting and these were also sent for ballistics examination. Five bullets, or parts thereof, recovered from Mr Barr's head were all found to have been discharged from SOD33. The ballistics expert concluded that SOD33 had been discharged eight times. SOD34 was found to have been discharged once.

10. The spent rounds were all found to be 9mm Makarov ammunition, which is a distinct calibre. These are brass jacketed bullets which have a lead core. The evidence was that upon impact with an unyielding surface the lead core and the jacket will separate. Lead cores were found in the body of the deceased and also at the scene. A number of brass jackets were also found at the scene. The single live bullet found on the ground adjacent to the silver Audi A6 on Walsh Road was 9mm Luger ammunition, which was not interchangeable with 9mm Makarov ammunition. However, 9mm Luger ammunition was suitable for use in the Glock pistols found in the Audi A6.

11. The court of trial heard that the investigation had revealed that on the day following the shooting of Mr Barr, the appellant and another male, who were subsequently to become suspects in connection with the shooting, had attempted to take a flight from Dublin airport to Bangkok in Thailand (via Dubai in the United Arab Emirates). The flight had been booked on the 26th of April, 2016, i.e., that same day. Moreover, when the appellant and his associate went to check in for the flight, neither of them had any luggage with them. However, the appellant was unable to check in because it transpired that his passport had expired. The appellant's associate then proceeded without him, and the appellant deferred his travel plans to the 27th of April, 2016, when there was another flight due to depart to Bangkok via Dubai. In the meantime, the appellant applied for, and was successful in obtaining, an emergency passport. In order to do this, he had to present himself to his local Garda station, which was Store Street Garda station, for the purpose of getting a passport application form signed and stamped by the Gardaí. He managed to do this without attracting undue notice and, having done so, obtained an emergency passport from the passport office. He then flew to Bangkok on the 27th of April, 2016.

12. The appellant returned from Bangkok on the 25th of May, 2016. In the meantime he had become a person of interest to An Garda Siochána in connection with the ongoing investigation into the murder of Mr Barr. Gardaí were also aware that there was an outstanding bench warrant for him in respect of an unrelated matter. The appellant was intercepted upon his arrival at Dublin Airport by members of the Drugs and Organised Crime Unit and he was arrested in execution of the said bench warrant. He was then taken to the Bridewell Garda Station where he was detained for a period and charged with

the offence of failing to surrender to bail contrary to s. 13 of the Criminal Justice Act 1984 ("the Act of 1984"), pending being brought before the court that had issued the bench warrant in the Criminal Courts of Justice (CCJ). Evidence of his arrest, charge and caution were given at a brief court hearing, and the appellant was then bailed to appear again in court in the CCJ two days later on the 27th of May, 2016.

13. While detained in the Bridewell Garda station awaiting transportation to the CCJ, the appellant had been provided with a drink in a plastic cup and was allowed to smoke a cigarette. The plastic cup, and a cigarette butt discarded by him, were subsequently recovered at the behest of a member of the team that was investigating the murder of Mr Barr, and they were sent for urgent forensic examination. Traces of the appellant's saliva were recovered from these items, from which his DNA profile was successfully generated. His DNA profile was then compared with DNA profiles generated from trace evidence found on the baseball cap (SOD66) and rubber mask (SOD68) recovered from the back-seat area of the silver Audi A6.

14. A mixed DNA profile had been obtained from SOD68, involving two major male contributors and a third contributor at a trace level. The appellant's DNA profile matched one of the major contributing profiles. A statistical analysis of the probability of the matching DNA found on the mask coming from someone unrelated to the appellant was carried out. Dr Rodney Lakes, Forensic Scientist, opined at the trial that the observed mixed profile is in excess of one thousand million times more likely to have come from the appellant and two unknown persons than from three unknown persons. Dr Lakes was then specifically asked if he had estimated the statistical likelihood of the matching DNA on the mask coming from a brother of the appellant. Dr Lakes responded in the affirmative, stating that he had been requested to also consider the position if "*the mixed DNA profile has originated from a brother of [the appellant] and two unknown persons. Each of those unrelated to [the appellant]*", and he had done so. He opined that:

> *"The observed mixed profile is approximately seven thousand seven hundred times more likely that it came from [the appellant] and two unknown persons rather than if it came from a brother of [the appellant] and two unknown persons."*

15. In respect of SOD66, trace evidence found on that item also revealed a mixed DNA profile. It involved a major and a minor contributor. The appellant's DNA profile was found to match that of the major contributor. The court of trial heard that a statistical analysis was performed, and the chance of the DNA found on the baseball cap coming from someone unrelated to the appellant was estimated by Dr Lakes as being considerably less than one in one thousand million. Dr Lakes was again asked in the course of his evidence at the trial to consider the statistical likelihood of the matching DNA on the baseball cap coming from a brother of the appellant. He responded:

> *"I estimate the chance of finding this profile if the DNA had come from a brother of [the appellant] is approximately one in two million."*

16. It bears mentioning at this point that the Special Criminal Court had ruled at the end of a lengthy *voir dire* concerning the admissibility of the prosecution's evidence as to the statistical significance of the finding of a match between the appellant's DNA profile and one of the major contributors to the mixed DNA profile generated from trace evidence swabbed from SOD68, that such evidence was admissible. The challenge had been largely based on evidence adduced by a defence witness, Professor Allan Jamieson, who was put forward as an expert in DNA profiling and who was significantly critical of, *inter alia*, the method of statistical analysis employed by the software that had been utilised by the Forensic Science laboratory, namely "STRmix". However, notwithstanding its ruling that the evidence in dispute was admissible, the Special Criminal Court went on to rule that Professor Jamieson's testimony was potentially relevant to the weight to be attached to it and would be further considered in that context.

17. The court also heard evidence from Dr Alan McGee, another forensic scientist at the Forensic Science Laboratory. Dr Magee's particular expertise was in DNA interpretation. He had received special training in the use of STRmix analysis software and had been centrally involved in the validation of that software for use by the Forensic Science Laboratory in Ireland. He described at some length in his evidence the process by means of which the software was validated by himself and his team. He stated that their validation had been conducted according to the Scientific Working Group on DNA Analysis Methods or SWGNAM standard, and that based on that, standard operating procedures (SOP's) had been designed, and they had been using STRmix with the approval of the Director of the Forensic Science Laboratory since the 1st of February, 2016. When asked if STRmix had been accredited in Ireland (by the Irish National Accreditation Board (INAB)) he replied:

> *"STRmix hasn't been accredited as yet. It will be going forward for accreditation at the next visit of our accreditation body in 2018. We would see that our validation is equivalent to the validation performed in other laboratories that have received accreditation in their jurisdictions and also our validation data has been submitted for publication in Forensic Science International Genetics. It's part of a collaborative effort between our laboratory, other STRmix users who have accreditation and the developers of STRmix".*

18. Dr McGee further explained in his evidence that the Forensic Science Laboratory had been reporting for approximately 20 years on the analysis of two-person (DNA) mixtures using likelihood ratio methodology; but that until recently the likelihood ratio was established through an Excel calculation. The STRmix software was a likelihood ratio-based tool which represented an improvement on the methods of the past and which provided additional capabilities, and he explained those improvements and capabilities. He was asked to comment on each of the criticisms of STRmix levelled at it by Professor Jamieson and did so, ultimately maintaining that his validation process had not established that STRmix was liable to produce any significant variability in results as had been contended by Professor Jamieson.

19. Upon learning on the 26th of May 2016, that the appellant had been forensically linked to SOD66 and to SOD68, the investigating team decided that the appellant should be arrested on suspicion of the murder of Mr Barr. The appellant was duly arrested on the following day at the CCJ where he was due to appear in court again in answer to his bail on the s. 13 charge.

20. Following his arrest at the CCJ on the 27th of May, 2016, on suspicion of murder, the appellant was brought back to the Bridewell Garda station where he was presented to the member in charge, who was satisfied to detain him under s. 50 of the Criminal Justice Act, 2007, for the proper investigation of the offence for which he had been arrested.

21. During his detention, a saliva sample was taken from the appellant for forensic purposes, and a further DNA profile for the appellant was subsequently generated from that saliva sample.

22. The appellant was interviewed while in detention but nothing of evidential value emerged during what might be termed "ordinary" interviews with him. However, in certain of his interviews, the provisions of s. 18 of the Act of 1984, as amended by the provisions of Part 4, and specifically s. 28, of the Criminal Justice Act, 2007 ("the Act of 2007"), were invoked. The prosecution relied at the appellant's trial upon what was contended to be his failure to answer material questions either truthfully or at all, and the Special Criminal Court was invited to draw appropriate inferences from that.

23. In addition, the court of trial received extensive CCTV evidence from a series of cameras that demonstrated that at material times on the evening of the murder, the silver Audi A6, later found on fire on Walsh Road, was seen at Dorset Lane, after which it travelled onto Gardiner Street, around Mountjoy Square North and Mountjoy Square East, onto North Great Charles Street and then onto North Circular Road, before finally stopping briefly across the road from the Sunset House pub on Summerhill parade at 9:30 PM. A figure could be seen crossing from the stationary vehicle to the Sunset House. The vehicle remained stationary across the road from the pub for approximately thirty seconds. When it moved off again, the vehicle continued along Summerhill Parade and Ballybough Road, traveling at speed in a northerly direction. At 9:32 PM it cut the corner of the junction between the Ballybough and Richmond roads by driving through the forecourt of a service station. It then drove in a roughly westerly direction through the junction with Dromcondra Road, where it forced its way through oncoming traffic at that junction at 9:34 PM. It then passed the Millmount House pub and drove up Millmount Avenue in the direction of Walsh Road, nearly colliding with a taxi in the process. The camera on the building at 174 Walsh Road then captured the arrival and abandonment of the vehicle at that location at 9.37 PM, about six minutes after the shooting. The footage showed the three occupants of the vehicle exiting it and removing clothing and head gear and placing it in the rear passenger area of the vehicle. Two of the occupants were seen to be wearing full head masks which they also removed and placed in the rear of the vehicle. An ignition source is then to be seen being thrown into the front passenger area of the

vehicle from the kerb side resulting in a large flash of flame. The three persons concerned then disappear from the camera's field of view.

24. As mentioned already, the defence had adduced testimony from Professor Allan Jamieson at a *voir dire*. His testimony and cross-examination in the course of that *voir dire* was later adopted by agreement for the purposes of the trial. Professor Jamison had testified that there is no consensus in the scientific community as to the correct way to interpret DNA mixtures. He opined that there is no reliable scientific way to determine how or when the DNA came to be where it was discovered and that the appellant might or might not be one of the persons who touched SOD66 and/or SOD68. That having been said, he was prepared to agree with the scientific evidence with respect to SOD66 (the baseball cap) in circumstances where the Random Match Probability (RMP) method had been used, and the mixed profile involved one major contributor and one minor contributor. However, with respect to SOD68 (the rubber mask), while he agreed with Dr Lakes that the appellant could be a contributor to the mixed DNA profile found on that item, he disagreed that there was any reliable statistical method to assess the significance of this finding regarding the possible persons from whom it came. The RMP method could not be used where there were two major contributing profiles. The Ratio Likelihood methodology, which was based on Bayes' Theorem, utilised by the "STRmix" analysis software employed in the Forensic Science laboratory to examine the statistical significance of the findings from SOD68, was inherently problematic in his view, for reasons which he elaborated on. Professor Jamieson was cross-examined at length, in the course of which it was suggested to him, although he would not accept it, that where he and Dr Lakes differed in substance was as between scientific possibility and reasonable possibility. In his view, having regard to the problems which he believes are associated with the Ratio Likelihood methodology, the correct scientific approach was to be sceptical.

The Judgment of the Special Criminal Court

25. The Special Criminal Court delivered its 46-page judgment on day 21 of the trial, in the course of which it found the appellant guilty of the murder of Mr Barr. Given its length, it is only proposed to review it to the extent necessary in connection with the grounds of appeal that have been filed.

26. The court began by noting that there was no direct testimony implicating the appellant in this murder. The prosecution rested their case upon three strands of circumstantial evidence. Firstly, it was alleged that DNA matching that of the appellant was found in a baseball cap and rubber mask left in a vehicle associated with the murder of the deceased.

Secondly, it was asserted that certain movements of the appellant in the aftermath of the killing were corroborative of the DNA evidence and supportive of guilty inferences concerning the DNA evidence and complicity on the part of the appellant in this criminal enterprise. Thirdly, the court was invited to draw inferences adverse to the appellant, pursuant to certain provisions of the Act of 1984, in circumstances where the appellant was interviewed after the invocation of these provisions and had failed or refused to provide an account for the matching DNA on the cap and mask found in a vehicle

intimately associated with this criminal enterprise. It was argued by the prosecution that the sole inference to be drawn from this failure or refusal to account was, in the circumstances, due to the lack of any reasonable possible explanation for this DNA match and the location of the items in question.

27. The Special Criminal Court noted that in response, as was his right, the appellant had not put forward any positive case for consideration by that court. Instead, he had mounted a fundamental and wide-ranging challenge to the admissibility and weight of the individual and combined matters said by the prosecution to demonstrate his involvement in this crime.

28. Having dealt with legal issues such as the onus and burden of proof, the standard of proof, and the required approach to circumstantial evidence, the judgment considered the CCTV evidence and concluded that the court was satisfied that the Audi A6 found abandoned at Walsh Road and partially damaged by fire had been used by those responsible for the murder to travel to and from the Sunset House pub. The court concluded that the CCTV footage of events at Walsh Road confirmed the testimony of the lay witnesses who given their recollection in evidence of what they had seen.

29. The court of trial summarised the evidence concerning the events at the Sunset House and expressed itself satisfied that:

    1) two men had entered the pub with the express purpose of locating and shooting the deceased;

    2) one of these men remained in the area of the door leading onto Summerhill Parade, whilst the other approached the counter area where the deceased was located, and shot him from very short range;

    3) the man who remained at the door also had a firearm and discharged a shot;

    4) the man who shot the deceased from close range was wearing a monkey hat, and a face mask with a ski mask underneath. The other man also had a face mask and some form of headgear. None of the witnesses specifically mentioned a baseball cap when referring to headgear worn by either of these men; and

    5) after the shooting, both men were observed to get into a parked car on Summerhill Parade which was pointed in the direction of Ballybough.

30. The judgment then considers the evidence of the gardaí and others who arrived to find the burning silver Audi A6 on Walsh Road. Having considered the evidence of the gardaí, of the fire brigade personnel, of lay witnesses at the scene, and of a vehicle removal operative who later removed the Audi A6 for technical examination, the court was satisfied that there was nothing to support the reasonable possibility that there had been any undue interference with or movement of the vehicle.

31. The court then considered the evidence with respect to the contents of the Audi A6 vehicle and the technical examination that had been conducted of it. The court reviewed with particularity the evidence with respect to the firearms recovered from the vehicle and the subsequent ballistics evidence relating to those firearms, to their associated ammunition and to spent rounds, or parts thereof recovered at the scene and in the course of the post-mortem of the victim. The court further considered other items found in the vehicle including three rubber face masks, one of which was SOD68, and the baseball cap SOD66. It refers to the finding of DNA trace evidence on these items.

32. The court considered the significance of DNA evidence generally and referred with particularity to the decision of the Supreme Court in *The People (Director of Public Prosecutions) v. Wilson* [2019] 1 IR 96. The court then considered whether it was satisfied that the DNA material found on the baseball cap (SOD 66) and on the rubber mask (SOD 68) had been proved beyond reasonable doubt to have emanated from the accused as opposed to either a sibling or a person unrelated to him who has the same DNA profile. The court considered in detail the evidence of Dr Lakes concerning the findings on the two exhibits in question and their significance.

33. The court noted that there did not appear to be any issue in relation to the recovery of trace evidence from the baseball cap or in relation to the statistical calculation performed by Dr Lakes regarding the match between the profile of the accused and that of the major contributor to the profile located on the baseball cap. The court concluded that the evidence suggested a match probability in relation to the DNA recovered from the baseball as being one in more than 1000 million. The court expressed itself as being satisfied to accept that the statistical evidence proved beyond reasonable doubt that the accused was the source of the genetic material on the baseball, as opposed to a completely unrelated person in the population. Moreover, the court's conclusion was not affected by the evidence that the accused has a number of living male siblings.

34. The court then considered the source of the DNA found on the rubber mask. It again considered the evidence of Dr. Lakes, and the criticism levelled by Professor Jamieson of the method of statistical analysis of the findings employed by the STRmix software that was used. The court noted in particular Dr Lakes' acceptance under cross-examination that if the same data was run through the STRmix program repeatedly, there would be a slight variation in the statistical results produced by the software; but that Dr Lakes had emphasized that such results tended to yield likelihood ratios of the same order of magnitude. The court indicated that it accepted Professor Jamieson's qualifications, experience and expertise in relation to matters generally pertaining to DNA evidence and in particular to the statistical calculations that arise in that context and to the proper presentation thereof. That having been said, the court was not satisfied, and proffered a lengthy explanation in that regard which it is not proposed to review in detail, that the matters raised by Professor Jamieson affected the reliability of the statistical calculations proffered by the prosecution in relation to the mixed profile on the rubber mask. The court expressed itself satisfied that there was not anything other than a remote or theoretical risk that somebody other than the accused was a major contributor to the DNA

mixture found on the rubber mask and stated that no reasonable doubt arose in that regard.

35. The court then went on to consider the significance of the finding that the accused was the source of the DNA found on both the baseball cap and the rubber mask. In that regard the court stated:

> *"The two items in question were also found in very close proximity to the weapons conclusively established by the evidence to have been used in the murder of Mr Barr, very shortly before they were discarded in the back seat of the Audi. We conclude therefore, beyond reasonable doubt or any doubt, that the three persons seen discarding these items on the CCTV were involved intimately in the recent events at the Sunset House. We are satisfied beyond reasonable doubt that having regard to the proximate positioning of the firearms, masks, clothing and footwear, that each of these items came to be in the rear part of the passenger compartment of the Audi, because they had been placed there by the three culprits, in the knowledge that they had been used in the course of the killing and in the further expectation that they would shortly be completely consumed by fire, in order to eradicate any trace evidence that might have been left thereon. This expectation was dashed by the quick actions of Detective Garda Harkin, which are again worthy of commendation."*

36. The court then went on to consider a suggestion made in relation to the DNA found on the baseball cap and the rubber mask that it could have been innocently present in the vehicle and transferred from the front area of the vehicle to those items either by airflows/aerosol action or through transfer by an intermediary, alternatively through innocent touching by the accused in circumstances that did not implicate him in the murder of Mr Barr.

37. In dealing with the suggestion of transfer by airflow/aerosol action, alternatively contamination through innocent touching, the Special Criminal Court remarked, inter alia:

> *"The starting point for this analysis is that we are satisfied that it was Mr Cumberton's DNA that was found on the two articles in the car, closely associated with the very recent murder of Mr Barr. The propositions put forward by Mr Condon in closing, in terms of aerial transfer or cross-contamination of the DNA, must be analysed against the background that, in these circumstances, the accused's DNA was, at the very least, somehow present in the Audi vehicle on the night in question. Mr Condon accurately observed that, rather unusually, nothing was proved by the prosecution in relation to the provenance of the Audi vehicle, except a registration plate and a chassis number. We were told nothing as to whether this car was stolen, as such vehicles often are, or as to whether the registration plates were genuine or false, as false they often are in such circumstances. We also know nothing of the registered ownership of the vehicle as of the date in question. On the other hand, there is no evidence or suggestion as to any particular accused, or particular connection between the accused and this*

vehicle, which would increase the level of expectation in terms of finding his DNA in that car, the defence proposition being simply that it was a reasonable possibility that his DNA came to be in the front of the vehicle in some innocent circumstance and was somehow blown or otherwise transferred from the front part of the vehicle, so as to land on the area of the baseball cap that was subsequently swabbed by Mr Lakes and this presumably being due to pressure or force of the powder discharge from the two extinguishers used to deal with the fire in the front passenger compartment.

Having analysed this proposition closely, we are driven to the conclusion that it is speculative and remote. If a person travels in a vehicle, it is highly likely that they will shed DNA, which will then remain in or about the vehicle for a period of time. To use the example given by Mr Condon, there would be a reasonably high level of expectation in terms of finding a DNA match, where the source of the DNA has recently used a bus or a taxi, which is usually a perfectly innocuous activity. It's not for us to speculate whether this vehicle had any such particular history or usage. On the evidence before us, it is simply a random vehicle, out of many such cars on the road, and we are satisfied that there is no basis for concluding that it was reasonably possible that the accused's DNA was present in this car from some innocent reason, particularly when one factors in the inherent unlikelihood of a particle of DNA being blown or otherwise transported around the vehicle, so as to end up under the peak and brim of a cap that was found in the position depicted in the photographs.

Such a sequence of events would be highly improbable, as well as a highly unfortunate coincidence for the accused, in that it involves acceptance of the coincidence that at some previous point, his DNA was deposited innocently in a vehicle which was subsequently used as an essential component of a pre-planned murder and the further coincidence that the facts of the case involve the extinguishing of a fire, with the unhappy consequence of aerial DNA transfer to the precise area of a significant exhibit chosen by an experienced forensic scientist as being highly likely to be an area where trace evidence would be yielded up, if such were present.

Other likely areas of the car were also examined for DNA with negative results, so far as that of the accused is concerned. We are satisfied that when the matter is examined in this way, the threadbare nature of the proposition becomes clear. We are left with only one solid and obvious inference from the evidence and that is, having regard to the nature of the items and the position of the recovered DNA and the position of the recovered items themselves, that it was imparted directly by the accused whilst he was wearing these items. This conclusion is further supported by the neat distribution of three sets of DNA amongst three distinct combinations of clothing and/or footwear recovered from the car."

38. Various other speculative mechanisms offered by counsel for the appellant, by means of which the appellant's DNA could have ended up on the items in question, were each considered and rejected by the court of trial as representing, if true, "*extraordinarily unfortunate coincidence*", with the court expressing the view that "*[t]he probability of such an unfortunate coincidence is so low that it can be safely discounted for the purpose of finding a reasonable possibility consistent with innocence"*.

39. The court then went on to consider assertions of possible contamination of the exhibits through improper procedures or handling of the items recovered from the vehicle. The court expressed itself satisfied with the handling and transfer the exhibits in the course of the technical examination of the vehicle and its contents at Santry subsequent to the murder. It further expressed itself satisfied in relation to the laboratory procedures described in great detail by Dr Lakes and reiterated that it was satisfied that nobody had interfered with or contaminated the exhibits between the time they were discarded by the culprits and their technical examination. The court isolated as its sole area of possible concern the handling of the exhibits by Detective Garda O'Donnell. Counsel for the appellant had submitted that there was a strong likelihood or probability that the DNA on the mask (SOD68) came from Detective Garda O'Donnell, who was one of the team that examined the interior of the Audi vehicle at the Santry compound, by virtue of the manner in which he had dealt with the mask, including, inter alia, wearing the same pair of latex gloves when handling more than one exhibit.

40. The court then addressed this aspect of the matter as follows:

> *"Having considered the entirety of the evidence of Detective Garda O'Donnell, we are satisfied beyond reasonable doubt of the following matters: (a) The items located in and around the backseat of the Audi were removed by Detective Garda O'Donnell, in the sequence demonstrated by the photograph numbers contained in the booklet of photographs bearing trial exhibit No. 18. (b) The baseball cap was removed and photographed immediately prior to the removal and photography of the rubber mask. (c) Photographs A227 and A228 unequivocally support the contention of Detective Garda O'Donnell that he applied minimal handling techniques in performing these tasks. (d) In handling these items in the least intrusive way possible, Detective Garda O'Donnell would have no reason to touch any of the areas of either exhibit subsequently swabbed by Mr Lakes. We are satisfied that Detective Garda O'Donnell handled each item by holding the extremities of each item between his finger and thumb, as he demonstrates in the photographs. The possibility of transfer of cellular material between the item first handled, the baseball cap, to the item second handled, the rubber mask, depends on whether the items were touched by Detective Garda O'Donnell whilst he wore the same pair of latex gloves.*
>
> *In relation to precautions utilised during the course of exhibit examination and removal, it appears that Detective Garda O'Donnell wore a separate forensic suit for each of the four locations in the vehicle and also changed his latex gloves regularly,*

but he could not say how often he changed them for the particular examination, so he was not in a position to say to the Court that he used a separate pair of fresh gloves for the purpose of examining the important exhibits in the backseat of the car. In the light of Detective Garda O'Donnell's concession that he did not change gloves before handling each individual item recovered from the rear of the vehicle, we must proceed on the basis that the evidence establishes that it was reasonably possible that the examiner was using the same gloves and suit when he handled the baseball cap and the rubber mask in that sequence. In examining whether this gives rise to a reasonable possibility that the accused's DNA was removed from the baseball cap and transferred to the rubber mask, by dint of contact by the gloves and/or suit, we are concerned solely with the mechanics of the particular operation in question."

41. The court further observed that, for stated reasons, they were satisfied that Detective Garda O'Donnell was generally a careful and truthful witness. It expressed disbelief of any reasonable or realistic basis for drawing an inference to the effect that Detective Garda O'Donnell's forensic suit or latex gloves moved the accused's DNA from any area of the cap, including the peak and inner brim, with the result that further touching of the rubber mask produced the result that DNA was transferred by deposit to the inner mouth or nose area of the rubber mask. The court's conclusion was that the evidence had not disclosed any reasonable possibility that any of Detective Garda O'Donnell's actions resulted in the transfer of DNA material from any area of the baseball cap to the specific area which Dr Lakes subsequently elected to swab. Such a possibility was remote and highly unlikely, and a much more rational and sensible conclusion from the evidence was that the two separate areas of DNA that were found were produced due to the baseball cap and the rubber mask being worn in the ordinary way, and not by means of the rather extraordinary procedures suggested to the court.

42. The Special Criminal Court concluded that it could be satisfied that the evidence in this case brings it within the class of cases where the DNA evidence is sufficiently robust, when taken in its full context, to permit the conclusion that it proves guilt beyond reasonable doubt. The court was satisfied that the DNA evidence alone would be sufficient to convict the accused in this case. However, there were other strands of evidence to be considered in terms of whether they buttressed or affected that conclusion in any material way.

43. The court then turned to consider the evidence in relation to the appellant's travel arrangements in the two days after the shooting. The court rehearsed in some length the evidence that had been heard in that regard before remarking that there were a number of unusual aspects to the accused's travel arrangements, including the fact that the flight booking had been made within one day on either side of the killing, and then observing, *inter alia*:

"We do not say that such circumstances are impossible or unlikely, in that the accused and his travelling companion clearly belonged to the fortunate class of

traveller who are able to engage in making a decision of that kind at short notice, we merely observe that experience and common sense suggest that most people would require a lengthier period of notice and consideration for the purpose of planning and undertaking such a journey. The fact that it is suggested that the accused once visited Thailand some years previously does not detract from this observation in any way. To put it another way, we do not consider that it is likely that we would see this specific evidence in the usual case of long haul travel.

The second unusual aspect of the accused's travel arrangements, as seen on the CCTV footage from Dublin Airport, relating to the evenings of 26th and 27th of April 2016, depicting the accused and his travelling companion in the first instance. They approach the Emirates check-in desk at 21.08 on the evening of the 26th, presumably for the purpose of checking in for the booked flight for Dubai at 22.25 that evening. The accused was wearing a black top, black tracksuit bottoms and pink and grey runners. Neither he nor his travelling companion had any luggage whatsoever."

44. The court, having noted the evidence concerning the appellant's invalid passport and the need for him to go away, get an emergency passport and return twenty-four hours later, further observed:

> *"CCTV from the same airport camera on the evening of the 27th of April shows the accused approaching the same check-in desk at 20.58 and producing a passport, which, on this occasion, resulted in the successful issue of boarding cards. The accused appears to be wearing exactly the same clothing and footwear as on the previous evening and if it's not the same clothing, well then, he's changed into an identical outfit. There is no sign of his companion from the previous evening on this occasion, but once again, the accused is carrying no hand or checked baggage and his only visible possession is his passport."*

45. The judgment further records:

> *"… further CCTV footage clips from Store Street Garda Station and the passport office show the accused attending twice at both venues during the morning and afternoon of the 27th of April. On all occasions, he is attired in identical or similar clothing to that depicted in the two sets of CCTV footage from Dublin Airport. By dent of considerable industry on the part of the accused and the commendable efficiency of the passport office, he had secured a new passport by approximately 3.30 on that afternoon. Mr Condon made the point that his appearance at two garda stations on at least two occasions on the 27th of April was reasonably consistent with an innocent cast of mind on his part. We do not accept that this is so, for the reason that if the accused wished to avail of his last-minute booking, which was the term used by Mr Gallagher, which had already cost him nearly €900, together with the cost of changing the flight and obtaining a new passport at short notice, the visits to a garda station were a necessary step, because neither the accused nor anybody else can obtain an expedited passport without the necessity of*

paying such a visit to their local garda station. Mr Condon's submission might have had some force, if the accused had attended garda stations for some purpose which did not have the same force of urgency or necessity from his point of view.

Nothing really turns on the question of the replacement passport. This is not an unusual occurrence in everyday experience and it is obvious that the passport office has excellent facilities in place when such things happen. This simply demonstrates that the accused was, perhaps, understandably anxious to avail of his comparatively expensive and recently acquired flight tickets. Accepting Mr Gallagher's general proposition that persons frequently travel on flights without luggage, we are nonetheless of the view that in the specific context, of a person proposing to travel to a long-haul destination for almost a month, the complete absence of any hand or checked baggage is unusual in these or in any other circumstances. His ticket plainly allowed for 30 kilograms of checked baggage and of course, whereas travelling light is very convenient, the other side of travelling light is that the accused was likely to incur additional expenses at his destination, in respect of the personal requisites that would normally be contained, even in a single piece of hand language. Perhaps none of this would have the slightest significance and could safely be dismissed as being an innocent quirk or eccentricity on the part of the accused, if it were not for the finding of his DNA, in the circumstances extensively outlined above. On a standalone basis, the travel evidence might be seen as unusual, without being sinister in any way. However, as one does, when analysing circumstantial evidence, when one places the travel evidence side by side with the DNA evidence and views each in the context of the other, the real significance of the respective pieces of the evidence becomes clear. The behaviour of the accused concerning his travel arrangements explains and makes more probable the prosecution hypothesis in relation to the DNA evidence and serves to allay any lingering concerns that might exist as a reasonable doubt as to the correct interpretation of that evidence, because it's very clear that the participant in such an enterprise may well have a significant interest in putting immediate distance between themselves and the gardaí or indeed, other persons who may have an interest in locating those responsible for this killing.

Equally, the prosecution hypothesis regarding the reason for the presence of the DNA, in itself serves to rebut any suggestion that the unusual travel arrangements were simply the product of un-designed coincidence. Accordingly, we reject the submission that the accused's behaviour is of no relevance or assistance to us in determining this matter. Whilst such evidence could never convict the accused by itself, it provides a useful means of cross-checking and supporting the proper interpretation of the DNA evidence. If it turned out that the travel arrangements were not connected to events at the Sunset House on the 25th of April, it would represent yet another unfortunate coincidence for the accused, in the sense that he just happened to book a last-minute four-week trip to Thailand for which he required no luggage at all, at or about the same time the two objects bearing his DNA were found in the circumstances outlined above. Sight of the travel evidence

allows us to conclude that an innocent explanation or interpretation of the DNA evidence becomes even less likely or probable than it was before. Put together with the DNA evidence, it unequivocally suggests that the accused's travel arrangements were purposeful rather than coincidental and that this purpose related to his involvement in the crime, which is amply demonstrated by the DNA evidence in the case."

46. The Special Criminal Court then turned to consider the issue of statutory inferences following the invocation of the provisions of s. 18 of the Act of 1984 as substituted. There was evidence before the court that the appellant had been invited to account for the presence of his DNA on the baseball cap and rubber facemask which were located in the rear of the Audi A6 on the evening of the killing, and it was contended by the prosecution that by his silence in response to that invitation there had been a failure or refusal to account for or explain those matters. The Special Criminal Court, having considered the matter in detail, expressed itself satisfied that the only explanation for the silence of the accused, when consulted fairly and squarely with two separate items, both containing his DNA in highly relevant places, was that there was no reasonable explanation for that DNA evidence which would stand up to even the most cursory scrutiny. In the circumstances the court was prepared to draw the inference that the failure or refusal of the accused to account for the matters put to him as interview were only susceptible to the view that the circumstances in which his DNA was located was referable solely to direct participation by him in the conspiracy to murder Mr Barr.

47. The court indicated that it had examined the various strands of circumstantial evidence, both individually and in combination, with a view to attempting to isolate a reasonable possibility consistent with innocence. The court had concluded that they were unable to locate:

"a construction of a reasonable possibility consistent with innocence in this evidence. Such a conclusion would require acceptance that the accused was the victim of multiple unfortunate coincidences in a short period of time. The acceptance of a reasonable possibility of innocence, consistent with his evidence, simply stretches credulity and a belief in the possibility of multiple such coincidences, beyond breaking point. We are satisfied the totality of the evidence establishes the necessary proof beyond reasonable doubt of the guilt."

The Grounds of Appeal

48. The twenty-four remaining grounds of appeal complain:

"2. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in admitting exhibits SOD 66, a baseball cap and SOD 68, a rubber mask into evidence as the defence were unable to have SOD 66 and SOD 68 retested under laboratory conditions. The defence were not notified that these items were to be removed from the laboratory and other tests were to be carried out on these items, thus rendering retesting for DNA by the defence impossible.

3. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in admitting evidence related to DNA from SOD 66 and SOD 68. Appropriate consideration was not given to the defence evidence that DNA alleles can be transferred by way of airflow or contact. It was established that there was an airflow within the vehicle found on fire at Walsh Road, a fire extinguisher was used to extinguish the fire and doors of the vehicle were opened and closed generating an air flow. It was further established that the Gardaí handled both exhibits SOD 66 and SOD 68 using the same gloves. They failed to change gloves after handling SOD 66 and proceeded to have contact with SOD 68, causing a possible transfer of alleles from one to the other. Adequate consideration was not given to the possibility that the DNA profile found on SOD 66 and SOD 68 was transferred from other areas of the vehicle and not by direct contact.

4. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in admitting inferences under s.18 of the Criminal Justice Act 1984 as inserted by s. 28 of the Criminal Justice Act 2007.

5. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in relying upon inferences under s.18 of the Criminal Justice Act 1984 as inserted by s. 28 of the Criminal Justice Act 2007.

6. The learned judges erred in law and in fact in admitting inferences under s. 19 of the Criminal Justice Act 1984.

7. The learned judges erred in law and in fact in relying upon inferences under s. 19 of the Criminal Justice Act 1984.

8. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in placing reliance upon a trip taken by the appellant to Thailand after the date of the offence charged as being supportive of the charge against him.

9. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in ruling the arrest and initial detention of the appellant pursuant to the provisions of s. 50 of the Criminal Justice Act 2007 to be lawful.

10. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in deeming admissible evidence gathered during the said unlawful detention in breach of the appellant's constitutional rights to bodily integrity and privacy, to wit DNA evidence from a cigarette allegedly discarded by the appellant whilst so detained.

11. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in deeming the appellant's detention pursuant to s.50 of the Criminal Justice Act 2007 to be lawful in circumstances where the Member in Charge had authorised the said detention based on the arresting members reliance upon unspecified confidential forensic technical information alluded to which required the Member in

Charge to "read between the lines" to determine if the detention of the appellant was appropriate and in circumstances where the evidence of the Member in Charge was that he would take such information on trust.

12. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in deeming the appellant's arrest to be lawful in circumstances where the arresting members suspicion of the appellant having had an involvement in the offence in question was not based on reasonable grounds as there was an absence of statistical information relating to the DNA profile relied upon in the fast track and analysis conducted on the cigarette butt discarded by the appellant whilst in custody.

13. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in deeming the appellant's second detention to be lawful in circumstances where it was tainted by the illegality of his first detention.

14. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in admitting evidence of DNA on exhibits SOD66 and SOD68.

16. The Special Criminal Court erred in law or in fact or in a mixed question of law and fact in refusing the appellant's application for an independent analysis of a DNA sample generated from a rubber mask associated with the alleged offence.

17. Without prejudice to the generality of ground 14, the Special Criminal Court erred in law or in fact or in a mixed question of law and fact in admitting evidence relating to DNA that may have been in a particular car when it was unknown when the DNA got into the car or who was the last person to touch anything in the car.

18. Without prejudice to the generality of ground 17, the Special Criminal Court erred in law or in fact or in a mixed question of law and fact in deeming admissible evidence generated by way of the "STRmix" program and by use of the likelihood ratio.

19. Without prejudice to the generality of ground 17, the Special Criminal Court erred in law or in fact or in a mixed question of law in fact in allowing the prosecution to present a case based on the proposition that the computer system, STRmix, was providing an accurate account without producing evidence of validation so that the defence could engage with that evidence of validation.

20. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in allowing a state witness, Dr Alan McGee, to give evidence on the likelihood ratio.

22. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in drawing inferences inappropriately favourable to the prosecution in contravention of established rules on inferences.

23. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in refusing an application for a directed verdict of acquittal on behalf of the appellant in relation to the single charge before the court in this trial.

24. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in failing to give adequate weight to issues raised in the defence closing submissions.

25. The Special Criminal Court erred in law or in fact or in a mixed question of law in fact in failing properly to apply the presumption of innocence and burden of proof in a criminal trial in all circumstances.

26. The Special Criminal Court erred in law or in fact or in a mixed question of law and in fact in convicting the appellant.

28. The trial of the appellant was unfair to the extent that a lesser offence such as that of participating in or contributing to the activity of a criminal organisation was not charged in the indictment as an alternative to the offence of murder."

49. It seems to us that grounds 2, 14 and 16 are related and to some extent repetitive and can be dealt with together. Similarly, grounds 3 and 17 can be dealt with together. Grounds 4, 5, 6 and 7 can also be dealt with together, as can grounds 9, 10, 11, 12, and 13. Grounds 18, 19 and 20 can be dealt with together, as can grounds 8, 22, 23, 24, and 25. Ground 28 requires to be individually dealt with.

Grounds 2, 14 and 16

50. The substance of the complaint covered by these grounds is that the evidence of the appellant's DNA on the baseball cap (SOD66) and on the rubber mask (SOD68) should not have been admitted in evidence because the physical exhibits were not preserved under laboratory conditions after the 27th of May, 2016, when they were removed from the forensic science laboratory by Gardaí for the purpose of producing them to the appellant in the course of interviewing him. It was contended that they therefore could not be independently tested by the defence and that this created an unfairness to such an extent that the evidence ought not to have been admitted at trial at all.

51. In advancing this submission the court was referred by counsel for the appellant to a number of authorities including the conjoined cases of *Bowes v The Director of Public Prosecutions* and *McGrath v. The Director of Public Prosecutions* [2003] 2 I.R. 25 (citing *Murphy v The Director of Public Prosecutions* [1989] ILRM 71); *Ludlow v Director of Public Prosecutions* [2009] 1 I.R. 640 and *The People (Director of Public Prosecutions) v Keith Wilson* [2018] 1 ILRM 1.

52. The *Bowes* and *McGrath* cases had been concerned in the first instance with a failure by Gardaí to carry out a full technical examination of a vehicle in which drugs had been found, and their subsequent disposal of the vehicle without notice to the applicant; and in the second instance, which was a dangerous driving causing death case, with a seizure by the Gardaí of the deceased's motorcycle for a forensic examination and their subsequent

disposal of it without notice to the applicant and before the applicant was charged with dangerous driving causing death. In both cases the applicants sought facilities to have the vehicles in question independently technically examined but were frustrated in this by the non-availability of the vehicles at the point at which inspection facilities had been requested. In his judgment in the Supreme Court, which refused prohibition in *Bowes*' case, but granted it in *McGrath's* case, Hardiman J. cited with approval the earlier remarks of Lynch J. in the *Murphy* case, where he had said:

> *"The authorities establish that evidence relevant to guilt or innocence must so far as is necessary and practicable be kept until the conclusion of the trial. These authorities also applied to the preservation of articles which may give rise to the reasonable possibility of securing relevant evidence."*

53. While not gainsaying the application of that as a general principle, we would observe, however, that two significant additional points emerge from these cases. The first is that the focus in this type of application (the applicants were seeking prohibition) required to be on the fairness of the intended trial without the missing evidence and not on the discovery of shortcomings in the investigative process except insofar as they impacted on the prospects of a fair trial. Secondly, the point was made in the judgment that where a prejudice in terms of loss of opportunity to rebut the prosecution's case was being asserted there had to be a meaningful engagement with the actual evidence comprising the prosecution's case. Prohibition was refused in Mr Bowes' case because the case against him was based on the finding of drugs in the car of which he was the driver and a forensic examination of the car would not serve to rebut this evidence.

54. The case of *Ludlow* concerned an applicant (again for prohibition) who was charged with dangerous driving causing death, centring on an allegation that he drove the vehicle which had, *inter alia*, excessively worn tyres. His vehicle had been examined on the day of the collision by a public service vehicle inspector who had found the tires to be excessively worn and who had concluded that the effect of excessive worn tyres on the vehicle would have been to contribute to a loss of directional control of the vehicle in the wet road conditions that obtained at the time of the accident. The vehicle, including the tyres, had been returned to the applicant's employer later on the same day and they were disposed of shortly thereafter. After the applicant had been charged his legal team sought inspection facilities so that the tyres could be inspected by a consultant forensic engineer. Again, the applicant was frustrated in this by the non-availability of the tyres. Prohibition was granted by the High Court, and an appeal against that order to the Supreme Court was dismissed. In his judgment in the Supreme Court, Hardiman J. stressed that in the circumstances of the case any competent lawyer would have directed an independent expert examination of the tyres and went so far as to suggest that it would have been professional negligence not to do so. He stated:

> *"I do not see that the defendant can be compelled to admit, or to assume, the accuracy of the prosecution's expert evidence, measurements or photographs."*

55. In the *Wilson* case the central issues concerned the right to privacy whilst in detention, and the probative value of DNA evidence. However, in the latter context the Supreme Court made the observation (in a joint judgment of Clarke, Dunne and O'Malley J.J., with which Denham C.J. and O'Donnell J. both indicated agreement), which the appellant in the present case relies upon, that:

> *"5.8 … Courts are well aware that many of the cases where there have been demonstrated miscarriages of justice arising from convictions based on DNA evidence have involved problems at a practical level in the way in which the respective samples were obtained, maintained, analysed or compared. Of course no system is infallible. But that comment applies to the gathering, maintenance, and analysis of any evidence and in particular forensic evidence. It is for that reason that the defence must always be entitled to the opportunity to explore the methodology actually applied and to investigate any possible deficiency which might raise a reasonable doubt as to whether the evidence truly supports the view that the crime scene and a sample obtained from the accused properly establish whatever degree of similarity the scientific evidence suggests."*

56. In reply to the appellant's submissions, counsel for the respondent makes the point that at no time was any request received from the appellant's legal team for a facility to have SOD66 or SOD68 independently technically examined. In rejoinder, counsel for the appellant asserts that the laboratory conditions were destroyed on the 27th of May while the appellant was still an arrested person and not even charged, rendering it pointless to make such a request.

57. Counsel for the respondent also makes the point that the case law relied upon by the appellant is distinguishable in that in each instance the non-availability of an item of real evidence denied an opportunity to the defence to carry out specific tests the result of which might have had an obvious benefit to the defence.

58. In that regard it was submitted that the case of *McFarlane v. The Director of Public Prosecutions* [2007] 1 I.R. 134 is more in point than the case law relied upon by the appellant. The *McFarlane* case again involved an application for prohibition. The basis was that certain exhibits had gone missing. While the High Court had granted prohibition, the Supreme Court had allowed an appeal against the High Court's order. Giving judgment on behalf of the Supreme Court, Hardiman J. stated:

> *"[I]t is true, as the trial judge pointed out, that there was in fact a forensic examination of the missing items prior to their disappearance and that the results of the forensic analysis have been preserved. It appears from the book of evidence, exhibited by the applicant, that there is a chain of evidence covering the identification of the fingerprints on the items, the photographing of the fingerprints on the items and the preservation of the photographs. These photographs are available for comparison purposes: they have in fact been compared with the applicant's fingerprints and are available, if desired, for further comparison on behalf of the applicant. A significantly different situation would arise if this*

independent comparison were not possible. No attempt has been made in the present case to suggest that meaningful comparison is not possible, using the photographs, or that any additional advantage might have accrued to the applicant on the basis of a comparison with the actual marks made on the items as opposed to photographs of them. The case is thus significantly different from Bowes v. Director of Public Prosecutions [2003] 2 I.R. 25, where an expert engineer on behalf of the applicant stated that due to the non-availability of an item of real evidence he was unable to carry out specific tests, the result of which might have had an obvious benefit to the defence."

59. The respondent argues that in the present case the appellant has not pointed to any specific tests that his expert(s) might have been able to carry out but for the failure to maintain the two exhibits in question in laboratory conditions, the result of which might have had an obvious benefit to him in defending the case.

60. We have carefully considered the arguments on both sides and have concluded that the respondent is correct in asserting that the appellant has failed to engage with the evidence. He has not pointed out any test that might have been carried out which could have benefited his defence. We think it is of significance that he did call expert testimony from Professor Jamieson. The evidence was that Professor Jamieson attended at the forensic science laboratory and was shown, and had explained to him, step-by-step what the forensic scientists there had done in terms of recovering DNA trace evidence from the exhibits in question and analysing the results thereof. We accept without hesitation the jurisprudence which says that a defendant and his expert is not obliged to accept the findings on examination by, and the analysis of, the prosecution's expert. However, Professor Jamieson did not indicate any discomfort with or disagreement with the evidence recovery methodology demonstrated to him. His disagreement was with the subsequent analysis of the results. The results remain available for re-analysis or further analysis. Professor Jamieson volunteered that he was prepared to agree the findings of both the forensic tests and the analysis of the results of those tests in so far as SOD66 was concerned. He had reservations about the appropriateness of the analysis of the results in the case of SOD68. However, in the course of his lengthy evidence he never once criticised the methodology by means of which DNA trace evidence was recovered from SOD68.

61. We consider the point made in rejoinder by counsel for the appellant, that it was pointless to request facilities for an independent technical examination of SOD66 and SOD68, to be disingenuous in circumstances where he has not pointed to any specific test that they would have wished to have carried out, nor to how the results of any such test might have benefited the defence. At no time has it been suggested that the trace evidence said to have been recovered from the two items in question was not present on them, nor has it been suggested that the methodology by means of which it was recovered was deficient in any meaningful respect. Rather the defence has confined itself to suggesting that the presence of the trace evidence found on both items was perhaps explicable by contamination at the crime scene, and challenging the alleged statistical significance of

the trace evidence found on SOD68 on the basis of criticism of the likelihood ratio methodology used by the STRmix analysis software.

62. In our assessment, the court of trial was correct in admitting SOD66 and SOD68, notwithstanding that they were not maintained in laboratory conditions after the 27th of May, 2016. We find no error in that regard by the court of trial and dismiss these grounds of appeal.

Grounds 3 and 17

63. The basic complaint covered by these grounds is that the court of trial erred in admitting evidence of DNA trace evidence findings on SOD66 and SOD68 for the following reasons.

64. First, it is said that the Special Criminal Court failed to give appropriate consideration to evidence that, in addition to transfer by direct contact, DNA alleles can also be transferred by airflow/aerosol action or via an intermediary.

65. Secondly, in that regard, the Special Criminal Court failed to give appropriate consideration to the possibility that airflow within the vehicle found on fire at Walsh Road, whether caused by the fire itself, by the discharge of the fire extinguisher used to extinguish the fire, or by the opening and closing of the doors of the vehicle, might have been responsible for the transfer of DNA alleles onto SOD66 and SOD68 rather than direct contact.

66. Thirdly, in that regard, the Special Criminal Court also failed to give appropriate consideration to the possibility that DNA alleles might have been transferred to an item or the items in question via an intermediary, such as a scene of crime examiner. In that regard there was evidence before the court of trial that a scene of crime examiner, Detective Garda O'Donnell, had failed to change gloves between handling SOD66 and SOD68 and in that way may have facilitated a possible transfer of alleles from one to the other.

67. Responding to these criticisms, counsel for the prosecution contends that it is clear from a reading of the transcript, of the relevant submissions, and of the ruling of the Special Criminal Court, that full and proper consideration was given to each of the defence propositions concerning the possibilities of contamination of exhibits or innocence transfer of DNA.

68. We fully agree with the prosecution view in that regard. It seems to us that the special criminal court considered the evidence on these issues comprehensively and with scrupulous care. Their conclusions were cogent, reasonable, open to them on the evidence and logically presented. It seems to us that their findings of fact are unassailable in the circumstances and their conclusion in law that the evidence in relation to the findings of genetic material on both SOD66 and SOD68, respectively, which matched the DNA profile of the appellant, was admissible was correct. We find no error of principle and also dismiss these grounds of appeal.

Grounds 4, 5, 6 & 7

69. Grounds 4 and 5 relate to the drawing of inferences under s. 18 of the Act of 1984 as substituted by s. 28 of the Act of 2007. Grounds 6 and 7 as pleaded in the document entitled "Grounds of Appeal" filed on the 19th of February, 2019, purport to relate to the drawing of inferences under s. 19 of the Act of 1984 as substituted by s. 29 of the Act of 2007. However, the prosecution did not at any time seek to rely upon s. 19 of the Act of 1984 as substituted by s. 29 of the Act of 2007, and the court of trial did not draw any inferences by virtue of that statutory provision. In the circumstances grounds 6 and 7 would appear to be redundant and otiose.

70. Section 18 of the Act of 1984 as substituted by s. 28 of the Act of 2007, and in the case of s. 18(3)(b) as further substituted by s. 9 of the Criminal Justice Act, 2011, is in the following terms:

> "18.(1) Where in any proceedings against a person for an arrestable offence evidence is given that the accused—
>
> (a) at any time before he or she was charged with the offence, on being questioned by a member of the Garda Síochána in relation to the offence, or
> (b) when being charged with the offence or informed by a member of the Garda Síochána that he or she might be prosecuted for it,
>
> was requested by the member to account for any object, substance or mark, or any mark on any such object, that was—
>
> (i) on his or her person,
> (ii) in or on his or her clothing or footwear,
> (iii) otherwise in his or her possession, or
> (iv) in any place in which he or she was during any specified period,
>
> and which the member reasonably believes may be attributable to the participation of the accused in the commission of the offence and the member informed the accused that he or she so believes, and the accused failed or refused to give an account, being an account which in the circumstances at the time clearly called for an explanation from him or her when so questioned, charged or informed, as the case may be, then, the court, in determining whether a charge should be dismissed under Part IA of the Criminal Procedure Act 1967 or whether there is a case to answer and the court (or, subject to the judge's directions, the jury) in determining whether the accused is guilty of the offence charged (or of any other offence of which he or she could lawfully be convicted on that charge) may draw such inferences from the failure or refusal as appear proper; and the failure or refusal may, on the basis of such inferences, be treated as, or as capable of amounting to, corroboration of any evidence in relation to which the failure or refusal is material.
>
> (2) A person shall not be convicted of an offence solely or mainly on an inference drawn from a failure or refusal to account for a matter to which subsection (1) applies.

(3) Subsection (1) shall not have effect unless—

(a) the accused was told in ordinary language when being questioned, charged or informed, as the case may be, what the effect of the failure or refusal to account for a matter to which that subsection applies might be, and

(b) the accused was informed before such failure or refusal occurred that he or she had the right to consult a solicitor and, other than where he or she waived that right, the accused was afforded an opportunity to so consult before such failure or refusal occurred.

(4) Nothing in this section shall, in any proceedings—

(a) prejudice the admissibility in evidence of the silence or other reaction of the accused in the face of anything said in his or her presence relating to the conduct in respect of which he or she is charged in so far as evidence thereof would be admissible apart from this section,

(b) be taken to preclude the drawing of any inference from the silence or other reaction of the accused which could properly be drawn apart from this section, or

(c) be taken to preclude the drawing of any inference from a failure or refusal to account for the presence of an object, substance or mark or for the condition of clothing or footwear which could properly be drawn apart from this section.

(5) The court (or, subject to the judge's directions, the jury) shall, for the purposes of drawing an inference under this section, have regard to whenever, if appropriate, the account of the matter concerned was first given by the accused.

(6) This section shall not apply in relation to the questioning of a person by a member of the Garda Síochána unless it is recorded by electronic or similar means or the person consents in writing to it not being so recorded.

(7) Subsection (1) shall apply to the condition of clothing or footwear as it applies to a substance or mark thereon.

(8) References in subsection (1) to evidence shall, in relation to the hearing of an application under Part IA of the Criminal Procedure Act 1967 for the dismissal of a charge, be taken to include a statement of the evidence to be given by a witness at the trial.

(9) In this section 'arrestable offence' has the meaning it has in section 2 (as amended by section 8 of the Criminal Justice Act 2006) of the Criminal Law Act 1997".

71. Detective Garda Stephen Faulkner gave evidence on day 10 of the trial of the s. 18 inference provisions having been invoked during a Garda interview of the appellant. The evidence was that the pertinent parts of that interview took the following course:

"INTERVIEWER*: "We now wish to invoke the provisions of section 18 of the Criminal Justice Act 1984 as amended by section 28 of the Criminal Justice Act*

2007. We will now read over the provisions of section 18 of the Criminal Justice Act 1984 as amended and explain it to you in ordinary language.""

As appears from the transcript, the terms of the statutory provision are then read verbatim to the appellant. The transcript further records that the appellant was requested to sign in acknowledgment of his receipt of the legislation, but he refused to sign. The interview then continued:

"INTERVIEWER*: "So in ordinary language this means that during court proceedings in relation to the offence which is punishable by a term of imprisonment to more than five years a court may draw an inference or conclusion from your failure to account for certain matters. During your questioning in relation to the offence for which you are currently being questioned, in relation to namely the murder of Michael Barr at the Sunset House, Summerhill Parade, Dublin 1 on the 25th of April 2016 you will be asked to account for an object, a substance or a mark that was either in your possession, on your person or in a place where you were at the specified period. If we believe that your possession of this object or substance or the presence of a mark is attributable to your participation in that offence we may request you to account for your possession of that object, substance or presence of the mark. Do you understand?"*

No response.

INTERVIEWER*: "In ordinary language an example of an inference would be if you were in a room with no windows and I came in from the outside with an umbrella which had been set. You could not have seen it was raining outside but you could infer or draw an inference that it was raining from the fact that the umbrella was wet. In the same way a court or jury could draw an inference or infer guilt or innocence from a failure by you to account for your DNA on exhibit. Do you understand?"*

No response.

INTERVIEWER*: "If you fail or refuse to give an account as requested then a court, which is deciding your innocence or guilt, may draw an inference or conclusion from your failure to give an account. Do you understand this?"*

No response.

INTERVIEWER*: "Your failure or refusal to give the account as requested may be treated as corroborative or supporting evidence of other evidence which may be afforded at your trial. However, you cannot be convicted of an offence based solely or mainly on inferences drawn in this regard. Basically corroboration means to add weight to other evidence presented. Do you understand this?"*

No response.

INTERVIEWER*: "You have been informed in ordinary language what the effect of a failure or refusal to account for your presence, of an object or mark will be. Is there anything that you wish me to further clarify?"*

No response.

INTERVIEWER*: "I am now invoking section 18 of the Criminal Justice Act 1984 as amended by section 20 of the Criminal Justice Act 2007 and I am requiring you to account for the presence of your DNA on a black baseball hat, exhibit SOD 66, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 16."*

No response.

INTERVIEWER*: "This object was located in the rear passenger footwell of motor vehicle 04C17738 on the 25th of April 2016, a location where you were present and we believe that you were at this location on the 25th of April 2016."*

No response.

INTERVIEWER*: "We believe that the presence of this object indicates that you participated in the offence for which you are currently being questioned, for namely the murder of Michael Barr at the Sunset House, Summerhill Parade, Dublin 1 on the 25th of April 2016. We are requiring you to account for the presence of your DNA on the black baseball hat, exhibit SOD 66, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 2016."*

No response.

INTERVIEWER*: "We must warn you that if you fail or refuse to account for the presence of your DNA on the black baseball hat, exhibit SOD 66, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 2016 an inference or conclusion can be drawn by a judge or a judge and jury at subsequent court proceedings and this inference can be treated as being capable of amounting to corroboration or supporting evidence of any other evidence offered in respect of that offence. Do you understand?"*

No response.

INTERVIEWER*: "Is there anything that you do not understand or would like to be further explained?"*

No response.

INTERVIEWER*: "Will you now give me an account for the presence of your DNA on the black baseball hat, exhibit SOD 66, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 16?"*

No response.

INTERVIEWER*: "I am now invoking section 18 of the Criminal Justice Act 1984 as amended by section 28 of the Criminal Justice Act 2007 and I am now requiring you to account for the presence of your DNA on the face mask, exhibit SOD 68, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 2016."*

No response.

INTERVIEWER: *"This object was located in the rear passenger footwell of motor vehicle 04C17738 on the 25th of April 2016, a location where you were present and we believe that you were at this location on the 25th of April 2016."*

No response.

INTERVIEWER*: "We believe that the presence of this object indicates that you participated in the offence for which you are currently being questioned, namely the murder of Michael Barr at the Sunset House, Summerhill Parade, Dublin 1 on the 25th of April 16. We are now requiring you to account for your presence of your DNA on the face mask, exhibit SOD 68, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 2016."*

No response.

INTERVIEWER*: "We must warn you that if you fail or refuse to account for the presence of your DNA on the face mask, exhibit SOD 68, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 2016 an inference or conclusion can be drawn by a judge or a judge and jury at subsequent court proceedings and this inference can be treated as being capable of amounting to corroboration or supporting evidence of any other evidence offered in respect of that offence. Do you understand?"*

No response.

INTERVIEWER*: "Is there anything that you do not understand or would like to be further explained?"*

No response.

INTERVIEWER: *"Will you now give me an account for the presence of your DNA on a face mask, exhibit SOD 68, located in the rear passenger side footwell of motor vehicle 04C17738 at Walsh Road, Dublin 9 on the 25th of April 16?"*

No response.

INTERVIEWER*: "Are these notes which I have just read over a true reflection of the interview that has just took place?"*

No response.

INTERVIEWER: *"Would you like to make any additions or alterations to these notes?"*

No response.

INTERVIEWER: *"Will you sign these notes as being correct?"*

No response."

72. Counsel for the appellant sought the exclusion of that interview, or at least that it would not be relied upon for the drawing of inferences, on the basis that it was not clear what element of s. 18(1)(b) was being relied upon. Further, it was suggested that the legislation contained a drafting error inasmuch as it ostensibly provided for an inference to be drawn from a failure to give an account "*being an account which in the circumstances at the time clearly called for an explanation*". It was submitted that as no "*account*" had been given by the appellant it was not possible to find that the "*account*" called for an explanation.

73. The trial judges had rejected these objections and it was contended at this appeal that that rejection was erroneous. It is convenient to deal with these two points now. The ruling of the Special Criminal Court on them, which is to be found at day 19 of the transcript, (and which deals with them in reverse order to that in which we mentioned them, addressing the statutory interpretation point first) was as follows:

> *"… the Court accepts Mr Condon's proposition that section 18 subsection 1 is not drafted in particularly happy or coherent terms. The part of the section that reads: "And the accused failed or refused to give an account, being an account which, in the circumstances, at the time clearly called for an explanation from him or her when so questioned" does not make a lot of literal sense because an account which is not given cannot call for an explanation. Quite clearly the intention of the section was to open up the possibility of adverse inferences being drawn from a failure or a refusal to give an account where the circumstances prevailing at the time clearly called for the provision of an explanation or account in respect of the matters specified from the purpose under questioning. It is the fact of the failure or refusal rather than the fact of a non existent account that gives rise to the concerns addressed by the section.*
>
> *However, this is not a case where a penal statute admits of two interpretations and where the Court is thereby obliged to adopt the technique in those circumstances of favourable the interpretation which leans against the imposition of a penalty. It is an example of clumsy drafting where the basic purpose and objective of the section nonetheless remains clear. The Court is obliged, where possible, to give effect to the clear intent of the statute which is adequately expressed by treating the words "being an account" as being unnecessary surplusage which leaves a clear expression of statutory intent as to the nature and purpose of section 18 in an overall sense.*
>
> *Secondly, on the question of confusion as to the factual basis upon which the provision in question was invoked, there is certainly no evidence before the Court as to any subjective confusion on the part of the accused during his interview,*

where he refused to respond to any statement or question raised by the gardaí, however innocuous or formal, including questions as to whether he was clear about the matters being raised in the course of the interview.

The Court also notes the assurance at page 2 of the memorandum of the solicitor who was present at all times to the interviewing gardaí that "Eamonn understands the ramifications of inferences." Therefore, in the absence of any evidence or suggestion of subjective confusion, the question then becomes whether an objective observer would entertain any ocean of con viewings [sic, possibly any evidence of confusion?? – this Court's suggestion] on their part as to the factual basis for the invocation of the inference provision in question, based on the contents of the memorandum of interview.

In essence, section 18 provides that where a police interviewer requests the suspect to account for any object, substance or mark that was on or in any of the four locations specified in the section, which object, substance or mark or any mark on such object was at the time reasonably believed by the interviewers to be attributable to the participation of the accused in the commission of the offence under questioning and where the interviewers informed the accused of that belief and where the accused fails or refuses to give an account in circumstances where an explanation was clearly called for, then a Court might subsequently draw such inferences from that failure as refusal as may appear proper or treat that failure or refusal as corroboration of any other evidence to which the failure or refusal is material.

In this case, the prosecution have confined the basis for the potential operation of the inference provision to any object, substance or mark in any place which the accused was during a specified period, that is taking the start of the subsection and the last of the four possibilities specified thereafter and adding them together. We interpret the phrase "any object, substance or mark or any mark on such object" in the legislation as disjunctive and the provision is therefore capable of operating in relation to either an object or a substance or both that were present in any place in which the accused was believed to be during any specified period. The precise invocation of the provisions of section 18 is set out at pages 8 to 16 inclusive of the memorandum of interview, which was exhibited in the course of argument on the issue.

Having considered the matters set out therein, from an objective view point, we are fully satisfied that any objective observer would be perfectly clear as to the basis upon which the statutory provision in question was invoked. It was invoked in relation to a substance, namely DNA apparently matching that of the accused, located on two objects, namely the baseball cap SOD 66 and the rubber face mask SOD 68, which said substance and objects were found at a location, namely the interior of the Audi A 6 motor vehicle 04 C 17738 at a location at which location the interviewers believed that the accused had been present during the specified

period of the day of the 25th of April 2016. The reference to Walsh Road in this portion of the interview clearly refers to the location where the exhibits were found, not the location where the interviewers believed that the accused had been during a specified period, which is the interior of the car in question, which is made perfectly clear by the last question on page 8 of the memorandum. We are satisfied that the factual situation believed by the interviewing gardaí to exist at the time was not subject to any objective confusion or misinterpretation and that all such matters were clearly capable of falling within the material defined in the section as giving rise to a subsequent possibility as to the drawing of adverse inferences from any failure or refusal by the interviewee to account to the gardaí in respect of such matters.

We are also satisfied that the subsequent failure to account for these matters arose in circumstances that, if assumed to be proved at this trial, clearly called for the provision of an explanation by Mr Cumberton in relation thereto".

74. We consider that the approach of the Special Criminal Court to the interpretation of the statute was proper and correct notwithstanding the acknowledged poor, or in their words "*clumsy*", drafting. We agree that the intent of the provision is clear and that it was appropriate to treat the words "*being an account*" as being unnecessary surplusage which could be ignored. We find no error of principle on that account.

75. We also agree with the finding of the Special Criminal Court that there was no evidence to support any suggestion of either subjective or objective confusion. Their finding that an objective observer would have been perfectly clear as to the basis upon which the statutory provision was being invoked was a reasonable one having regard to the evidence and, was supported by the evidence. Once again, we find no error of principle on that account.

76. The was a further complaint under this heading of a failure to explain the effect of the section in ordinary language to the appellant. It was specifically complained that the interviewers repeated parts of the section and elided and conflated other portions of it. It is convenient to deal with that complaint at this point.

77. The Special Criminal Court expressed itself as being satisfied that the requirement to explain the statutory provision in ordinary language had been met on the evidence in this case, stating in that regard:

"Ordinary language does not connote using the kind of opaque or complex terms that might be found in legislation such as that under consideration, nor does it consist of relying upon complex or debatable statements that might be drawn from reported case law such as definitions of corroboration, for example.

The explanation of the effect of the section does not need to include an explanation of every individual provision thereof and the explanation as provided is set out at pages 6 to 8 inclusive of the memorandum of interview. We are satisfied that on

review of that material the gardaí more than adequately explained the belief which it was necessary for them to hold in order to invoke the inference provision in question. They explained the category of items in respect of which the section might operate. They explained the meaning of inferences which was illustrated by a commonly used example and it was clearly explained to the accused that a failure or refusal to provide an account in relation to these matters could subsequently be treated as corroborative or supporting evidence in the sense in which that was explained but that the accused could not be convicted solely on the basis of an inference drawn under the section. All of these notions were conveyed to the accused with gravity and clarity and, in our view, more than adequately captured the potential effect of the inference provision so far as it related to the accused in his particular circumstances. The Court also notes that neither the accused nor his solicitor requested any further clarification whatsoever of these matters in the course of the interview."

78. We are in full agreement with the ruling of the Special Criminal Court on this issue, which was supported by the evidence, and find no error of principle.

79. There was a further complaint that the invocation of the inference provisions was circular because it assumed for the purpose of the question put to the appellant that he was present at a particular place, whereas it was in fact intended to rely upon the inference provision to establish that he was so present. It is suggested by the appellant in his submissions that there was no basis for the introduction into evidence of the Garda belief that the appellant was present in the rear passenger foot well of the car in question on the date of the murder. Further, there was no evidence that the appellant was in the same place as the items in question "*at a specified time*" i.e. at the time of the murder or in its immediate aftermath. Thus, it was suggested, the section could not operate against the appellant in this case.

80. In response to these submissions, counsel for the respondent contends that they are based upon a misunderstanding of the prosecution's case in so far as reliance on possible statutory inferences was concerned. The respondent has submitted to us, and indeed submitted to the court of trial, firstly that the court of trial had to be satisfied that the DNA found on the mask and cap was attributable to Mr Cumberton. That was a prerequisite: if the court of trial had a reasonable doubt about that, then s. 18 could not apply. Secondly, the court of trial would have to reject the reasonable possibility that that DNA got there through some sort of secondary transfer or airflow/aerosol action. The court of trial had to reject that in order to then be satisfied that Mr Cumberton had had direct contact with these items. It was and is the respondent's case that what the section requires when the question is being asked is for Mr Cumberton to account for the presence of his DNA on the item in question, and the suggestion that he had been in the same place as that item. Therefore, if the court of trial were to have a reasonable doubt that somehow Mr Cumberton's DNA may have got onto the cap and/or the mask through some sort of secondary transfer or airflow/aerosol action, then there is no evidence that he was necessarily in the same place as that item.

81. However, we were told, it was and is the respondent's submission that, once the court of trial was satisfied that Mr Cumberton and the mask, and separately Mr Cumberton and the baseball cap, were in the same place at a specified time, then s. 18 could apply. The court of trial then had to consider whether there could be an innocent explanation and in that context the statutory inference provisions allowed the Special Criminal Court to say, "Well, this was Mr Cumberton's opportunity to explain his DNA on these items and there is no explanation and therefore we can draw an inference from that that he perhaps doesn't have an innocent explanation."

82. The Special Criminal Court dealt with these issues as follows:

83. At the commencement of their ruling on Day 19 the trial judges succinctly stated the basis of the objection in these terms:

> *"Finally, Mr Condon made a fairness point in connection with the DNA evidence in the car, in that he submitted that it was not clear whether the Court was being asked to draw an inference solely in relation to DNA or was being asked to deal with the baseball hat or the mask. He submitted that it had not been established by the prosecution beyond reasonable doubt that the DNA on the mask had not been transferred there by Garda Shay O'Donnell in the course of forensic examination of the vehicle and its contents at Santry on the day after the murder."*

84. Having identified the basis of the objection, they then dealt with it stating:

> *"… we are satisfied that no unfairness arises of the nature suggested by Mr Condon. As Mr McGinn correctly pointed out, that unless we are satisfied beyond a reasonable doubt that the matching DNA found on the objects in the Audi A 6 is, in fact, that of the accused and that the DNA came to be present on those objects by reason of direct contact by him with the baseball cap and/or the rubber mask as opposed to indirect contact or contamination, then there would be no basis for the operation of the provisions of section 18, if the Court is not so satisfied it is clear that the accused would be entitled to an acquittal if that be the result of any subsequent considerations. If the Court, however, is so satisfied there then opens up the question as to the range of inferences, whether statutory or otherwise, that might be available to the Court in the event that it reached that conclusion beyond reasonable doubt in favour of the prosecution. In other words, no inference can be drawn under section 18 adverse to the accused, unless the matter is assumed to underlie the questions put by the gardaí in this respect are proved beyond reasonable doubt at the trial of these allegations. Therefore, our conclusion is that the contents of memorandum interview of interview number 8 are available for consideration as to the propriety of whether to draw adverse inferences or not in accordance with the terms of the balance of the provisions of section 18 of the Act".*

85. We are satisfied that the approach of the Special Criminal Court to the issue of possible statutory inferences was correct both as to the law and as to how it should apply in the circumstances of the case. It does seem to us that there was a lack of comprehension on

the defence side of the nuances of the case being made in that regard by the prosecution, but it is clear from their ruling that the trial judges fully understood the case that was being made. We find no error of principle on the part of the court below and are satisfied that this complaint is not made out.

86. In the circumstances we are not prepared to uphold any of the grounds of appeal that are based on statutory inference provisions and dismiss each of them.

Grounds 9, 10, 11, 12 and 13

87. The complaints which form the basis of these grounds of appeal are all concerned either with the lawfulness of the appellant's detention at the Bridewell Garda station following the execution of a bench warrant, or with the admissibility of certain evidence obtained during that initial detention in the light of the circumstances in which it was obtained; or with the lawfulness of his detention pursuant to s. 50 of the Act of 2007 in the light of various events that occurred either before or during the course of that detention.

88. It seems sensible to deal with these complaints in the order in which they chronologically arise. Accordingly, we will deal first with the contention that the appellant's detention at the Bridewell Garda station following his arrest at Dublin airport on foot of a bench warrant was unlawful. The contention in that regard is that the use of the bench warrant in question to arrest and subsequently detain the appellant was nothing more than a colourable device in circumstances where the real interest in securing his arrest and detention was with a view to surreptitiously obtaining a sample of his DNA in connection with the ongoing investigation into the murder of Mr Barr, in circumstances where the Gardaí suspected him of being involved but had at that point insufficient evidence to otherwise arrest and detain him on suspicion of being involved in that murder.

89. Although the defence sought to characterise execution of the bench warrant as a colourable device, they could not, and still do not, seek to gainsay that the bench warrant was lawfully issued by a court in a process entirely separate from, and wholly independent of, the murder investigation. Further they have not sought to suggest, nor could they, that the Gardai procured or obtained the said bench warrant through some trick or deception, or some misrepresentation to the court, or by some other improper means. The evidence was all one way to the effect that the warrant was lawfully issued. The complaint relates essentially to the timing of the execution of what was a lawfully issued and completely valid bench warrant, and what occurred during the appellant's detention in the Bridewell thereafter pending being brought before the District Court in the CCJ.

90. In that regard it had been suggested in substance, although it was not accepted, during cross-examination of at least one of the gardaí involved in the arrest, or in tasking personnel to effect the arrest, that but for the fact that the appellant was a person of interest to the gardai in connection with the murder of Mr Barr, the warrant would not have been prioritised for early execution in the way that this bench warrant seemingly was. However, it seems to us that even if that were true it begs the question: was it unlawful, unfair or improper for the Gardaí to have done so? Moreover, it further begs the

question whether, if the arrest and detention of the appellant on foot of the bench warrant would otherwise have been lawful, the formation of a prior intention on the part of Gardaí to attempt to surreptitiously obtain a sample of the appellant's DNA during any such detention, would have so tainted the process so as to render the appellant's arrest and detention *void ab initio*.

91. The Special Criminal Court, having heard extensive evidence as to the circumstances of the arrest and detention during a *voir dire*, was in no doubt about the matter, ruling:

> *"The Court does not view this process [the arrest on foot of the outstanding warrant] as a contrivance as was put by Mr Condon in his cross examination of Inspector Delaney. This term generally connotes a process that was unnecessary, without substance, artificial, unfair or one involving dishonesty or trickery. The Court does not view the use of the opportunity provided by Mr Cumberton and his arrest warrant in any of those terms in view of the significant contribution made by Mr Cumberton to that subsisting state of affairs."*

92. The court went on to add:

> *"… the arrest on foot of the bench warrant was not rendered void ab initio by any prior intention on the part of the team investigating the murder, that the warrant process might also involve ascertaining whether it was possible that DNA material might be obtained as a result of subjecting the accused to that legal process. The Court holds that the arrest effected by D/Garda Dermot Maguire at Dublin Airport on the 25th of May 2016 was justified at the time by the independent lawful reason provided by the District Court bench warrant relied upon by that arresting officer and this was unaffected by any collateral possibilities that may or may not have eventuated from the process that followed from that arrest."*

93. We agree with the approach of the Special Criminal Court on this issue. There was nothing in the evidence to suggest a deliberate and conscious violation of the appellant's rights, or any violation at all of the appellant's rights, in the decision to arrest him in execution of a lawful bench warrant. It may have been serendipitous from the perspective of An Garda Siochána that the opportunity to do so arose from the appellant's own actions, inasmuch as he had failed to appear in court on a previous occasion in circumstances where he was bailed to do so, thereby precipitating the issuance of a bench warrant commanding that he be arrested and brought before a court. There was, however, nothing improper in the gardaí taking advantage of that situation. Indeed, they would have been inept and arguably negligent if they had failed to do so.

94. As regards the stratagem employed of attempting to surreptitiously obtain a sample of the appellant's DNA while he was detained at the Bridewell pending being brought before the District Court in the CCJ, we do not see that this breached any of the appellant's rights, whether that be the right to bodily integrity, or the right to privacy. The appellant was not subjected to any invasive procedure nor was his bodily integrity interfered with in any direct or even indirect way. The samples that were obtained were obtained from

items that he had touched but discarded, namely a plastic cup from which he had drunk water and the discarded butt of a cigarette that he had smoked. The issue as to whether or not obtaining samples in this way breached a person's right to privacy was previously considered in the case of *The People (Director of Public Prosecutions) v. Wilson* [2019] 1 IR 96, cited already in connection with grounds 2 and 16, and which was also opened both to this court and to the court below in connection with the issue now under discussion.

95. In that case the accused was lawfully detained on suspicion of a murder by shooting. While he was in detention a request was made of him that he should consent to having a swab taken from his mouth for the purpose of obtaining his DNA profile for comparison purposes, pursuant to section 2 of the Criminal Justice (Forensic Evidence) Act, 1990. The accused person refused, and in those circumstances the Gardaí resorted to the expedient of collecting cigarette butts that he had discarded to see if evidence of his DNA profile could be obtained from traces of his saliva thereon. They were successful in doing so. Following his conviction for murder based in part upon evidence matching his DNA profile with the major component of a mixed DNA profile found on garments believed to have been discarded by the gunman as he made his getaway, the accused appealed his conviction on a number of grounds. One of those grounds was that the manner in which his DNA profile had been obtained for comparison purposes had breached his right to privacy.

96. The Supreme Court rejected that submission, stating:

> *"[41] However the requirement for enhanced scrutiny, and careful examination of the question whether a right has been breached, cannot create a situation where the actual substantive content of the right differs according to whether a person is at liberty or in custody. It cannot be that a person who is in custody for the purpose of investigation has a more extensive privacy protection than a person at liberty. The issue has to be the same in both cases – was the constitutional right to privacy breached by the manner in which the sample of biological material was obtained and analysed? The answer cannot vary simply because one is in custody.*
>
> *[42] The first part of the question is easily answered in this case. The gardaí must be entitled to pick up items discarded by persons in detention in a garda station in the same way that they would in a more public place. There is no question of any property right being interfered with. The cigarette butts were therefore lawfully in the hands of the gardaí. We would accept that, while he had relinquished all interest in the physical cigarette butts, Mr. Wilson continued to retain a privacy interest in the information contained in the DNA deposited on them. However, his rights in this regard were, as already noted, subject to the public interest in the proper investigation of the offence. The lawfulness of carrying out an analysis of the DNA material therefore depended on whether it was properly related to that objective. In our view the generation of a DNA profile, for the purpose of*

discovering whether or not it matched the profile associated with the crime, was a justifiable intrusion into Mr. Wilson's privacy."

97. In the present case counsel for the appellant sought to distinguish the *Wilson* case on the basis that the accused in that case had been detained for the investigation of an offence and had refused to furnish his consent to being swabbed. It was contended that the circumstances of the appellant's case were wholly different in that he was merely being held pending being brought before a court in circumstances where a bench warrant had been executed and he had been charged with an offence under section 13 of the Act of 1984. Moreover, he had not been informed that he was a suspect in connection with the murder of Mr Barr and no request had been made of him for his consent to being swabbed for DNA purposes.

98. In arriving at its decision on the issue, the Special Criminal Court considered the Supreme Court's judgment in the *Wilson case*, and concluded:

> *"Applying the logic set out in this extract to the circumstances under consideration, we cannot see that the presentation or resolution of the basic issue arising can depend at all on whether the person concerned is in garda custody in the course of execution of an arrest warrant as opposed to garda detention for the purpose of the proper investigation of the crime for which the person has been arrested. The answer to the question in this case does not depend at all on such distinctions either. In our view there was no impermissible stratagem, deception or trickery involved in the manner in which the material containing DNA was obtained from Mr Cumberton whilst he was lawfully in the custody of An Garda Síochána in the circumstances set out above."*

99. We are satisfied that the Special Criminal Court was correct in holding that there had been no breach of the appellant's rights in the obtaining of evidence concerning his DNA profile. Their decision took full cognizance of the evidence that they had received concerning how the controversial material had been obtained. We consider that the court below correctly applied the Supreme Court's jurisprudence to that evidence. We find no error of principle in their assessment of the legality of the appellant's initial detention.

100. In so far as ground of appeal 10 complains that the court below erred "*in deeming admissible evidence gathered during the said unlawful detention in breach of the appellant's constitutional rights to bodily integrity and privacy, to wit DNA evidence from a cigarette allegedly discarded by the appellant whilst so detained*", this ground of appeal is completely misconceived. The appellant's DNA from the discarded cigarette was "admitted" in evidence and formed no part of the evidence against him at the trial. Rather, the evidence was that during the pre-trial investigation it had merely provided Gardaí with one of the bases for a reasonable suspicion on foot of which to arrest the appellant. The actual evidence as to the appellant's DNA profile relied upon at his trial to demonstrate that he could be forensically linked to the baseball cap and the rubber mask was based on an analysis of his saliva obtained by means of the oral swab lawfully taken from him during his subsequent s. 50 detention.

101. It is further complained under this heading that the section 50 detention was unlawful for two reasons.

102. First, it is suggested that the arrest was bad because the arresting member could not have had reasonable grounds on foot of which to arrest the appellant. The stated basis for the suspicion on foot of which the arrest was conducted was information to the effect that DNA found on certain items recovered from the silver Audi A6 matched that of the appellant. The point is made, however, that in the absence of statistical evidence as to the significance of any such match the arresting officer could not have had reasonable grounds on foot of which to effect an arrest. We regard the suggestion that the arresting officer would have required that level of detail with respect to the forensic evidence in order for him to have had a valid suspicion as being ludicrous and an untenable proposition, and we dismiss this aspect of the complaint *in limine*. It was more than sufficient in our view that the arresting officer had become aware, without knowing the full details of it, that there was forensic evidence that prima facie tended to link the appellant to items found in the getaway vehicle. We note that the court below also rejected this argument based, inter alia, on the Supreme Court's decision in *Director of Public Prosecutions (Walsh) v. Cash* [2010] 1 I.R. 609 where it had been held that the rules of evidence which apply in a criminal trial do not apply to material grounding a suspicion of guilt such as might influence the mind of arresting Garda. The arresting Garda in the present case was perfectly entitled to receive and act upon a hearsay account of the forensic findings (although that is not the specific complaint here); and was not required to satisfy himself as to the scientific cogency of the alleged forensic link (which is the complaint here), in deciding whether or not to arrest.

103. Secondly, it is complained that because the member in charge, who was told merely that confidential forensic evidence had been obtained linking the appellant to the Barr murder, was not provided with more precise details of that, leading him to "*read between the lines*" as counsel for the appellant put it, he could not have been satisfied that the appellant's detention was necessary for the proper investigation of the offence for which he had been arrested.

104. In that regard the court below carefully reviewed the evidence of the member in charge, Sergeant Mullarkey, as have we, and concluded:

> *"Therefore, and albeit by a very narrow margin, the Court concludes that Sergeant Mullarkey had the necessary subjective belief and that that subjective belief was supported by sufficient objective justification to render his decision to detain valid in law."*

105. We are satisfied that there was a sufficient evidential basis for the court's finding on this issue.

Grounds 18, 19 & 20

106. The complaints under this heading relate firstly to the rejection by the Special Criminal Court of a challenge to the admissibility of evidence adduced by Dr Lakes concerning the

statistical significance of the match between the appellant's DNA profile and a major component of the mixed DNA profile found in the trace evidence detected on the rubber mask (SOD68). Dr Lakes had used a software program known as 'STRmix' to perform the relevant statistical analysis, and the evidence was that STRmix used Bayes' Theorem to calculate a likelihood ratio. Secondly, it is complained that the evidence ought not to have been admitted because, it was contended, no evidence or insufficient evidence of validation of the computer software, STRmix, had been adduced. A third complaint (made in ground no 20) is that the Special Criminal Court ought not to have allowed the State's witness, Dr Alan McGee, who had been called to give evidence on validation of the STRmix software, to also give evidence on the likelihood ratio methodology utilised by that software.

107. The defence expert, Professor Jamison, had been significantly critical of the methodology used in the analysis of the match between the appellant's DNA profile and the major component of the mixed DNA profile extracted from trace material found on SOD68. He had given the following evidence, inter alia:

> *"A mixed DNA profile has been obtained. A probabilistic genotyping programme called STRmix has been used to calculate a likelihood ratio. This statistic has been claimed to provide support for the prosecution case. In my opinion (1) there is no consensus in the scientific community as to the correct way to interpret DNA mixtures; (2) the likelihood ratio at (i) considers the relative probabilities of observing the evidence, not the probability of the propositions, i.e. not the probability that Mr Cumberton's a contributor to a mixture. It depends entirely on the propositions, it produces many high values for false propositions. It depends absolutely on knowing the profile of the suspect, assumes the number of contributors, does not say how frequently Mr Cumbreton's profile occurs in the population, i.e. it's not the random match probability. It does not say the chance of any person in the population being included as a possible contributor by chance as determined by another statistic termed the Combined Probability of Inclusion, is misleading generally and in particular when dropout is present …" -- although there is no dropout in this case -- "… and produces false positive results - that is likelihood ratio's greater than one from one contributors; and produces false negative results - likelihood ratios for less than one for contributors. There is no way to assess whether a likelihood ratio is accurate and, thirdly, STRmix itself uses a unique model which is one of a number of models used by probabilistic genotyping software. There is no agreement as to which is the best. (ii) Is one of a number of software systems claimed to produce an accurate LR. There is no agreement as to which, if any, provides the best answer. (iii) Has not been properly validated or checked …" and now I'm aware accredited -- "… produces highly variable results from the same sample and depends on the subject of input of an analyst. I agree that Mr Cumberton could be a contributor to the mixed DNA profile. I disagree that there is any reliable statistic to assess the significance of this finding regarding the possible persons from whom it came. There is no reliable scientific way to determine how or when the DNA came to be where it was*

discovered. Mr Cumberton may or may not be one of the persons who touched SOD66 and/or SOD68."

108. The defence objection to the admissibility of the evidence had been threefold. First, it is complained that the methodology used by STRmix, namely Bayes' theorem, was beyond the experience of most people and its use would reduce the tribunal of fact to the position of determining guilt based on a mathematical formula. Secondly, it was objected that the methodology used by STRmix does not enjoy universal acceptance within the scientific community as being appropriate. Thirdly, it was objected that the version of the STRmix software used by Dr Lakes in his analysis had not been properly validated in Ireland.

109. With respect to the first objection, we note from the transcript that Dr McGee in the course of his evidence expressly rejected any suggestion that the STRmix software rendered human involvement in the analysis process redundant. He was asked, and replied:

"Q. Does a forensic scientist still have an input in the calculation?

A. A forensic scientist is central to the process. It's not used as a black box. So there's extensive analysis of the mixture before it's deemed suitable to go into the software. Then the output from the software is scrutinised as well so that the expert is at the centre of this. It's not just putting something into a black box, getting a big number and just reporting it. There's a lot of checks and balances and we have an extremely conservative approach and effectively we took a minimum-change approach. So we moved from I suppose you might say a more sophisticated version of the likelihood ratio that we were already using, but we more or less applied it to the types of profiles that we had always interpreted so that we saw" that as a safe and sort of prudent approach to implementation of STRmix."

110. With regard to the other objections, the defence had referred in arguendo to certain remarks of Finlay C.J. in *Best v Wellcome Foundation* [1993] 3 IR 421 concerning how courts should approach expert scientific evidence, and also to certain remarks of the Court of Appeal for England and Wales in the case of *R v Cannings* [2004] 1 WLR 2607, (a so-called "shaken baby case" with which we were familiar having been referred to it previously in *The People (Director of Public Prosecutions) v Doyle* [2015] IECA 131) that scientific evidence "*at the frontiers of knowledge*" should be approached "*with a degree of healthy scepticism*". They had also commended to the court a reliability test in respect of novel scientific techniques which have not achieved widespread acceptance in order to determine their admissibility that had been propounded in the U.S. case of *Daubert v Merrell Dow Pharmaceuticals, Inc* (1993) 509 US 579. The *Daubert* test requires expert evidence or the science underpinning it to achieve a specified threshold of reliability before it can be admitted. It was suggested that the methodology employed by the STRmix software would not pass the *Daubert* test.

111. It bears remarking upon that the *Daubert* test itself is not universally accepted. As Declan McGrath points out in his work "*Evidence*" (2nd ed) at paras 6-22 to 6-29, an approximation of it had initially been adopted in Canada in the case of *R v Mohan* [1994] 2 SCR 9, before *Daubert* was later cited with full approval by the Canadian Supreme Court in . *R v J-LJ* [2000] 2 SCR 600. However, in the United Kingdom, the Court of Appeal of England and Wales has adopted a more liberal approach to the admission of expert evidence as reflected in *R v Luttrell* [2004] 2 Cr App R 31; *R v Reed* [2010] 1 Cr App R 23 and *R v Atkins* [2010] 1 Cr App R 8 amongst other cases. Their position is that although expert evidence of a scientific nature is not admissible where the scientific basis on which it is advanced is insufficiently reliable for it to be put before the jury, there is no enhanced test of admissibility for such evidence. The Daubert test has not received judicial consideration in this jurisdiction, and thus far the Irish courts have not propounded a test of admissibility which requires expert evidence or the science underpinning it to achieve a specified threshold of reliability before it can be admitted.

112. The Special Criminal Court had carefully considered the detailed evidence adduced by both sides across days 14, 15, 16, and 17 of the trial in respect of these issues. To deal first of all with the submission that it ought to approve of and apply the *Daubert* test, it concluded:

> *"On balance, and assuming that the Court is not bound by authority to take any particular approach to the questions posed by Mr Condon, having considered the matter, the Court prefers the view that while expert evidence of a scientific nature is not admissible where the scientific basis upon which it is advanced is insufficiently reliable for it to be put before the jury, there is nonetheless no enhanced test for the admissibility of such evidence. We also observe that the question of an enhanced admissibility test often arises in the context of novel techniques, or those that might be regarded as being at the frontiers of scientific knowledge in the discipline in question. We are satisfied that this is not the position in relation to the matters under consideration in this case. The extraction of DNA from genetic material and the preparation of EPGs as a graphic representation of the composition and approximate quantity of DNA at various locations within cellular material is firmly established. The application of statistical calculations based on population databases to EPGs to explain the significance of such evidence is also well established at this time."*

113. We are satisfied that the approach in law of the Special Criminal Court was correct. As regards the substantive challenge to the reliability of the statistical analysis the Special Criminal Court had this to say:

> *"Within that, it is important to avoid the prosecutor's fallacy which involves assuming that the prior probability of a random match is equal to the probability that the defendant is innocent. It is equally important to avoid the defence lawyer's fallacy which involves the notion that any other person with the same DNA profile as an accused had an equal chance of committing the crime. We are*

satisfied on the evidence that random match probability is an appropriate technique for the statistical interpretation of a profile with the single major contributor. We are likewise satisfied on the evidence that the use of the likelihood ratio is a well-established technique for the statistical interpretation of profiles where there are two major contributors, such as in the case of SOD68, once care is taken to avoid the cardinal error of transposition of the conditional.

Similarly, we are also satisfied that the use of software programmes to carry out statistical calculations is an established feature of the landscape in this area of science. Therefore we are satisfied that whatever view of the law is applied, the techniques used by prosecution in this case are more than sufficient to pass any initial admissibility threshold and the criticisms advanced by Professor Jamieson are matters which the Court ought to consider in the context of assigning weight to the prosecution evidence and in considering whether such evidence is acceptable on the basis that it puts such matters beyond reasonable doubt."

114. We are satisfied that the Special Criminal Court's assessment of the reliability of the evidence adduced by the prosecution as to the statistical significance of the DNA matches was supported by the evidence and we find no error of principle in that court's decision to admit the evidence.

115. In considering the weight to be attached to the evidence, the Special Criminal Court went on to address expressly the contention that the use of the STRmix software did not enjoy widespread scientific acceptance. The court stated:

> *"It also appears that, in terms of competing software used in such cases, STRmix is in fact one of the most popular. We are also satisfied that the evidence establishes that there is an internationally applied standard that admits of the use of STRmix in such circumstances namely under the conditions specified by the President's council of advisers on science and technology in 2016. It is also clear from the evidence that exhibit SOD68 yielded up a good quality and unambiguous result for subsequent statistical analysis. All other matters discussed in the course of the evidence can be deferred to the jury section of the trial when the admissible evidence can be probed and evaluated in terms of weight and significance."*

116. The Special Criminal Court was entirely justified in rejecting the suggestion that there was inadequate evidence of validation of the STRmix software. There had been clear evidence of a validation process given by Dr McGee. While it was the case that accreditation had not been received from the Irish National Accreditation Board it had been explained by Dr McGee that this was due to reluctance by the INAB to accredit software in any circumstances. However, the forensic science laboratory had made a case to the INAB that they should do so exceptionally in the case of STRmix in circumstances where the INAB's counterparts in other countries had been prepared to do so, and it therefore hoped that accreditation would be forthcoming in 2018. The evidence before the court of trial established that official accreditation by an accreditation body was not the same thing as scientific validation of the process. There was clear evidence of rigorous scientific

validation conducted by Dr McGee and his team and accordingly the determination of the special criminal court was supported by the evidence.

117. Finally, it is necessary to deal with the contention that the special criminal court ought not to have allowed Dr McGee to give evidence concerning likelihood ratios in circumstances where the defence had objected to him giving that evidence. We have no hesitation in rejecting this complaint. While it is true that Dr McGee had initially been put forward by the prosecution in order to deal with the validation issue, by the time he came to give his evidence it had emerged that the defence were mounting a serious challenge to the evidence concerning the statistical significance of the match between the appellant's DNA profile and the major component of the mixed DNA profile extracted from SOD68 on the basis that the software used in conducting the statistical analysis, namely STRmix, employed the methodology of calculating likelihood ratios using Bayes' Theorem and the reliability of that methodology was controversial. The prosecution therefore sought, given Dr McGee's particular expertise in DNA interpretation and in regard to the STRmix software, to have him engage with the criticisms that it had become apparent were being levelled. The defence maintained that Dr McGee was not the primary expert in circumstances where Dr Lakes had already given evidence of the conduct of the statistical analysis and that the prosecution could not be permitted to bolster the expert testimony that had been induced by calling a second expert to cover the same ground.

118. The Special Criminal Court disagreed, ruling:

> *"The matter arises in this way: the prosecution put forward a case of which the DNA finding, and any possible conclusions from that, are of importance. They have dealt with that in the ordinary way by proving the provenance of the material which is being questioned, that's the first challenge to it, and secondly the scientific analysis of the material and that has also been subject to challenge. The specific challenge that arises in relation to the second limb is in relation to the analysis produced by the STRmix software, it transpires that that's the first time that this has been relied on by the prosecution in this jurisdiction. As I understand Professor Jamieson's evidence, he's not particularly happy about the conclusions of that particular software, based on the fact that it seems to come up on a repetitive basis with the answer which favours the prosecution, and it's based on choices that are made by the person who operates it, that there are certain decisions made in term of what is input into the software before it operates, and that there may be hidden choices in the algorithms upon which the software is based. All of that, it seems to me, at least, relates to the issue as to the use and meaning of the likelihood ratio which is one of the statistical approaches that emerge from the evidence in terms of looking at DNA in its context. That has been the challenge put up to the prosecution.*
>
> *In our view, the prosecution are entitled to meet all aspects of that challenge, the prosecution are perfectly entitled and the Court couldn't see how it would be otherwise to produce Mr Lakes to say, "This is what I got and this is what I did",*

and they're entitled to rely on that in the first instance. If the defence choose to challenge that, and that is their perfect freedom, well then the prosecution, as a matter of fairness, one side or other side of a case are entitled to meet what the other side says and that has to be seen in the context where they bear the burden of proof, the defence - subject to the limited exception of expert reports, and this is what this derives from, they're not obliged to anticipate every challenge that may be met. One of the purposes behind section 34, if I have the right number, of the Criminal Procedure Act is that the prosecution are not ambushed in any way because the defence in general don't have to disclose anything about how they intend to approach the case. What emerges from the defence expert in this case is a challenge not so much to the science but to a technique that is applied within the overall context of DNA science and statistical analysis in that context.

So it seems to us that the challenge arises in two ways. Firstly, as to whether this software is sufficiently validated or accredited to render the results of the use of it admissible and underneath that umbrella there is this question of the meaning and effect and applicability of the likelihood ratio as an approach to the analysis of DNA evidence. So in our view, based on both wings of the defence airplane so to speak, the prosecution are entitled to call evidence and deal with all aspects in terms of the challenge to the acceptability or validity of their evidence. So you may proceed Mr McGinn."

119. We consider the ruling of the Special Criminal Court on this issue to have been impeccable and find no error in their approach.

120. In conclusion with respect to these grounds of appeal, we are not prepared to uphold any of them, and we dismiss each of them.

Grounds 8, 22, 24 and 25

121. It is in this section of the judgment that we find it necessary to address the issue of circumstantial evidence and how the rules relating to circumstantial evidence are to be practically applied where the circumstantial evidence relied upon by the prosecution, or an element thereof, relates to a match between the appellant's DNA profile and a component of a mixed DNA profile found on an exhibit or in the course of a scene of crime examination.

122. Before doing so, however, it is necessary to recall that ground no 8 complains that the court of trial erred in placing reliance upon the appellant's trip to Thailand as being supportive of the charge against him. Ground no 22 complains generically that the court of trial erred in drawing inferences inappropriately in favour of the prosecution in contravention of established rules on inferences. Ground no 24 complains that there was a failure by the court to give adequate weight to issues raised in the defence closing submissions. Finally, ground no 25 complains that the trial court failed to properly apply the rules relating to the presumption of innocence and the burden of proof in a criminal trial in all the circumstances. There are therefore two main facets to the complaints in this grouping. The first relates to how the Special Criminal Court dealt with circumstantial

evidence, the inferences it was prepared to draw from the evidence, and the alleged failure by the court to properly apply the long-established legal rules relating to the presumption of innocence and burden of proof. The second relates to an alleged lack of even-handedness by the Special Criminal Court.

123. In regard to the latter, although the details of the complaint ultimately pressed were not pleaded in terms as a discrete ground of appeal, much was made at the appeal hearing of certain remarks made by the judge presiding on the Special Criminal Court bench, and which were characterised by counsel for the appellant before us as having been inappropriate, expressing profound disagreement with a decision of the former Court of Criminal Appeal in the case of *The People (Director of Public Prosecutions) v O'Callaghan* [2013] IECCA 46. It was suggested that the stridency with which the presider's disagreement was expressed was indicative of objective bias on his part that fed into the Special Criminal Court's assessment of the significance of the circumstantial evidence in this case, and particularly since evidence of a DNA match or matches was being relied upon by the prosecution as a circumstance/circumstances of particular relevance and significance, and as inviting, in conjunction with all of the other evidence in the case, an inference of guilt.

Circumstantial evidence generally.

124. Circumstantial evidence, as understood in Irish law, was defined by the former Court of Criminal Appeal in *The People (Director of Public Prosecutions) v Lafferty and Porter* (unreported, CCA, Keane C.J., 22nd of February 2000) as "*any fact from the existence of which the judge or jury* [i.e., the trier(s) of fact] *may infer the existence of a fact in issue."* It is to be contrasted with direct evidence which involves proof of a relevant fact by means of positive witness testimony concerning something which the witness perceived sentiently, i.e., something they personally saw, heard, smelt, felt, tasted etc; or production of a conclusive record or document, or piece of real evidence.

125. Legitimate inference is to be differentiated from speculation. An inference is the drawing of a common-sense conclusion from the existence of known facts and/or evidence. It arises where two, or more, facts and/or pieces of evidence considered in conjunction suggest a common-sense conclusion. In those circumstances the conclusion or "inference" follows or is to be "inferred" from the facts and/or evidence that were considered. In some cases, the same facts or evidence may possibly support more than one inference, or alternative inferences. Speculation, in contrast, involves conjecture or guesswork, and yields a conclusion that is unsupported, or not fully supported, by the known facts and/or evidence.

126. Circumstantial evidence is in no way inferior to direct evidence. Both may serve to prove the existence of a fact in issue. However, in terms of the ultimate issue in a criminal case, while no one piece of circumstantial evidence may be sufficient on its own to justify an inference that the accused is guilty of the crime with which s/he has been charged, the cumulative effect of several pieces of circumstantial evidence may, in an appropriate case, justify such a conclusion. It is often said with respect to circumstantial evidence that

"many strands may make a rope". The analogy is apt and was first employed by Pollock C.B. in *R v Exall* (1866) 4 F & F 922 when he described circumstantial evidence as:

> *"… a rope composed of several cords. One strand of the cord might be insufficient to sustain the weight, but three stranded together may be quite of sufficient strength."*

127. In the same judgment, he further explained circumstantial evidence in terms of being:

> *"… a combination of circumstances, no one of which would raise a reasonable conviction or more than a mere suspicion; but [which]… taken together, may create a conclusion of guilt … with as much certainty as human affairs can require or admit to."*

128. A misunderstanding or confusion which, in our experience, persists in some quarters amongst criminal practitioners, concerns the application of what is referred to as the "two views" rule to circumstantial evidence. Before elaborating on this it is necessary to say something about the "two views" rule.

129. The "two views" rule in its classical formulation is to the effect that where a trier of fact is deliberating on the evidence in a case and two views on any part of the case are possible on the evidence, the view which is favourable to the accused should be adopted unless the other view has been established beyond a reasonable doubt. See *The People (Attorney General) v Byrne* [1974] I.R. 1 and *The People (Director of Public Prosecutions) v Reid* [2004] 1 I.R. 392.

130. The "two views" rule arises as a necessary corollary to the rule as to the standard of proof in a criminal trial. In circumstances where, in order to convict, a jury (or court as the case might be) is required to be satisfied of guilt to the standard of beyond reasonable doubt, it follows that they must acquit if they have any reasonable doubt. This is sometimes referred to as giving the accused "the benefit of the doubt" but, as the late Carney J., a highly experienced Central Criminal Court judge, invariably stated to juries when charging them on the two views rule, it is really a misnomer to so characterise it because to apply the rule is not to give any accused any "benefit" but merely to properly apply the law as to the standard of proof.

131. As already alluded to, with respect to any part of a case, more than one possible inference may be drawn from such circumstantial evidence as is available. An issue for the jury (or the court as the case may be) is how, or more correctly when, the "two views" rule is to be applied in such circumstances. Are the jury or the judges concerned in considering any part of a case to automatically reject every piece of circumstantial evidence which tends on one view to suggest or support the guilt of the accused, but which also leaves open an innocent explanation for it?

132. Although the classical formulation refers to two views "on any part of the case", that is not to be taken as implying that decisions on the relevance and significance of individual

pieces of evidence are to be taken modularly or in a compartmentalised fashion. The correct approach is for the tribunal of fact in their deliberations to sift and weigh all of the evidence before deciding on the ultimate issue. A tribunal of fact in its deliberations may of course consider the evidence in relation to different parts of the case, and sift and weigh that evidence, to assess its credibility and reliability, in whatever sequence and howsoever they see fit. However, assuming the circumstantial evidence at issue is *prima facie* credible and reliable, the potential relevance and possible significance of that evidence may only be apparent when it is considered in conjunction with all other evidence in the case. Accordingly, such decisions can only be made following a cumulative assessment of the evidence. A tribunal of fact, whether it be a jury or judge(s) would not be justified in rejecting or discarding a piece or pieces of circumstantial evidence on the grounds of relevance or significance, or simply because an innocent explanation may be open in respect of it, on a partial consideration of the case, or a consideration of the evidence in question in isolation. Nor should a jury be invited by defence counsel to consider it in that way, as regrettably still frequently happens.

133. Moreover, a tribunal of fact would not be justified in abandoning any further consideration of the case simply because, on a partial consideration of the case, two views seemed to be open in respect of a piece or some pieces of evidence. If, at a point where the jury or judge(s) has/have only completed a partial consideration of the evidence, an issue or issues of concern is identified by them in terms of the relevance or significance of a piece of circumstantial evidence, including two possible views or alternative possible inferences, the proper course is for them to note their concern for later re-visiting or re-consideration when all of the evidence has been heard. Issues as to the relevance and significance of circumstantial evidence do not lend themselves to being decided upon in a modular or compartmentalised fashion. A trial judge will normally make this clear in his/her charge.

134. It is only when the jury or judge(s) has/have considered all of the evidence in the case that it is proper to decide on these issues. It is at this point that the jury or judge(s) must consider whether, or not, to accept any particular piece of circumstantial evidence as being relevant and also to consider whether an inference suggested to be drawn from it is warranted or not. It is at this point that the two views rule is engaged and requires to be applied. The jury or judge(s) must now stand back and consider the implications of the evidence as a whole, having regard to the standard of proof in respect of which they are required to be satisfied before they can convict, including any evidence in respect of which it seemed earlier that two views, or alternative inferences, were open. In doing so they may find that, when all of the other evidence in the case has been taken into account, concerns identified earlier about possible contradictory inferences or possible innocent coincidences have been allayed and resolved; alternatively, that they may find that their concerns remain unallayed and unresolved. In the former eventuality they would be entitled to convict providing they are left with no reasonable doubt as to the guilt of the accused, and in the latter case they would be obliged to acquit.

135. The case of *The People (Director of Public Prosecutions) v Nevin* [2003] 3 I.R. 321 confirms that this is the correct way to approach circumstantial evidence and its

intersection with the two views rule. In this somewhat notorious case, a Mr Tom Nevin and his wife Mrs Catherine Nevin were the joint owners and operators of a pub and restaurant known as 'Jack Whites Inn', which was located near Brittas Bay in County Wicklow. On the 19th of March, 1996, Tom Nevin was shot dead with a shotgun while counting the day's takings in the pub. There were no eye-witnesses. However, Mrs Catherine Nevin became a suspect in respect of the killing (it is not necessary to consider how that arose) and was ultimately charged with her husband's murder and also with three charges of soliciting others to kill him. After a lengthy trial, Mrs Nevin was convicted on all counts.

136. The case against Mrs Nevin had been very substantially based on circumstantial evidence. Her defence counsel had attempted in his closing speech to provide alternative explanations for each item of circumstantial evidence and had argued that the jury "*could only be impressed by the so-called circumstantial evidence if one approached [it] by abandoning the presumption of innocence.*"

137. The trial judge had subsequently charged the jury as follows:

> *"Now the evidence surrounding the murder charge is circumstantial. I would just like to say there is nothing wrong with circumstantial evidence and I would like to read you a quote from "Sandes". He says:*
>
> > *'Circumstantial evidence is very often the best evidence that the nature of the case permits of. It is evidence of surrounding circumstances which, by undesigned coincidence, is capable of proving a proposition with the accuracy of mathematics. It is no derogation of evidence to say that it is circumstantial. A jury may convict on purely circumstantial evidence and to do this they must be satisfied not only that the circumstances were consistent with the prisoner having committed the act, but also that the facts were such as to be inconsistent with any other rational conclusion than that he was a guilty person.*
>
> *Again, repeating what I have already said, if there are two possibilities and there is a possibility that the person was innocent, you must give the benefit of the doubt to the accused. So I would ask you then to consider the weight to be attached to each piece of circumstantial evidence and then consider the whole and it is the cumulative weight of each piece of circumstantial evidence, which you have accepted as being true to your satisfaction beyond reasonable doubt and if the weight of the accumulation of evidence is such as to prove to your satisfaction beyond reasonable doubt that the accused committed the crime, then you may convict."*

138. The trial judge had further gone on to say:

> *"I want you to be sure that when you apply your minds to all the facts, all the facts which you have accepted as true, that you can come to the conclusion that to treat*

the matter as pure coincidence is an affront to common sense. So, you have got to work towards being satisfied that not to find her guilty would be an affront to commonsense. But keep in mind all the time that there is this presumption of innocence, which is only displaced when you are satisfied beyond reasonable doubt that she is guilty."

139. Following her conviction Mrs Nevin appealed to the Court of Criminal Appeal, and in a submission to that court, her counsel was highly critical of the trial judge's charge in so far as it related to circumstantial evidence, including complaints that she had not fairly summarised the evidence or the defence case (which the Court of Criminal Appeal did not accept), and the submission reiterated the assertion made in closing that the jury were in effect being invited to abandon the presumption of innocence. This suggestion was emphatically rejected by the Court of Criminal Appeal. Giving judgement for the court, Geoghegan J. stated:

"It is now necessary to consider the criticisms made of the trial judge's charge to the jury. The main thrust of counsel for the applicant's criticism related to how the judge dealt with the circumstantial evidence. In a lengthy closing speech counsel for the applicant had analysed before the jury all the circumstantial evidence and had attempted to provide alternative explanations for each item. His basic thesis to the jury was that one could only be impressed by the so-called circumstantial evidence if one approached the evidence by abandoning the presumption of innocence. Before going into the matter any further the court finds it necessary straight away to reject that submission. It must be assumed that the jury followed the directions of the learned trial judge and understood in their deliberations that at all times the applicant was presumed to be innocent. Each item of evidence and the combined effect of the evidence had to be considered in that light. Without ever abandoning the presumption of innocence, the prosecution in proceeding against the applicant on the murder charge is perfectly entitled to rely on any piece of evidence which might be suspicious or uncannily coincidental and such items of evidence cannot just be viewed in isolation of each other. It is the combined effect of the circumstantial evidence which is of importance even though, in respect of each item of such circumstantial evidence, the jury has to consider whether it accepts it or not and also has to consider whether an inference suggested to be drawn from it is warranted or not."

140. Coming back to the present case, we would observe that the manner in which the Special Criminal Court charged itself, as reflected in its judgment, exhibits an impeccable understanding on their part of the correct way in which to approach the assessment of the relevance and significance of circumstantial evidence in general. Indeed, it merits quotation *in extenso*:

"In a case that depends on circumstantial evidence, such as this, we have at the forefronts of our minds, the following four matters: Firstly, we must consider all the evidence. Secondly, we must guard against distorting the facts or the

significance of the facts to fit a certain proposition. Thirdly, we must be satisfied that no explanation other than guilt is reasonably compatible with the circumstances. And fourthly, we must remember that any fact proved that is inconsistent with a guilty conclusion is more important than all of the other facts combined.

The proposition that all the circumstances must be weighed in deciding if we are convinced beyond a reasonable doubt of the accused's guilt is of equal importance. Therefore, each individual evidence or item of evidence must not be considered in a purely piecemeal fashion, because one item of evidence may resolve doubts about another item when they are weighed together and this may form an important part of the consideration in this case. Or even more importantly, suggest an inference compatible with an accused person's innocence.

When dealing with circumstantial evidence, the crucial consideration is the weight which is to be attributed to the united force of all of the circumstances when they are assembled together. It is this united force which gives strength to circumstantial evidence. Each piece of evidence does not require to point individually towards guilt, but the combined weight of what is acceptable must lead inevitably and surely in this direction, to the exclusion of any rational or reasonably possible interpretation consistent with innocence. It is not derogatory of evidence to say that it is circumstantial. Cases involving circumstantial evidence can be very strong and it is very often the best evidence that the nature of the case permits of. Indeed, cases involving direct evidence may often contain significant weaknesses. Cases based on direct identification or recognition evidence are good examples of this point.

Circumstantial evidence is evidence of surrounding circumstances which, by on design coincidence, is capable of proving a proposition beyond a reasonable doubt. We may convict in a case relying wholly or substantially on circumstantial evidence, but only where we are satisfied that not only are the circumstances proved consistent with the accused having committed the crime alleged, but also that the facts are such as to be inconsistent with any other rational conclusion but that he is a guilty person.

We must firstly be satisfied that the circumstantial evidence is acceptable in the sense of being credible or true. Secondly, where it consists of inferences, we must be satisfied that it is appropriate to draw the suggested inference and there is no competing inference inconsistent with guilt which is reasonably open to us. Thirdly, it is also necessary to examine the evidence closely for any suggestion of fabrication. Or in particular in this case, for co existing circumstances which might weaken or destroy the circumstantial case. Fourthly, having decided what is established as factual by the evidence, we must stand back and ask the final question, and this is the important question in the case: Is the combined or cumulative effect of the acceptable evidence probative of the accused's guilt beyond

all reasonable doubt, to the exclusion of all other rational explanations pointing to innocence?"

141. This exhibition by the court below of a clear understanding of the general rules and how they should apply is clearly relevant to the specific complaints that have been made under this heading, and we will address them presently. However, before going on to consider the specific matters complained of in terms of how the Special Criminal Court in fact assessed the circumstantial evidence in this case, it is also necessary to consider the law on whether, and if so how, the general rules just referred to apply to the specific situation of circumstantial evidence consisting of expert evidence of a match between the accused's DNA profile and the DNA profile of one component of a mixture of DNA found on a relevant item or in a relevant location.

DNA Matches (involving mixed DNA profiles) as Circumstantial Evidence

142. DNA matches as circumstantial evidence have been considered by the Superior Courts in a number of cases in this jurisdiction, in particular by the former Court of Criminal Appeal in *The People (Director of Public Prosecutions) v O'Callaghan* [2013] IECCA 46, by the Supreme Court in *The People (Director of Public Prosecutions) v Wilson* [2019] 1 I.R. 96, and by this Court in *The People (Director of Public Prosecutions) v Marlowe* [2019] IECA 263.

143. The first thing to be said is that the rules in regard to circumstantial evidence apply to DNA evidence in exactly the same way as they apply to every other kind of circumstantial evidence. There are no special rules when evidence of a DNA match, and evidence as to the statistical significance of that match, is relied upon a circumstantial evidence.

144. However, the very existence of the claimed match, and it's supposed significance, will often be the subject of a substantial challenge or challenges because of the potentially powerful significance of such evidence in inferential terms. In that context a defendant may challenge the process and methodology by means of which relevant trace evidence was gathered or collected; the preservation of that trace evidence; the testing and examination of that trace evidence for the purpose of extracting any DNA that might be contained within it; the profiling of any DNA recovered; the comparison of any DNA profile or profiles recovered against reference or control samples taken from a defendant or defendants for the purpose of determining if there is a match, and; the statistical analysis as to the alleged significance of any match found. In addition, even where a potentially significant match has been identified which *prima facie* would tend to invite an inference adverse to the defendant, it is always open to a defendant to explore before the tribunal of fact any possibility of negating, or at least raising a reasonable doubt with respect to, the suggested significance and invited inference; for example, by demonstrating a reasonable possibility of innocent transference, or contamination, or something else that might explain how the defendant's DNA came to be on the relevant item, or in the relevant place, from which the trace material was recovered.

145. Such challenges are directed to undermining the facts or evidence which, when considered together, are said by the prosecution to invite the apprehended adverse

inference. If the basis for the suggested adverse inference is successfully undermined, the two views rule, properly applied, would prevent the apprehended adverse inference from being drawn and render the DNA evidence nugatory as circumstantial evidence in support of the prosecution's case. However, if as in this case, such challenges fail to undermine the facts or evidence from which an adverse inference may be invited, the invited adverse inference may be drawn and may be relied on by the tribunal of fact as circumstantial evidence tending to support the prosecution's case.

146. Regarding *The People (Director of Public Prosecutions) v O'Callaghan*, this appears to us to have been a decision on its own facts that did not establish any novel principle of law. This court recently considered it in some detail in our judgment in *The People (Director of Public Prosecutions) v Marlowe* [2019] IECA 263.

147. The *O'Callaghan* case involved a successful appeal by the appellant against his conviction by Cork Circuit Criminal Court of the offences of robbery, contrary to s. 14 of the Criminal Justice (Theft and Fraud Offences) Act, 2001, and possession of a firearm or imitation firearm with intent to commission indictable offence, contrary to s. 27B of the Firearms Act, 1964, as substituted and amended. A total of seven grounds of appeal were advanced but the only one of interest in the present context is ground (4) upon which the appellant succeeded; namely that the trial judge had erred in failing to withdraw the case from the jury on the basis that there was not sufficient prosecution evidence so that a reasonable jury properly directed could have convicted the applicant.

148. The essential facts of the case were that on the 26th of March, 2009, two men entered the public area of the Post Office in Blackpool, Cork. They were both wearing balaclavas and combat type clothing. One of them was armed with what appeared to be a handgun, and this was pointed at members of the staff. A member of staff was ordered to open a drawer which contained money, and from which the raiders stole approximately €20,000. The raiders were observed by a member of the public running along Commons Road having left the Post Office premises. They approached the witness from the direction of the post office and ran past him. When interviewed in the early aftermath of the event, the witness said that one was carrying a gun, and both were carrying what looked like bags of money. The witness was able to describe in his statement the clothing and build of both men, whom he claimed were still wearing balaclavas. The witness said that as they continued on up the road a car "*shot up from somewhere*." The witness indicated that just after they had passed him, the man who was not carrying the gun took off his balaclava and threw it into a nearby canal. The witness later pointed out to Gardaí where the balaclava had been thrown and gardaí recovered it.

149. The prosecution's case against Mr. O'Callaghan was a circumstantial one based on three strands. The first was CCTV footage of the actual robbery event within the Post Office premises and its environs, coupled with the evidence of the independent witness. The second strand involved adverse inferences invited from demonstrably untruthful statements made by the accused to the gardaí concerning his movements on the day of the robbery. The third strand involved evidence of a DNA match between a component of

a mixed DNA profile extracted from trace evidence found on the balaclava recovered from the canal by the Gardaí, and a control sample of the applicant's DNA profile taken for forensic purposes, together with statistical evidence as to the possible significance of such a match.

150. The Court of Criminal Appeal considered that the third strand was the crucial one in terms of the prosecution's case against the applicant. Neither the CCTV evidence, nor the evidence of the independent witness, nor any inferences that were capable of being drawn from the applicant's untruthful account of his movements, were sufficient to identify the applicant as having been involved in the crime, or to otherwise directly link him to the commission of crime. However, the prosecution maintained that the DNA evidence did provide the necessary link. That contention was the focus of the appeal, and the Court of Criminal Appeal subjected it to forensic scrutiny and engaged in a close critical analysis of what it was that the DNA evidence actually established.

151. The results of that forensic scrutiny and close critical analysis or conveniently encapsulated in paragraphs 38 to 41 inclusive of the judgment, and these bear quotation:

> *"38. As already indicated, the forensic evidence in this case was that a person with a DNA profile matching that of the accused and a number of other people with different DNA profiles had been in contact with the material that made up the homemade balaclava at some undetermined time prior to its having been discarded by one of the two men on the canal. It may well be inferred that one of those persons in contact with the material was one of the persons who committed the robbery.*
>
> *39 The forensic evidence did not suggest in any way that the DNA trace left by the person with the same DNA profile as the applicant in the nose/mouth area had any significance other than it was sufficiently large to permit an identifiable profile identical to the applicant's DNA profile to be generated. Its only evidential value was that he could have been one of three people who had been in contact with the balaclava or sleeve at some unknown point but probably since it was last washed.*
>
> *40. There was nothing in the forensic evidence which would entitle the jury to differentiate between the various persons who had been in contact at some point with the balaclava material for the purpose of determining which one of them was wearing it at the time the robbery was committed.*
>
> *41. Accordingly, the Court is satisfied that there was no evidence on which a jury properly directed could rationally find beyond reasonable doubt that one of those persons rather than another was the person who was wearing it at the time of the robbery."*

152. The trial judge in the present case expressed strong disagreement with the judgment in *O'Callaghan* and seemed to view it as jettisoning the conventional approach to the assessment of circumstantial evidence. He stated, inter alia:

> *"Strangely, they did not appear to analyse the actual evidence in that case in the usual manner in which circumstantial evidence is analysed and as we have set out above. One might have thought that even if the DNA evidence was not regarded as conclusive in itself, which is a reasonable position to take on that piece of evidence standing alone, there was something to be said for going onto consider whether the DNA evidence was given particular or additional weight by the material and highly specific lies told by the accused, and to go on to consider whether the combination of evidence was probative of guilt beyond reasonable doubt."*

153. While in the present case the presiding judge in the court below was prepared to make known in strident terms his strong disagreement with the result of the appeal in the *O'Callaghan* case as determined by the Court of Criminal Appeal, the fact that he might hold such views, and might himself have reached a different conclusion on the sufficiency of the evidence in that case to go to the jury, is neither here nor there. He was not involved in that case. What is significant is that, although he seemed to think he was bound in some way by it, the case of *O'Callaghan* in fact enunciated no new principle of law to engage the doctrine of stare decisis. If, as the passage just quoted suggests is possible, the presiding judge considered that the *O'Callaghan* judgment had in some way altered the rules concerning the appropriate way to assess the significance of circumstantial evidence, he was mistaken in that regard. It did not do so.

154. What it did do, however, was to implicitly commend, by offering example, that tribunals of fact should subject any suggested basis for inferences, or invited inferences, based on the circumstantial evidence of a DNA match, to rigorous analysis and scrutiny. Subsequently, in *The People (Director of Public Prosecutions) v Wilson* [2019] 1 I.R. 96, the Supreme Court, in a wide-ranging judgment that examined various problematic issues raised by reliance on evidence of DNA matches, expressly emphasised the need for a rigorous analysis of the significance (if any) of a match. Moreover, in doing so, the Supreme Court expressly cited *O'Callaghan's* case as illustrating its point that the mere fact "*that a sample of DNA is found at a crime scene which is a match for the DNA profile of the accused is not necessarily probative of guilt.*"

155. Although there should be this rigorous analysis and scrutiny in every case, the circumstances of Mr O'Callaghan's case particularly called for it due to the complicating feature that the match was with just one component of a mixed DNA sample. When in Mr O'Callaghan's case the available evidence was analysed and scrutinised in the commended way, the Court of Criminal Appeal identified a lacuna or evidential deficit that prevented the suggested or invited inference, namely that Mr O'Callaghan was positively linked to the robbery by the DNA match, from being drawn in the circumstances of that case.

156. In contrast, in *The People (Director of Public Prosecutions) v Marlowe*, this Court was able to uphold a conviction based on an adverse inference suggested by a DNA match with one component of a mixed DNA profile extracted from trace evidence found on a physical exhibit (the torn off fingertip of a disposable latex glove found at the scene and believed

to have been worn by one of the perpetrators of the robbery and aggravated burglary the subject matter of that case). The fundamental difference between that case and that of *O'Callaghan* was that there was expert evidence in Marlowe's case allowing the jury to differentiate between the various contributors to the mixed profile. A forensic scientist had testified that one contributor had provided 93% of the DNA whereas the two other contributors had contributed the remaining 7% between them. Moreover, she had gone on to say: *"if an item is worn the person who wears it is going to come through as the major contributor"*. The lacuna in *O'Callaghan's* case was the absence of any evidence allowing for such a differentiation.

157. As already alluded to, when in the present case the appellant's legal team sought a directed verdict in reliance on *O'Callaghan's* case, the presiding judge seemed to think that that case in some way represented a precedent that was binding on the Special Criminal Court, because he stated:

> *"The conclusion of the Court on this application may be stated concisely. In the absence of the decision of the Court of Criminal Appeal in People (DPP) v. Michael O'Callaghan, a judgment delivered on the 31st of July 2013, this Court would have had no difficulty whatsoever in rejecting this application. However, that judgment is binding upon this Court and therefore must be applied, unless the factual matrix of this case is sufficiently distinguishable so as to render the reasoning of the Court of Criminal Appeal in the O'Callaghan case inapplicable in the current circumstances. We must also bear in mind that this case was referred to by the Supreme Court in the recent joint judgment of that Court on matters pertaining to DNA evidence in general, in People (DPP) v. Keith Wilson, a judgment delivered on the 19th of July 2017. The reference was not with express approval, but it was certainly not accompanied by any disapproval, and in fact, the Supreme Court instanced the O'Callaghan case as an example of the close examination of the circumstances in which DNA evidence is said to arise. Therefore, the question is whether the prosecution evidence in this trial can justify a different conclusion to that reached by the Court of Criminal Appeal on the evidence as presented in the O'Callaghan case."*

158. We do not think it necessary to comment on the appropriateness or otherwise of the presiding judge expressing his views in the strident way in which he did, save to say that decisions of other courts should be afforded curial deference and express judicial criticism of another court's decision should be avoided, if possible. If the necessity to criticise is unavoidable (e.g., in the appellate context, or where a superior court which has created a binding precedent is being expressly asked to depart from, and not to follow, one of its own previous decisions) any criticism should in general be sparing, measured and proportionate.

159. We are satisfied, however, that the views expressed in this case, notwithstanding their stridency, were not indicative of any bias; nor could they give rise to any apprehension of objective bias, in circumstances where the judge concerned appears to have been under

the mistaken impression that O'Callaghan's case required him to depart from the long-established approach to the assessment of circumstantial evidence which requires each piece of circumstantial evidence to be considered in conjunction with all of the other evidence in the case. The presiding judge's belief, albeit mistaken, that O'Callaghan had somehow changed the law on that, could only have inured to the advantage of the appellant and not to his disadvantage if the trial judge had felt compelled to follow it. In fact, he accepted the prosecution's submission that *O'Callaghan's c*ase was distinguishable (although there was in truth no necessity to do so, as *O'Callaghan* did not represent a binding precedent with respect to any matter of law), and the Special Criminal Court, as is apparent from their detailed judgment, ultimately proceeded on a correct understanding of the law.

160. The appellant complains in ground no 23 that the Special Criminal Court erred in refusing an application for a directed verdict of acquittal in relation to the single charge before the court in this trial. The revised written submissions filed on behalf of the appellant addressed to this ground, at paragraphs 21.1 to 21.24 thereof, refine this complaint to a failure to apply the approach commended in the *O'Callaghan* case. In particular, it was submitted at paragraphs 21.6 to 21.11 that, in the same way that the Court of Criminal Appeal in *O'Callaghan's* case had considered it appropriate to direct a verdict of acquittal, the court of trial in this case should also have done so in circumstances where:

"21.6 In the instant case, there were two DNA profiles on the mask in question and thus, it could not be proven beyond a reasonable doubt that the appellant was the last person to wear it and that he was thus involved in the offence before the Court.

21.7. This was particularly so given the evidence of the State's forensic scientist to the effect that DNA can transfer easily between items.

21.8. Whereas in the O'Callaghan case there was a lot more of the appellant's DNA than of the other unknown contributors and that was insufficient to allow the case to go to the Jury, in the instant case, the division of DNA contributions between the appellant and the unknown contributor was closer to 50:50.

21.9. Whereas the appellant's DNA was on a baseball cap found in the relevant motor vehicle, there was no evidence of any person involved in the murder having worn a baseball cap.

21.10. There was a significant risk of contamination of items by the transfer of DNA whilst the items were being examined by Gardaí. Garda O'Donnell gave evidence of having touched the mask with potentially the same gloves as he had touched the baseball cap with.

21.11. The appellant's DNA was not said to have been found in the vehicle used in the murder save insofar as it was said to be on the mask and cap found in that car."

161. The Special Criminal Court ruled in response to the application for a direction on this basis that:

> *"The evidence from the various eyewitnesses in the Sunset House shows that the killing of Mr Barr was a brief, violent and shocking and very traumatic incident for all those who witnessed it. However, it is also apparent that as one would expect, and Mr Clifford pointed this out in memorable terms, that the two men who entered the pub were heavily disguised in carrying out their task. We are satisfied that the evidence is more than capable of proving that they wore masks. And the various eyewitness descriptions of those masks broadly corresponds with the appearance of the three such items recovered shortly afterwards from the apparent getaway vehicle. This would appear to indicate, along with the broad thrust and spectrum of the DNA evidence, that all three occupants of the vehicle had masks available to them. Although, there is obviously no direct evidence as to the get up of the driver of the getaway car at any stage of these proceedings. It also appears that the men in the pub wore other head gear, including a ski mask, but it is correct to point out that there is no specific mask, that a baseball cap was worn by either of the two individuals who actually went into the pub. However, it might also be observed that this was, as I have pointed out, a brief and traumatic incident, and one would not necessarily expect evidence of pinpoint precision emanating from recollections of such an event, particularly when the event occurs on licensed premises and witnesses have drink taken as well as all of the other features that are present in this case.*
>
> *The ultimate issue is as to whether we can regard the DNA evidence in this case as being capable of being more probative of guilt than the DNA evidence found to be insufficient for that purpose in the O'Callaghan case. We have carefully considered Mr McGinn's submission overnight and we accept that the premises set out in his submission are sufficient and more than sufficient to distinguish this case from the facts of O'Callaghan. Firstly, there is no general principle to the effect that the presence of DNA profiles, other than those matching a suspect on a crime scene object, is such that, of itself, that this would render the matching profile exempt from consideration as evidence in a prosecution, against a person whose profile matches one of the profiles on such a crime scene object. No such proposition is expressed or may be fairly inferred from the conclusions of the Supreme Court in the Keith Wilson judgment, despite apparent approval of the O'Callaghan decision.*
>
> *Secondly, each application for a directed verdict must be decided by reference to a specific case assessment. In every such exercise, the prosecution must be taken at its high watermark, in terms both of the evidence or inferences that might be drawn from that evidence. We agree with Mr McGinn that the most significant difference between this case and the O'Callaghan case lies in the nature and quantity of the crime scene objects in issue. In this trial, there is vivid and quite detailed CCTV evidence showing the getaway car travelling directly between the Sunset House and the location at Walsh Road. At Walsh Road, three men are seen*

to emerge from the interior of the vehicle and to remove head gear and boiler suits, which were placed into the rear seat area of the vehicle, in an area where firearms, clothing, mask, head gear and other items were subsequently found by the gardaí on examination, including items SOD66 and 68. We also accept the submission that, for probative purposes, the multiplicity of items and the different nature thereof from the item in O'Callaghan, present a much stronger scenario in terms of the height of the prosecution case in this trial as compared to O'Callaghan. In terms of their ordinary usage and general utility, the three masks found in the getaway vehicle have a very different character and quality to the single improvised piece of rag found in O'Callaghan. A single mask of the variety used in this case has limited legitimate theatrical and entertainment uses. It also has a very effective potential for illegitimate use, as a means of disguise in the commission of crime. When three such items are located together, in the circumstances in which they were found in this case, in our view, that casts the possibility of innocuous contact in a very different light to that which shone upon the single, tatty, jumper sleeve in O'Callaghan. This is without taking account the high watermark of the finding of the DNA apparently matching the accused on highly significant locations, on two distinct objects as opposed to one; the consistency of the overall DNA findings with the discarded kit being associated with three separate individuals, the same number who are seen on CCTV emerging and escaping from the getaway car and the interpretation of the crime scene evidence that might arise in the context of that evidence being considered in the context of the other potential circumstantial evidence that arises in this case.

We have concluded that on closer analysis, there's absolutely nothing in the O'Callaghan decision that compels dismissal of the prosecution case at this time. This simply signifies that there is sufficient evidence and more than sufficient evidence to pass the relatively low threshold that applies at this case, taking the evidence adduced by the prosecution at the most favourable viewpoint, from their point of view.

It does not signify that there may not be a reasonable hypothesis that this evidence bears which is consistent with innocence. Frequently, including the last trial that ran in this court, cases survive the application stage, only to fail to pass the much more rigorous requirements which arise thereafter, namely that the prosecution must prove their case beyond a reasonable doubt to the exclusion of reasonable probabilities consistent with innocence. We propose now to proceed to that analysis, having rejected the application for a directed verdict."

162. We are satisfied that in considering the application for a direction and, that having been rejected, in further consideration of various strands of circumstantial evidence in conjunction with all of the other evidence in the case, the correct and long established approach to circumstantial evidence (including the evidence in relation to the DNA matches) was applied, and that in respect of invited inferences said to arise from individual pieces of such evidence considered together, and from such evidence

considered in conjunction with all of the other evidence in the case, there was the required level of rigorous analysis and scrutiny to see if the invited inferences could in each instance be justifiably drawn. We find no error of principle in the decision to refuse a direction, or in respect of the subsequent decisions taken with respect to the significance of the various pieces of circumstantial evidence in considering the ultimate issue. In our judgment there was sufficient evidential basis for the inferences that were drawn.

163. We are further satisfied that due respect was afforded both to the burden of proof and the presumption of innocence and that they were properly applied. We are further satisfied that in assessing and weighing the evidence in the case the Special Criminal Court did appropriately consider the issues raised in the defence closing speech, but that the court rejected them as they were entitled to do having regard to their view of the totality of the evidence.

164. In the circumstances we are not disposed to uphold any of the complaints in this group of grounds of appeal.

Ground 28

165. The final ground of appeal that requires to be addressed is the contention that the trial of the appellant was unfair to the extent that a lesser offence such as that of participating in or contributing to the activity of a criminal organisation was not charged in the indictment as an alternative to the offence of murder.

166. The case is made that whilst the appellant does not accept any element of the prosecution case against him, it remains the position that if the Special Criminal Court was correct in admitting the contested physical and DNA evidence and was correct in finding that such evidence was incriminating in respect of the appellant (both of which are denied), it was not a necessary inference that the appellant was one of the three individuals depicted on CCTV abandoning the Audi A6 on Walsh Road or that he was thus a person involved in the carrying out of the murder of Michael Barr on the day in question.

167. It was submitted that the mere fact of the appellant's DNA being on other items found in the Audi A6, even if taken with evidence of leaving the State shortly after the murder and inferences from silence, does not have any bearing on whether he was a person present at the scene of the murder. A person whose DNA was on items in the vehicle in question could equally have been a mere facilitator of the offence.

168. It is contended that had the lesser charge of facilitation, the participation in, or the contribution to, certain activities been available to the Court, it is conceivable that a conviction for that charge would have been returned in preference to a conviction for murder.

169. We are happy to dismiss this ground *in limine*. It is a matter exclusively within the discretion of the Director of Public Prosecutions as to what charge or charges should be preferred in any particular case. The Director of Public Prosecutions considered that the circumstances of this case merited the preferment of a single charge of murder. That was

a matter entirely within her discretion. There was patently no unfairness in the charge that was selected. It was wholly justifiable on the available evidence. Moreover, having regard to the terms of the Prosecution of Offenders Act, 1974, and the statutory independence of the Director provided for under that legislation, it would be entirely inappropriate for this court to seek to second-guess her in the exercise of her statutory functions. We dismiss this ground of appeal without hesitation.

Conclusion

170. In circumstances where we have not seen fit to uphold any of the grounds of appeal relied upon by the appellant, we must dismiss this appeal. In doing so we would state that we are completely satisfied that the appellant's trial was satisfactory and that the verdict is safe.