



JUDICIARY OF
ENGLAND AND WALES

**“PEOPLE IN THIS COUNTRY HAVE HAD ENOUGH OF EXPERTS
(... some universal truths about experts)”¹**

A. To boldly go etc - Experts are “out there” too!

1. It is statistically likely that “*out there*” in deepest space there are experts contemplating the existence of experts on other planets (including perhaps on Earth).
2. This arises because a rapidly developing body of scientific techniques is emerging for detecting the existence of stars and the planets (called “*exoplanets*”) that circle them and in enabling experts on this planet to predict the likelihood of civilised expert life on these circling planets. Every planet circling a star moves in a way that reflects that planet’s gravity. This means that there are variations in the speed, or “*radial velocity*”, with which the planet being observed moves to or away from Earth. This radial velocity is measurable from Earth with considerable accuracy due to modern spectrometers. These can measure the radial velocity of planets up to 160 light years away. Sometimes this produces false results. Where a host star has multiple planets, false signals can arise because the data is insufficient or confused. But in the main there is a belief that the science can be perfected and made ever more accurate.

¹ The Hon Mr Justice Green, the 4th Annual David Vaughan QC Lecture, Clifford Chance, London, 17th November 2016. David Vaughan was, prior to his retirement, a leading advocate who specialised in complex economic, regulatory and constitutional cases. Those privileged enough to have been invited to deliver this annual address have therefore concentrated upon issues arising in David’s field of practice.

3. Recently a new technique has been developed called the “*transit method*”. If a planet crosses (i.e. “transits”) in front of its parent star's disk the observed visual brightness of the star drops by a small amount, depending on the relative sizes of the star and the planet.
4. From 1995 to 2005, 95% of discoveries of planets were achieved using radial velocities. During this time, only a handful of planets were found via the brightness decrease of a star caused by a transiting planet. However, now the transit method has been reliably established it can be applied with relative technical ease and it generates predictable and accurate results. It is now the dominant method of finding other planets. The main advantage of the transit method is that the size of the exoplanet can be determined from the light curve. When combined with the radial-velocity it is possible to determine the radius and density of the planet.
5. All of this is rather useful in identifying planets which might harbour life. And NASA now calculates that there are multiple billions of exoplanets just in the Milky Way. Recently two researchers from the University of Columbia in New York have deduced that if we are capable, as we now are, of measuring the size and mass of far distant planets and can begin to assess their suitability for life then the same is inherently likely to be true of any other self-aware advanced civilisation that exists from amongst these billions of distant exoplanets. After all we have progressed from a time when water mills were the height of technology to our present state when we can measure the mass and radius of a planet hundreds of light years away in the metaphorical blink of an Einsteinian eye. So, the technology, breathtakingly novel as it seems to us now, might in fact be relatively prosaic in the greater cosmic order of things.

6. Other advanced civilizations aware of this technique would also understand that their home planet's existence and habitability was being broadcast to all other inhabited planets lying along their ecliptic plane. Such a civilisation might be delighted at this discovery or, alternatively, disconcerted. But either way this realisation gives rise to an intriguing possibility.
7. Researchers (on earth) have worked out that it is possible to either cloak or broadcast a civilisation's presence through controlled laser emissions. Such emissions could distort the apparent shape of transit light curves with relatively little energy. They calculate that humanity for instance could cloak the Earth using an optical monochromatic laser array emitting a peak power of 30MW for 10 hours per year; in other words with ease. Alternatively, a civilization could cloak only the atmospheric signatures associated with biological activity on their world, such as oxygen, with a peak laser power of just 160 kW per transit.
8. It follows from this that without undue effort a civilization could deliberately broadcast its technological capabilities by distorting its transit signals to an artificial shape and any other planet with similar technology could identify that the signal was artificial. Such a signal could serve as both a beacon but also, importantly, as a medium for data transmission. Moreover since we have now collected a great deal of transit and other data from distant star systems such artificial signatures can already be searched for in the archival data of transit surveys and in new data as it arises. Scientists on this particular planet in this part of the Milky Way, to test the theory, have now begun to search for planets which exhibit distorted signals which might be redolent of masking or communicating.

9. I want you to imagine a distant exoplanet. Let us call it Gallifrey². Unless we find a way of exceeding the speed of light or time travelling³ then a conversation between Earth and Gallifrey might be a little stilted:

Q. (From earth): “*Hello, is there anyone out there?*”

A. (Some considerable time later from Gallifrey): “**%&%&~#^}^*”
(interpretation – “*yes and we are on our way to meet you, put the kettle on, in 125 years time*”)

10. The paper that explains how transit analysis works is of course on the internet. It starts with a narrative explanation which a layman can understand. But if you do not understand the terminology then it is easy to type into Wikipedia the term and lo and behold an explanation comes up (I did this for “*radial velocity*”). And of course then there comes the inevitable maths and within nanoseconds it proceeds beyond the limits of traditional judicial capabilities (i.e. not very far from $2+2=4$). This is merely one small portion:

$$\mathcal{P}_i = \left(\frac{R_p^2 \lambda^2}{2D_i^2 R_*^2} \right) \mathcal{P}_{*i}.$$

(11) Using the Stefan–Boltzmann Law for the stellar luminosity allows us to simplify the above to

$$\mathcal{P}_i = \frac{2\pi\sigma_B R_p^2 \lambda^2 T_*^4}{D_i^2}.$$

(12) Assuming that most of the power is produced near $\lambda = 600$ nm, the peak wavelength of Sun-like stars, the approximate laser power requirement is

$$\mathcal{P}_i = 58 \text{ MW} \left(\frac{R_p}{R_{\oplus}} \right)^2 \left(\frac{\lambda}{600 \text{ nm}} \right)^2 \left(\frac{D_i}{10 \text{ m}} \right)^{-2} \left(\frac{T_*}{5777 \text{ K}} \right)^4.$$

² According to the internet, Gallifrey is located in a binary star system within the constellation of Kasterborous. It has galactic coordinates: 10-0-11-0-0 by 0-2 from galactic zero centre. However none of these sources has been verified by the provision of reliable data or expressed in peer reviewed academic sources of repute. In fact the source appears to be a TV script writer in the 1960’s.

³ Apparently a possibility on Gallifrey.

11. But judicial limitations and the “*Stefan-Boltzmann law*” apart the principles of maths are assumed to be universal so that if an alien civilisation on Gallifrey does have the technology to send artificial transit based messages then it should have the same maths as we do.
12. The paper was published in the Monthly Notices of the Royal astronomical Society on 30th March 2016 and is entitled “*A cloaking device for transiting planets*”. It is by Kipping and Teachey from the Department of Astronomy at Colombia University in NY. The Monthly Notices is one of the longest established and most widely respected of publications in the field. Its editorial review policy is in the following terms:

“Manuscripts submitted... undergo editorial review by the Royal Astronomical Society, via a process of scholarly peer review. Each paper is assessed by a member of the Editorial Board, who in most cases will solicit the opinion of one or more expert reviewers (also called referees). Reviewers critically examine the content of the paper and make recommendations on its suitability for publication. Reviewers may choose whether to reveal their identity to the authors; editors usually remain anonymous. The scientific editors are assisted by a team of Assistant Editors (formerly Editorial Assistants), who act as the primary point of contact and handle the administration of each paper.”
13. At the end of the paper there is a comforting expression of gratitude to an anonymous reviewer.
14. There are five elementary points to draw from all of this. First expert life could very well permeate the Universe. Second, experts are really useful and amazingly clever (unless of course they lead an alien invasion by other not so nice experts). Third, experts rapidly evolve evaluative techniques which are mind expanding. Fourth, maths pervades everything and alien experts are likely to use the same maths as we do. Fifth, experts (certainly on this planet) adhere to high ethical and research based standards upon the basis that this is recognised as the optimal way to enhance and disseminate knowledge. In fact it is not too far-fetched to surmise that for science to

develop optimally, logically and efficiently adherence to best research standards is likely to be a universe wide phenomena.

15. I would add one point. It is also a reasonable working assumption that on Gallifrey (and in all advanced civilisations) there will be room for disagreement and there might therefore arise the need for some sort of dispute resolution and if that is so then alien judges might not be as good at science or maths as those Gallifreans who are submitting their disputes for determination.
16. I deduce from these an observation which I hence believe is of universal application: Life is very complex, experts are very clever but judges have some catching up to do. I refer to this elementary notion as the “*knowledge asymmetry*”.

B. Have we had enough of experts? – Knowledge Asymmetry

17. So to the subject matter of this lecture. A recent Lord Chancellor (from Earth, I believe) notably observed, in the midst of some political spat or other about Europe: “*people in this country have had enough of experts*”⁴. This led me to ask whether, even if true of the “*people*”, this was also true of the Courts and tribunals given that we are now increasingly confronted with disputes concerning expert evidence which address issues which are very complex.
18. My own experience on the bench in a range of cases (mainly civil but also on occasion criminal) coupled to my experience at the Bar has led me to the conclusion that

⁴ This view would have been endorsed by the former Conservative Prime Minister, Lord Salisbury, who in a letter dated 15th June 1887 to the 1st Earl of Lytton, stated: “*No lesson seems to be so deeply inculcated by the experience of life as that you should never trust experts. If you believe doctors, nothing is wholesome: if you believe the theologians, nothing is innocent: if you believe the soldiers, nothing is safe. They all require their strong wine diluted by a very large admixture of insipid common sense*” (from G. Cecil, *The Life of Robert, Marquis of Salisbury, Volume II*, pages. 145-146).

“knowledge asymmetry” is a fact in an increasing number of cases and if the Courts are to continue to serve their function as decision makers in such truly complex cases then a change in approach is needed in those cases. Changes are needed on the part of the parties who must assume a far greater share of the responsibility for reducing the scope of the dispute to smaller more manageable proportions. But the Courts must also play their part to ensure that they are equipped with the tools and the skills to determine swiftly and efficiently and correctly the disputes before them.

19. Let me stand back and put these observations into a broader context.
20. My first point is simply that the world is very complex. It gets more convoluted technologically, economically and financially at an exponential rate. My illustration based upon inter-stellar communication highlights this. The speed of technological advance is phenomenal; and the complexity which now routinely sits behind or is embedded in the services and goods that drive modern economies can be so overwhelmingly specialised that it is beyond all but a few.
21. The second point is that this same complexity also encompasses the analytical techniques, those “black boxes” of tricks, which are now routinely used by experts to unlock the most seemingly intractable of technical problems. More and more regulatory decisions in a wide range of policy fields (stretching from the environment, through the assessment of housing needs, to competition law and other forms of economic regulation) are “*evidence based*” which means that a wide range of quantitative statistical, economic and other techniques are brought to bear on the question of identifying the “*right answer*”. A review of some of the more ambitious Impact Assessments now generated to test government policy and legislative proposals proves this.

22. The third point is that modern judicial doctrine accepts that up to date scientific evidence must be treated as admissible. In ordinary civil claims the Courts decide the merits on a binary right/wrong basis and expert evidence is a commonplace and has to be grappled with by the Court. Complex econometric modelling is now routine in competition cases to predict how a market would have operated in the absence of unlawful conduct by defendants. It is used not only for standard antitrust analysis but in the quantification of damages. Such techniques are not confined to competition case but apply across a range of contractual and tortious claims. The Courts have also made clear that in determining whether in judicial review proceedings a measure is lawful or proportionate judges are required to take into account the most up to date evidence, including scientific evidence. For instance in the context of judicial reviews, the Courts, led by guidance from the Supreme Court⁵, have clarified that there is a conceptual distinction between the intensity of the review performed by the Court and the intensity of the effort required of the Court. An error in a decision under challenge might be an absolute “*howler*” even though it requires a great deal of hard work by the Court to unearth. Indeed, with enhanced expert techniques experts are well placed to give evidence that something that appears very complex and almost impenetrable to a Court is in point of incontrovertible fact, simply dead wrong.
23. Put another way the intrinsic seriousness of a matter that requires a judicial decision is not a function of its innate complexity.
24. My point is thus a simple one: the knowledge asymmetry has to be redressed. At the heart of my concern about knowledge asymmetry is the concept of “*practical justiciability*”, by which I mean the intellectual or forensic ability of a court to form a considered conclusion on the merits of a case and therefore to decide it correctly. A

⁵ See for example *R (Lumsdon) v Legal Services Board* [2015] UKSC 41 at paragraph [44]; *Bank Mellat v HMT* [2013] UKSC 39 at paragraph [20] (“*exacting analysis*”).

case will not be practically justiciable if the evidence is so complex and obscure that the Court is unable fairly and efficiently to test its merits.

25. If this does not occur then over time I believe that claims and applications and appeals that should as a matter of objective logic succeed, will fail. Business depends on the Courts being able to decide their disputes. If we cannot then business suffers. If private parties cannot obtain effective dispute resolution then markets may be distorted: wrongdoers might retain their ill-gotten gains to the detriment of their customers and rivals. This will be bad for justice and bad for the rule of law. Good claims should prevail; and if they do not then there will be perverse consequences and the rule of law will be undermined. Equally if bad administrative decision makers are let off the hook then bad decisions will perpetuate when, by rights, their effect should have been stopped in their tracks. Decision makers necessarily take their cue from the courts who sit in judgment upon their decisions. If the courts are capable of resolving complex technical issues then decision makers must – perforce – do likewise. But if the courts cannot perform this task then decision makers have no incentive to grapple properly with the evidence; “*second-best*” will do because the judge peering over their shoulder will know no better. In short rigour induces rigour; and the converse.

C. The problem is not new

26. The problem I am identifying is now new. I am simply describing a mismatch between the present state of evolution of technology and science and the capabilities of courts. That was a dilemma that judges in the 18th century faced. That also was an age of profound technological change. Britain in the mid 1700’s years was the leading manufacturing and commercial nation in the world. An indication of the rate of growth lies in the fact that the volume of tonnage of shipping entering the Port of

London across the 18th century rose 400%. This was the period of the emergence of the metalworking industries in the Midlands and the growth of cheap cloth from the cotton and woollen mills of Lancashire and Yorkshire and to fund this ballooning economy an array of novel financial instruments were created.

27. All of this was built upon the edifice of a technological revolution led by scientists and mathematicians. The rational empiricism of the philosopher and chemist Robert Boyle (1627 – 1691) opened the intellectual horizons of his time. Boyle had a “wish list” of 24 possible inventions which included *"the prolongation of life", the "art of flying", "perpetual light", "making armour light and extremely hard", "a ship to sail with all winds, and a ship not to be sunk", "practicable and certain way of finding longitudes", "potent drugs to alter or exalt imagination, waking, memory and other functions and appease pain, procure innocent sleep, harmless dreams, etc"*. All of these were essentially commercial aims and they have now all been achieved. Isaac Newton 1624 – 1726 built the first practical reflecting telescope. He developed a theory of colour premised upon the observation that a prism decomposes white light into the colours of the visible spectrum. He also developed an empirical law on cooling and was a student of the speed of sound. Richard Arkwright's spinning timeframe (patented in 1767) was the name given to a water-powered spinning frame which was an easy way to create cotton thread. This was first used in 1768 and it was able to spin 128 threads at a time which far outstripped the fastest process used until that time.
28. Scientists and innovators such as these created the framework for much of the commercially developed technology which triggered the industrial revolution in the 18th century. And litigation boomed; which meant that the judges had to be up to scratch and had to understand the complexities that lay behind the disputes. To cope judges began to turn to experts. The *Lex mercatoria*, often referred to as *"the Law*

Merchant" in English. It was the body of commercial principles resorted to by merchants across Europe during the medieval period and it relied upon a system of custom and practice to resolve disputes. It functioned as the international law of commerce and emphasised contractual freedom. It shunned legal formality.

29. In the domestic context Lord Mansfield, the Chief Justice between 1756 and 1788, sought to decide commercial cases using experts and introduced a greater degree of formality into the judicial process to bring into play the skill and wisdom of experts⁶. For instance he would seek to ensure that on the juries that determined cases were men versed in the discipline of the case. Lord Mansfield used these "law merchants" to create, more or less for the first time, a series of universal principles of commercial law. Experts were the source of precedent which, in many respects, led to the creation of domestic contract law.
30. Lord Mansfield also encouraged the admission of experts to give testimony in cases. In one case the Plaintiff asked a surgeon to cure him of a long standing rupture. He paid the surgeon in four promissory notes amounting to 20 guineas. The surgeon however was a quack. An expert was called who testified that the Plaintiff's condition was a common puncture and the total cost for treatment should have been 1 guinea. The jury accepted this expert evidence and found for the plaintiff and awarded him damages of 100 guineas. Lord Mansfield also used experts outside of the formal special jury process. Although he generally deprecated the practice of judges discussing their cases with anyone who would talk to them, he was not from time to time averse himself to seeking the views of experts and specialists who could advise him outside of the court room on the more obscure and technical aspects of the cases before him.

⁶ See the excellent biography "*Lord Mansfield – Justice in the Age of Reason*" by Norman S Poser (2013) Chapter 12, which describes Lord Mansfield's enthusiasm for using experts to decide complex commercial disputes.

D. Asymmetry in Luxembourg – AEC = AOK?

31. Which brings me to an illustration somewhat closer to home which to my mind, highlights the operation of knowledge asymmetry. Over the course of my career, first as an academic and then at the Bar, and in the course of numerous applications and appeals to the Courts in Luxembourg, I came to learn that there was a single guiding principle which governed appeals and applications in cases involving complex technical evidence: The applicant always loses.
32. Of course there are a few honourable exceptions where the Court found that the Commission had made some egregious error of principle or procedure but the occasions when the Court found that the Commission wrongly assessed economic evidence invariably foundered on the margin of appreciation accorded to the Commission. Let me speak entirely anecdotally. I appeared in about 100 cases in the Court of Justice and General Court over the course 25 years at the Bar. This included many competition cases. I do not recall ever concluding that an economic argument of any real complexity, however meritorious, stood much chance of success however hard I worked with the team to boil down the issue to the very barest of its quintessential essentials to endeavour to make it comprehensible to the court. To make such an argument “*justiciable*” it was essential to dress it up in terms that one hoped would make it palatable to the Court: error of law; failure to address a relevant fact; taking into account an irrelevant consideration, etc. Such an approach rarely prevailed.
33. This more or less universal truth (that applicants always lost) held true notwithstanding the frequent statements by the Court that it engaged in a detailed – sleeves rolled up – analysis of the facts, not the least to comply with the fundamental

principles set out in the ECHR which classified antitrust as penal law to which the higher standards of access to a fully reviewing court applied.

34. My own explanation for this was that the Court was at base ill-equipped to deal with complex economic arguments. The knowledge asymmetry was acute. This was not, I emphasise, due to ill-will on the part of individual judges. It was due to a combination of factors of a systemic nature.
35. First the judges are not selected because of their experience in economics or antitrust theory. Many (though certainly not all) are therefore uncomfortable and unfamiliar with handling and assessing complex economic arguments. For this reason there has always been an instinctive preference for neat crisp rules of conduct in preference to a “*context is all*” approach which would require an analysis of difficult economics. Of course there has long been a serious and legitimate debate not only in the EU but also in the US and elsewhere as to whether there is an acceptable trade-off between legal certainty (i.e. bright line rules) and economic purity (where economic context governs the outcome). There is indeed something to be said for having a rule which is invariable and utterly predictable (even if economically impure). It facilitates business planning and reduces litigation and regulatory risk. The classic “*Areeda-Turner*” test of predation first articulated in the 1960s sought to impose economically driven rules into antitrust and was long seen as an acceptable mid-course reconciling economics and law. The concern however is that nice neat rules can lead to false negatives i.e. conclusions that conduct is harmful to the market when in fact it is beneficial or at the very worst neutral. Over the past decade or so economists and other experts have refined their techniques, their black boxes, to the point where analytical tools exist which, with a high degree of accuracy, can indicate when conduct will be adverse to markets and consumers. The black boxes so beloved by experts are getting ever cleverer. The justification for rigid, binary, rules has thus

weakened in proportion to the advancement of the efficacy of the expert's tool. Companies have less need of black and white rules and more need for a more sophisticated and nuanced regulatory framework that recognises that rigorous competition may in actual fact be good for markets and consumers.

36. The second factor which in my view has made the European courts ill-equipped to deal with complex economic and technical arguments is that they do not have at their disposal procedures which enable them to evaluate those arguments. Indeed the procedural rules are simply not geared up to addressing the issue; it is not really recognised or acknowledged as a difficulty which needs addressing. The contrast with the approach adopted in the domestic courts (and indeed in many jurisdictions around the world) could not be sharper. There are numerous aspects of the procedure before the General Court which from the perspective of a trial lawyer I found unsatisfactory. Expert evidence is not adduced or tested save on paper. There is no process of inter-expert engagement to boil issues down. There is no cross examination. Where experts do have a voice in Court it has been because the Court invited the expert to come to the advocates microphone to express an opinion, often without prior warning. It is not uncommon for the parties to inform the Court at the start of a hearing that they will invite their expert to address the Court and the Court routinely accepts this without question. When this has happened experts tend to stray into becoming advocates; they trespass far beyond their actual expertise into expressing views about the ultimate merits of the dispute and no one questions their competence or expertise to do this.

37. So it came as a pleasant surprise to note the recent Advocate General's opinion in *Intel*. My last appeal to the General Court before I was appointed to the Bench was in this case. This was litigation on a stupendous scale. It involved a decision that Intel was guilty of abuse across the entire world, including for instance in China, over an

extended period of time. You will all know that the Commission decision was in large measure based upon the application of the As Efficient Competitor or “AEC” test. During the administrative procedure before the European Commission a high percentage of the total energy expended on the case over a number of years was by expert economists. Indeed the decision was held up by the Commissioner at the time of its adoption as the very model of good economic evidence-based decision making. However the General Court took a less economically based approach and held without addressing the economic evidence at all that there were certain types of pricing conduct (by Intel) that could be condemned without any sort of economic analysis at all.

38. In Case C-413/14P *Intel v Commission* Advocate General Wahl on 20th October 2016 expressed the opinion that in classifying certain types of rebates as more or less *per se* abusive the General Court erred in law. In paragraph [90] he stated:

“Experience and economic analysis do not unequivocally suggest that loyalty rebates are, as a rule, harmful or anticompetitive, even when offered by dominant undertakings. That is because rebates enhance rivalry, the very essence of competition.”

39. In paragraph [94] the Advocate General took his cue from “*contemporary economic literature*”. He stated:

“... contemporary economic literature commonly emphasises that the effects of exclusivity are context-dependent. Conversely, few commentators would deny that loyalty rebates in particular can — depending on the circumstances — have an anticompetitive foreclosure effect.”

40. Later he summarised the essence of the competing arguments advanced as to the approach adopted by the General Court.

“132. The appellant argues that the General Court erred in its analysis of the circumstances of the case by failing to consider the following circumstances: (i) the insufficient market coverage of the challenged rebates and payments; (ii) the short duration of the challenged rebates; (iii) market performance of the competitor and declining prices; and (iv) the AEC test carried out by the Commission.”

41. For its part the Commission argued that by their nature the impugned pricing practices were “capable” of restricting competition (cf paragraph [133]) that the “... *judgment under appeal established, to the requisite legal standard, that the rebates and payments offered by Intel were capable of anticompetitive foreclosure. The unchallenged factors suffice to uphold the conclusion that Intel's rebates and payments were capable of restricting competition*”.

42. The Advocate General rejected (in paragraphs [161ff]) the submission of the Commission that the AEC test was irrelevant and he concluded that the failure by the General Court to actually engage with the nuts and bolts of Intel’s expert arguments and evidence on the application of the AEC test was an error.

“161. The appellant considers that when, as in the present case, the Commission has carried out a substantial analysis of the economic circumstances in relation to allegedly abusive conduct it is wrong in law to ignore that analysis simply because it does not help to establish an infringement.

162. The Commission argues that the AEC test is not relevant for establishing that the impugned conduct is capable of restricting competition. In its view, the case-law of the Court does not support the appellant’s claim that the AEC test should be part of an assessment of all the circumstances.

163. In the judgment under appeal, the General Court dismissed the relevance of the AEC test for the purposes of determining, in the context of an assessment of all the circumstances, whether the impugned conduct is capable of restricting competition. Accordingly, it did not review the test applied by the Commission in the decision at issue. First, it considered that the AEC test was irrelevant because, in view of their form, the Commission is not required to demonstrate the foreclosure capability of ‘exclusivity rebates’ on a case-by-case basis. The judgment under appeal dismissed the relevance

of the AEC test essentially because it only serves to verify that the impugned conduct does not make market access impossible. According to the judgment under appeal, 'exclusivity rebates' may hamper market access for competitors of the undertaking in a dominant position, even if access to the market is not economically speaking entirely impossible, but only made more difficult. Second, it noted that, even in relation to rebates falling under category 3, the case-law does not require the use of an AEC test. Third, it observed that the AEC test has been deemed relevant by the Court only in pricing and margin squeeze practice cases, which are inherently different from 'exclusivity rebate' cases.

164. First, as I have demonstrated above (points 122 to 160), it is necessary to consider all the circumstances to ascertain whether the conduct in question is capable of foreclosing competitors also in so far as 'exclusivity rebates' are concerned. In other words, the foreclosure capability must be demonstrated in each individual case. Certainly, the AEC test can be dismissed as irrelevant if one accepts that a mere hypothetical or theoretical possibility that the impugned conduct has an anticompetitive foreclosure effect suffices to establish an abuse. Indeed, in theory, any rebate offered by a dominant undertaking can, in some circumstances, have an anticompetitive effect.

165. However, given that an exclusionary effect is required, the AEC test cannot be ignored. As the General Court noted, the test serves to identify conduct which makes it economically impossible for an as-efficient competitor to secure the contestable share of a customer's demand. In other words, it can help identify conduct that has, in all likelihood, an anticompetitive effect. By contrast, where the test shows that an as-efficient competitor is able to cover its costs, the likelihood of an anticompetitive effect significantly decreases. That is why, from the perspective of capturing conduct that has an anticompetitive foreclosure effect, the AEC test is particularly useful."

43. Will the Court of Justice follow the Advocate General? If it does this might be a watershed moment. But it will not make the task of the General Court easier: On the approach being advocated by the Advocate General a Court will have to engage in a two stage process whereby, first, it finds the facts (and for instance concludes that structurally the discount arrangements of a dominant undertaking contain an element of loyalty); but then, secondly it must proceed to analyse whether in actual fact the discounts are foreclosing notwithstanding their loyalty element. The first stage is traditional fact finding; the second stage is complex economics. The AEC test is one which is established through maths: The knowledge asymmetry will remain.

E. **A more pro-active role by parties**

44. My Gallifrean alien illustration was intended to highlight the two factors that in my experience lead to knowledge asymmetry between parties and courts, namely the intrinsic complexity of the subject matter of a dispute and the commensurate complexity of the black box of expert technique being deployed to resolve the dispute. Of course it is not in every case that the expert evidence will reach the level of complexity which poses a threat to justiciability. In very many cases courts are well able to grapple with expert evidence. But the number of cases in which such very complex evidence is relevant is in my view increasing and it is the norm in many types of civil action, such as in competition / antitrust cases.
45. In my view, in those cases where the evidence is very complex, dealing in court with these such pressures requires both the parties and the courts to modify their normal approach. For the parties this entails two things. First, ensuring adherence to recognised best research practices; and second, adopting a far more proactive approach in reducing the scope of the issues which need to be ruled upon by the court.

(i) Recognised best practice

46. In relation to using recognised best practice there is nothing new in my observation. Both the Procedural Rules and related Practice Directions which govern proceedings in this jurisdiction contain provisions on the use of experts and their role: Experts must assist the court on matters within their expertise and they must not trespass beyond their expertise; they should address relevant matters being only those which are “*reasonably required*” to resolve the proceedings; they must be impartial; they

must be even handed and they must consider all of the relevant material including that which is adverse to their reports. What does this mean in practice?

47. I wish to set out some of the standards by which expert's opinions can, and in my view should, be measured.
48. Conflicts of interest and funding: Experts, in law, owe their primary duty to the court, not to the client. But by their nature experts are at risk of being partisan in the sense that they are instructed and paid by a party to put that party's case forward. This does not by itself mean that the expert is biased or is incapable of acting impartially and fairly. But it does place a premium upon experts disclosing any interests that they might have which could create a conflict and/or which might create an appearance of such. It is now standard practice for academic researchers in papers submitted to academic publications to declare their interests including direct and indirect funding sources. In commercial litigation where professional experts are instructed it is obvious that they are being paid by the instructing party. It is not however common place that their fees are revealed. Though in these days of increased pre-trial cost capping an expert's fees may well be disclosed in advance. This proves at least that the level of fees being paid is not an issue that could be argued to be confidential. It is in fact far better if there is transparency in this regard.
49. Peer review/literature bases: Peer review is a process whereby the world at large can scrutinise the output of research endeavour. The front rank of academic publications submit all submitted papers to peer review prior to acceptance for publication. It may be rare, in the context of litigation, for an expert to be able to submit a report to peer review before serving it in proceedings. But when an expert is expressing an opinion about an issue which is the subject of research and comment by others then the expert should take that pre-existing literature base into account. That opinion should

also identify whether the literature that is being reviewed is peer reviewed. This helps avoid the “*echo chamber*” problem which arises when experts seek to back up their own conclusions by reference to third party research which is not independent and/or peer reviewed but which supports their views. If an expert refers and relies upon literature which does not adhere to best practice then a spurious impression can be presented in the opinion that there is a corpus of respectable opinion which buttresses the expert’s opinion. An objective expert should acknowledge the existence of the literature base which adheres to best practice and then address any contrary opinions and views. An expert who deliberately ignores this material is not acting in accordance with his or her duty to the Court to address all relevant evidence and material and to bring it to the attention of the Court.

50. The articulation of assumptions: In many if not most cases expert’s conclusions will be based upon certain assumptions. In some cases these might be given to them by the lawyers but in other cases the experts themselves will determine the assumptions that their opinions rest upon. For a Court the assumptions, especially in the latter case, will rarely be transparent unless the expert sets them out in a comprehensive and understandable manner. Clarity is essential for two different reasons. First, because without transparency the court and opposing parties cannot test or verify the correctness of the expert’s ultimate opinion. But secondly, because if the assumptions are hidden from view (because they are clouded in technical obscurity) the Court might be entitled to conclude that the opinion has not been verified, and may therefore be suspect and should not be accorded full probative weight. In my view there is no reason why in this respect a Court should be placed in a worse situation than financial and economic regulators around the world whose guidelines habitually make clear that when economic modelling is performed it is an essential part of the task they perform to review the models and the underlying assumptions from the roots upwards. Regulators routinely require expert evidence that is submitted to then

be subject to full verification and this can entail disclosure of the underlying software and algorithms used to construct models. An argument that any particular model is not based upon assumptions will rarely if ever be accepted⁷. For instance the integrity of regression analysis, which is increasingly used as a valuable tool in regulatory decision making and in litigation, has been recognised in the academic literature but also by regulators and expert commentators as being a function of its verifiability⁸. Being transparent in this regard enables a Court to know whether the assumptions accord with real life or are based upon false notions or skewed statistics. If transparency is the norm it provides a powerful *ex ante* incentive on the expert to ensure accuracy. The prospect of being successfully cross-examined on the assumptions and having to concede that they are inaccurate or incomplete or out of date or based upon non-peer reviewed literature should encourage experts to be robust from the outset in not advancing opinions which are unsupportable. There are many ways in which transparency can be achieved. In my experience the best reports (in the sense that they are the easiest for courts to handle) are those where the assumptions are set out in non-technical terms which make clear exactly what is and what is not assumed.

51. Maths: Maths should be avoided where possible. I once heard an American Judge at an antitrust conference in New York express the view (with only half of her tongue in her cheek) that as a matter of principle any party that used maths lost. I have a clear memory of seeking to explain in language that I thought was very simple to the General Court in Luxembourg an error in the analysis used by the Commission in a

⁷ See by way of example the CMA publication on best practice for the submission of technical economic analysis: CC2com3; and the EU Commission publication “*Competition best practice for the submission of economic evidence and data collection in cases involving the application of Article 101 and 102 TFEU in merger cases*”; see generally the discussion in *BAT v SSH* [2016] EWHC 1169 paragraph [825ff].

⁸ See e.g. the classic analysis by Professor Alan Sykes “*An Introduction to Regression Analysis*” (Coarse-Sandor Institute for Law & Economics Working Paper No. 20, 1993); and Niels, Jenkins and Kavanagh “*Economic for Competition Lawyers*” (2011). See generally pages [568ff].

competition case. The submission I was making was (my expert assured me) utterly incontrovertible and the Commission did not even attempt to question the maths. I refined my submissions on the point so that they were as simple as possible and when the judges subsequently came to look at the transcript of the hearing the maths would be there in black and white terms. I was deluded. The point was skirted around and ignored in judgment. You use maths at your peril. But I should be clear that in my view I can see no justification for a Court taking the view or stance that maths is non-justiciable. Where in (say) administrative law, regulatory or ordinary civil proceedings an outcome (eg the impugned decision or the quantum of damage) depends for its logic or reasoning upon maths then it is the duty of the Court to find a way to resolve the dispute. The example I gave in a judgment in one administrative law case⁹ was of a decision which turned upon the application of a mathematical formula where there had been an error in the placing of a decimal point (one point to the right). It is easy in such a case to see that the end result might be out by a factor of ten and this could be a material error. A judge or Court might experience extreme difficulty in locating or unearthing the error (because it is embedded in the ninth equation down in footnote 47 on page 23 of schedule 17 to the expert's report) and even greater difficulty in understanding it, but that does not mean that the error is not in objective terms serious or that once unearthed it should be ignored, *just because it is maths*. On the contrary it is the duty of the Court to ensure that it is practically justiciable (in the sense that I have already referred to).

52. Internal documents: A further aspect of verifiability is the benchmarking of an experts opinion against practical reality and that is generally best reflected in the internal documents of the instructing party. This is not often a real issue because in normal civil litigation experts will be instructed in proceedings encompassing

⁹ *R (Gibraltar Betting & Gaming Association) v SSCMS* [2014] EWHC 3226 (Admin) at paragraph [100].

disclosure so that they will be incentivised to avoid taking positions which are contradicted by the party's internal documents; to do so risks cross examination or criticism upon the basis that the opinion does not reflect real life and, as it is frequently put, the client is often its own best expert. The same goes for regulatory proceedings where the decision maker will possess powers to issue requests for information and documents and this stands as a proxy for disclosure. In competition and other economic regulatory cases the decision makers frequently have the power to conduct dawn raids and so can collect for themselves inculpatory and exculpatory material. But there are occasions (such as in judicial review) when disclosure is not the norm or the duty to disclose does not bite in the same way. This gives rise to the risk that an expert is used as the "voice" of a party who knows that the expert opinion being voiced on its behalf is not one that necessarily accords with its internal documents.

53. Reputations: I wish to make a point about reputations. Not infrequently as judges we hear cases where experts of the most remarkable pedigree are called to give evidence. It can be a joy and a privilege to have such persons give evidence in Court. My experience is that in the main such individuals value their reputations too highly to permit themselves to be clouded by "spin" or a client's litigation interest. I have thus seen experts who when questioned find themselves enthusiastically agreeing with their cross examiner, not because they are poor witnesses but because they are straightforward and unwilling to do more than "*tell it as it is*". And when they do disagree and stand their ground and advance an argument which happens to support their client's position judges tend to accord great weight to that endorsement. But pedigree guarantees nothing: A Nobel prize winner instructed in a case is not necessarily right just because he or she has been honoured by the Swedish Academy. Indeed the work of that person as presented to the Court might be an astonishingly good piece of research. But if it cannot be verified or if the assumptions used are

lacking in transparency or if it cannot be benchmarked against potentially inconsistent internal documents or if it not peer reviewed or ignores relevant industry wide literature then these are all good reasons for according it lesser weight than another expert of far less grand a stature whose opinion *does* adhere to recognised best practice principles.

(ii) Boiling Down

54. Adherence to the standards that I have referred to should be a norm. If an expert does not meet such standards I can see no reason why a Court should not reduce the probative weight to be attached to the evidence. These internationally recognised standards are tools which assist Courts to differentiate between competing expert contentions. In an ideal world of course all experts would adhere to high standards and this would avoid Courts having to choose between experts on the basis that one or another of them has failed to match up to recognised standards. A Court that is compelled to choose in this way is engaged in a second-best exercise. A non-adhering expert might, in theory at least, still be expressing the correct opinion. It would therefore be unfortunate if non-adherence to best practice standards became the cause for a conclusion that the opinion of an expert was not sound or robust.
55. But adherence to such high standards does not make the life of a Court easy. The task of evaluating competing sets of complex reports prepared impeccably by experts of high degree remains daunting. I turn therefore to the critical question of how the parties should take responsibility for boiling down the issues to their absolute essentials in order to facilitate the task of reducing the knowledge asymmetry and enhancing practical justiciability.

56. I should like to set out a series of steps that I consider might, when properly adapted to meet the exigencies of any particular case, enable courts to resolve more effectively complex issues. The steps are based upon the premise that in such cases the answer to making the evidence practically justiciable is for a “*process driven solution*”.
57. I would emphasise three preliminary points before setting out the steps. First, they are as important for specialist courts and tribunals as they are for non-specialist forums. There is in all cases a familiarisation gulf between the parties and the court. The parties will usually have spent months or years working with the experts and will have acquired a deep understanding of the issues and the arguments. I know from experience that what may seem perfectly obvious to the advocates after months of hard work may be very far from clear to a court upon first encounter. Courts, including specialist courts, do not have the same amount of time to study and absorb the expert evidence of the parties and do not have the distinct advantage that the parties have of being able to “*talk it through*” with the team, and that sense of conducting an isolated exercise is heightened once the oral hearing is over and the task of judgment writing commences. This imbalance has to be recognised, understood and catered for. The second point is that the real focus or target of my observations is on those cases where complex evidence is in issue and where the risk of the knowledge asymmetry is at its greatest. Many in this audience will be familiar with competition and economic regulatory cases where complex evidence of the sort that I am referring to is par for the course. There are however many cases where expert evidence is in play which will not necessarily require especially tailored procedures, though in my experience even in cases where the expert evidence is not voluminous or complex it remains thoroughly good case management practice for those experts *still* to be required to boil down the issues. The third point is that the suggestions that I make below will need to be modified to fit the particular facts of each case. There is no single “best” or “optimal” solution, no “one cap fits all”.

58. The key to making complex issues practically justiciable turns upon the parties and the experts accepting that they owe their primary duty to the court and eschewing gaming the expert evidence process. The earlier that experts, encouraged by their legal teams, engage with each other to drill deeply into the issues and identify those that are key and material, the better. It is obvious that one side (and sometimes all) might have a forensic incentive not to do this – obfuscation might be the tactical order of the day. But this is not good enough. The rules require active cooperation with the court by lawyers and by experts. So to my suggested steps.
59. First, the parties should, if at all possible, require their experts to engage with each other at the earliest possible opportunity in order to identify the key issues in the case and to consider how the expert evidence should be presented to and addressed by the court. The parties should not await case management hearings before embarking upon this process. The parties should by early engagement be in a position to recommend sensible issue reduction steps at the first case management hearing. I would add that I would expect the process of expert engagement to more or less eliminate disputes about maths. So for example if the dispute is as to whether a decision is based upon conclusions derived mathematically and it is said that there is an error in the maths the experts should expect to reach agreement on whether there is in fact an “error”; and if exceptionally there is a very good reason why this cannot occur then even greater effort should be expended by the parties in working out how the dispute is to be made practically justiciable because the Court or Tribunal is unlikely to be happy to be asked to resolve a dispute turning upon whose equation is to be accepted and whose rejected.
60. Second, the experts should meet and identify the areas in dispute between them and they should then draw up a list which identifies both areas of agreement and areas of

disagreement. This needs to be properly recorded. Areas of agreement may be capable of record in the form of agreed facts or materials.

61. Third, in relation to each area of disagreement the experts should then seek to agree which are material and which are immaterial to the outcome and why. This is critical because disputes which are not material should henceforward be disregarded. Again the process should be properly recorded so that the court has a record which may be referred to in judgment. The exercise should also set out the respective views of the experts on the *extent* of the materiality of the dispute given that there can and probably will be degrees of materiality.
62. Fourth, in relation to the remaining material disputes the experts should set out why they disagree and their criticism of the other expert's opinion. Any assumptions underpinning an expert's view should be clearly and concisely set out in terms which are understandable by a non-expert.
63. Fifth, in relation to each and every remaining material dispute the experts, perhaps assisted by the legal representatives, should identify and list all documents and/or pieces of evidence relevant to the resolution of the dispute. This can give rise to disputes over disclosure. In my experience when these disputes come before the Courts it is, in practical terms, quite difficult for the Court or Tribunal to get a real handle on the merits. How can one tell for instance at what might be a relatively early stage of the litigation whether the particular data set being sought will turn out to be of substantial or (conversely) marginal or no relevance? But generally the Court or Tribunal can form a view whether *in principle* the category of disclosure sought is *capable* of generating relevant evidence when later used by the experts. In such cases one solution which can be used to control costs and time is to order disclosure but only on a limited "sampling" basis designed to see whether in actual fact that category of disclosure is productive and of utility. If it is then a broader disclosure exercise

might be permitted to occur as a second stage. Another solution might be to require the parties to set out in a witness statement detailed background information about an issue that might be the subject of disclosure or expert comment, which can then be used to focus the party's attentions on key matters¹⁰.

64. Sixth, the expert's should set out their opinions on what the court must decide and how this can be achieved. It is my experience that issues which ostensibly appear to be complex frequently turn upon relatively narrow disputes about evidence, for example the construction of a contract or the inferences to be drawn from a piece of literature. I recall in one case that an issue was whether a cost was to be treated as fixed or variable and the evidence relating to this turned upon a dispute over the period of time over which the cost should be amortized. The evidence for this amounted to three pieces of trade and business literature which provided information about how investment on innovation in the sector occurred. Once it was agreed that this was the key evidence resolving the issue became relatively easy. At first blush the issue as presented by the parties was a choice between three sums of money (figures for cost) expressed quantitatively. But selecting the correct figure becomes straightforward when the choice turned upon no more than whether the literature showed that the activity that the disputed sums of money related to should take place over the short, medium or long term. In relation to disputed pieces of evidence the experts should set out a summary of their contentions. So for example in the example I have just given the experts could identify what particular points in the literature they relied upon and why. It should be made plain what consequences would flow from a ruling by the court on each issue, i.e. what the dispute goes to and how significant the answer is to the overall case.

¹⁰ See e.g. *Peugeot SA and others v NSK Ltd, NSK Europe Ltd, and NTN Corporation* [2017] CAT 2 at paragraphs [20ff].

65. Seventh, the entire process needs to be reduced to a single composite document or set of documents representing the entirety of the exercise the court is expected to perform. This is important (a) because it provides a record for the court and (b) because it will enable a limit to be set upon the documentary evidence that is then placed before the court. The format of this document may be important and the Court or Tribunal might wish to see a draft submitted to it by the parties for its approval. If the template is agreed the Court can then rest assured that if the experts follow the process reflected in the template the evidence in dispute will be presented in Court in the format which makes it most easily digestible.
66. Eighth, relevant experts must in this exercise comply fully with the wording and spirit of CPR 35. The court must be confident that the experts are aware that their overriding and primary duty is to the court and that this awareness feeds constructively into the exercise being contemplated. Expert declarations are not mere mantra. They should be viewed as a statement that the expert takes seriously his or her obligations.

F. And a more proactive judicial role

67. This brings me finally to the second side of the equation: namely the role of the court. The counterpart to the efforts to be made by the parties must be those made by the court. We have the procedural rules and tools and we need to use them. I wish to mention three principal aspects to this.
68. First, judges need to be more proactive in ensuring that the parties do in actual fact address themselves to the issue of constraining expert evidence. This implies early case management. But it also requires the parties to be able, at an early stage, to inform the court as to the steps they propose to take to boil the issues down. If Courts

can trust the parties to do this there are real benefits. First, the size of expert reports should be reduced because before the experts commence the task of drafting their reports they will, effectively, have identified the key issues and their drafting remit will hence be far more focused and targeted than it would otherwise be. Indeed, in a given case there might be no need for expert's reports if the expert's views are amply reflected in the final joint document submitted to the Court. Second, disclosure may also be curtailed significantly thereby reducing costs and shortening litigation timetables. And since few parties enjoy disclosure (or at least disclosing) this might be welcomed. Third, settlements will be encouraged because there will be earlier engagement with the true issues in the case and the parties will be assisted in the process of forming a realistic view on ultimate merits and chances of success. This (hopefully) will also be because the process should lead the parties to conclude that the court is ultimately more likely to arrive at the right answer so making litigation "risk" more transparent. Fourth, parties generally should be more confident that they can bring claims of real complexity to the court safe in the knowledge that the courts will find a way of resolving those disputes cost effectively and fairly.

69. The next point relating to the task of the court is to require courts to exercise independent judgment over the extent to which experts have in fact gone the "*extra mile*" to reduce the scope of a dispute. In this connection the use of court appointed experts or assessors is a potential tool that is available. It is a power used relatively infrequently. The power to appoint assessors exists pursuant to section 70(1) Senior Courts Act 1981 and CPR 35.15. The court could consider appointing an assessor if it is considered that there is yet further scope for the issues to be boiled down at the end of the process undertaken by the parties to reduce the scope of the dispute. This power might be exercised if the court is not satisfied that the parties (or one of them) have shown sufficient "enthusiasm" for the boiling down process. There is also scope to appoint an assessor if the court considers that it requires a "*teach in*" to enable it

better to understand the position adopted by the experts. A recent illustration, in the Patent Court, of the use of such assessors is described in the judgment of Birss J in *Electromagnetic Geoservices ASA v Petrolumn GEO-Services ASA* [2016] EWHC 27 (Pat) at paragraphs [27] – [36]. In that case the Judge ordered the appointment of a specialist scientist to provide a non-controversial one day introductory course to the Judge in the use of a particular technology. In the final judgment in the above case ([2016] EWCA 881 (Pat)) the Judge explained how useful the teach-in process had been. The judgment is a useful explanation of how and why the use of third party assessors or experts can save a court time and costs and lead to enhanced justice. The procedural rules in the CPR give the court considerable flexibility. The court could require a party to pay the costs of the independent assessor if it is considered that one party's unwillingness to cooperate in earlier stages has caused the extra costs to be incurred.

70. The third point concerns the willingness of the Court to adopt flexible case management approaches to the way in which the expert evidence is actually tendered in Court. An approach that courts might take is to direct “*hot-tubbing*”; more prosaically known as “*concurrent expert evidence*”. This refers to the practice of hearing evidence from experts in a particular discipline at the same time. The practice took root in the Competition Tribunal in Australia and was subsequently adopted more generally in the Supreme Court of New South Wales. The experts were required pre-trial to meet in order to identify where they agreed and disagreed and in the course of the trial experts in the same discipline were sworn in at the same time and the judge then chaired structured discussions between the experts. The pre-trial document recording the matters upon which the experts disagreed served as the agenda. Counsel participated in the discussion. They were entitled to question the experts as and when permitted by the court. Experts were permitted to question each other. According to a talk given by Lord Justice Jackson on the topic on the 29th June

2016 at the London Conference of the Commercial Bar Association of Victoria the procedure has spread widely throughout the Australian Courts and has been incorporated into the procedural rules of the Federal Court. The experience of Australia indicates that the practice is effective in saving both time and costs and repatriates to experts their proper role of assisting the court to resolve disputes. It does away with the gladiatorial combat between cross-examining counsel and expert that was hitherto characteristic of litigation. The practice has, albeit slowly, begun to take root in this jurisdiction. A number of judges in the Technology Construction Court (“TCC”) regularly use “hot-tubbing”. For some judges it is now the rule rather than the exception. The experience is that experts in the field of construction engage well with each other and in court may debate a point constructively to the exclusion of the lawyers who then participate (probably to their chagrin) as no more than interested onlookers. The practice has been used on a few occasions in the Chancery Division with the judges involved expressing positive views. It was also used by Mr Justice Roth in a competition case: *Street Map. EU Limited v Google* [2016] EWHC 253 (Ch) at paragraphs [47] and [132ff]. During May 2016 a major set of construction chambers polled its members as to their experience. There were 15 responses with seven respondents speaking favourably or very favourably of the process with three being hostile. For “hot-tubbing” to be effective it presupposes that the judge is on top of the expert issues *prior* to trial otherwise the process of a judge-led structured dialogue will not be effective. And this presupposes also that the material the judge is required to pre-read is comprehensible and manageable. Both premises might be optimistic, albeit that experience from judges familiar with the process is in fact very promising. Of course the hot-tubbing process can be deployed flexibly: the judge can combine inquisitorial questioning from the bench with cross examination by counsel. There are thus many different ways in which the process can be managed so as to maximise efficiency.

71. That brings me to the end. I conclude with a few words about the man whose name adorns this lecture. But to do that I need to star-hop.

Conclusion: The Gallifrean advocate

72. If my hypothesis about Gallifrey is correct then somewhere out there – many light years away in a distant galaxy – there is a court in which the Gallifrean equivalent of David Vaughan QC is making submissions. He will be a mirror image of the Earth bound version. Accordingly that advocate will have left, in his wake, a string of triumphs in cases which will have impressed their mark on the Gallifrean constitution and the laws of the Gallifrean Economic Union (“the GEU”). He will be a force to behold in Court. His oratory will be a heady mix of humour coupled to an uncanny instinct to sniff out a good point; often a point that no one else has thought of. He will be *a bon viveur*. His Gallifrean juniors will relish working with him because his cases always entail fabulous post-judgment dinners to celebrate a win (and even bigger and better dinners to commiserate a loss). That Gallifrean David Vaughan QC is a true expert in his field; and so is ours. Thank you.