



- 6 However, I noted that no request for a further extension had been filed by way of Patents Form 52 with evidence supporting such a request; Mr Sessford explained that the reasons for the extension were as set out in the applicant's skeleton argument of 13 July 2017. Even so, in the absence of a formal request, I did not consider myself able to determine whether discretion should be exercised favourably at that time. I did advise that, should such a request be filed, it was highly likely that the examiner would view it in a favourable light.

### **The invention**

- 7 The application relates to the operation of a graphical display/interface as part of a process control system for running a process plant, such as a chemical plant. The purpose of the interface is for the operator to monitor the operation of the plant, to take action as a result of data being provided, and to provide programming updates to the distributed elements of the control system.
- 8 The invention identifies a series of relationships between elements of the process control system – for example, between a heater and the pump which supplies it with material, or between the pump and a document setting out its safe operating parameters – and provides them to the process control system. The relationships are then associated with, and used to connect, graphical representations of the elements within the display, so that a user can select a graphic on their display and be directed between the related elements as required for navigation.

### **The claims**

- 9 In the applicant's skeleton argument, a "Main Request" set of claims is provided as the basis for the hearing. This set of claims largely corresponds to those filed by the applicant on 27 July 2016, i.e. at an earlier stage of prosecution. The only modifications that have been made are to address an issue of clarity with regard to claims 16-26, and to remove omnibus claims (which, since 6 April 2017, are only permitted in certain limited circumstances in accordance with rule 12(6A)). The examiner noted that he had no remaining objections to these claims – excluded matter objection aside.
- 10 The Main Request comprises three independent claims – 1, 15, and 27. Claim 1 is directed towards a method of navigation in an operator display in a process control system for use in a process plant; claim 15 to a graphic display editor for use in a process plant; and claim 27 to a computer system for use in a process control system, essentially carrying out the method of claim 1.
- 11 Claim 1 of the Main Request is as follows:

*A method for navigation in an operator display in a process control system for use in a process plant, the method comprising:*

*receiving a list of relationship value references and process control graphical element identifications associated with each relationship value reference, wherein each process control graphical element identification uniquely identifies a process control graphical element of the operator display, wherein each process control graphical element graphically illustrates an entity within the process plant, and wherein each relationship value reference*

*uniquely identifies a logical and/or physical relationship between two or more entities within the process plant, wherein the relationship value reference comprises a process control tag that uniquely identifies a first process control entity, a process control tag type that references a description of the first process control entity, a related process control tag type that references a description of a second process control entity related to the first process control entity, and a related process control tag that uniquely identifies the second process control entity;*

*binding each relationship value reference to two or more process control graphical elements of the operator display based on the associated process control graphical element identifications, wherein*

*a relationship value reference bound to two or more process control graphical elements uniquely identifies the logical and/or physical relationship between the two or more entities graphically illustrated by the two or more process control graphical elements;*

*displaying a first process control graphical element in the operator display;*

*reading, in response to a user selection of the first process control graphical element, a relationship value reference bound to the first process control graphical element; and*

*displaying a second process control graphical element linked to the first process control graphical element by the relationship value reference binding the first and second process control graphical elements.*

- 12 Alongside the Main Request, the applicant filed two additional claim sets, labelled as First and Second Auxiliary Requests. In the applicant's skeleton argument, they asked that each request be considered in turn, in the event that the preceding request is not considered to constitute patentable subject matter. I adopt such an approach in this decision.
- 13 The First Auxiliary Request comprises two independent claims – it omits claim 15 of the Main Request (and its dependents), and incorporates the features of claims 12 and 30 as filed into the two remaining independent claims. It includes a feature whereby the list of relationship value references and process control graphical element identifications is retained locally on the individual operator workstations.
- 14 Claim 1 of the First Auxiliary Request is as follows, with differences from the Main Request indicated:

*A method for navigation in an operator display in a process control system for use in a process plant, the method comprising:*

*receiving a list of relationship value references and process control graphical element identifications associated with each relationship value reference, wherein each process control graphical element identification uniquely identifies a process control graphical element of the operator display, wherein each process control graphical element graphically illustrates an entity within the process plant, and wherein each relationship value reference uniquely identifies a logical and/or physical relationship between two or more entities within the process plant, wherein the relationship value reference comprises a process control tag that uniquely identifies a first process control entity, a process control tag type that references a description of the first*

process control entity, a related process control tag type that references a description of a second process control entity related to the first process control entity, and a related process control tag that uniquely identifies the second process control entity;

binding each relationship value reference to two or more process control graphical elements of the operator display based on the associated process control graphical element identifications, wherein

a relationship value reference bound to two or more process control graphical elements uniquely identifies the logical and/or physical relationship between the two or more entities graphically illustrated by the two or more process control graphical elements;

displaying a first process control graphical element in the operator display;

reading, in response to a user selection of the first process control graphical element, a relationship value reference bound to the first process control graphical element;

displaying a second process control graphical element linked to the first process control graphical element by the relationship value reference binding the first and second process control graphical elements; and

receiving a list of relationship value references and process control graphical element identifications associated with each relationship value reference comprises:

receiving a list of relationship value references and process control graphical element identifications associated with each relationship value reference from a relationship storage database; and

replicating the list of relationship value references and process control graphical element identifications associated with each relationship value reference on an operator workstation running the operator display.

- 15 The Second Auxiliary Request adopts the claim set filed with the Office on 30 March 2017, which was the final claim set considered by the examiner. There are again three independent claims – 1, 15 and 27. These claims incorporate a feature of enabling the user to control a process within the process plant by way of the display enabling the user to create or modify control modules (which are instructions provided to field devices in the plant to carry out the required operations).
- 16 Claim 1 of the Second Auxiliary Request is as follows, with differences from the Main Request indicated:

*A method for navigation in an operator display in a process control system for use in a process plant and of controlling the process plant, the method comprising:*

*receiving a list of relationship value references and process control graphical element identifications associated with each relationship value reference, wherein each process control graphical element identification uniquely identifies a process control graphical element of the operator display, wherein each process control graphical element graphically illustrates an entity within the process plant, and wherein each relationship value reference uniquely identifies a logical and/or physical relationship between two or more entities within the process plant, wherein the relationship value reference*

*comprises a process control tag that uniquely identifies a first process control entity, a process control tag type that references a description of the first process control entity, a related process control tag type that references a description of a second process control entity related to the first process control entity, and a related process control tag that uniquely identifies the second process control entity;*

*binding each relationship value reference to two or more process control graphical elements of the operator display based on the associated process control graphical element identifications, wherein*

*a relationship value reference bound to two or more process control graphical elements uniquely identifies the logical and/or physical relationship between the two or more entities graphically illustrated by the two or more process control graphical elements; and*

*enabling a user to view and control one or more processes within the process plant by:*

*displaying a first process control graphical element in the operator display;*

*reading, in response to a user selection of the first process control graphical element, a relationship value reference bound to the first process control graphical element; and*

*displaying a second process control graphical element linked to the first process control graphical element by the relationship value reference binding the first and second process control graphical elements, enabling a user to create or change a control module based on the display, and download the control module to an entity within the process plant, for execution during operation of the process plant.*

- 17 For each claim set, the applicant submits that generally the independent claims stand or fall together on the matter before me. However, in their skeleton argument, the applicant indicated that they would be prepared to omit claim 15 and its dependents from the Main and Secondary Requests if it proved to be a barrier to acceptance.

### **The law**

- 18 Section 1(2) declares that certain things are not inventions for the purposes of the Act, as follows:

*It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –*

*(a) a discovery, scientific theory or mathematical method;*

*(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*

*(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;*

*(d) the presentation of information;*

*but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.*

- 19 The examiner and the applicant agree that the assessment of patentability under section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*<sup>1</sup>, as further interpreted by the Court of Appeal in *Symbian*<sup>2</sup>.
- 20 In *Aerotel*, the court reviewed the case law on the interpretation of section 1(2) and approved a four-step test for the assessment of what is often called "excluded matter", as follows:

*Step one: properly construe the claim*

*Step two: identify the actual contribution (although at the application stage this might have to be the alleged contribution)*

*Step three: ask whether it falls solely within the excluded matter*

*Step four: check whether the actual or alleged contribution is actually technical in nature.*

- 21 Subsequently, the Court of Appeal in *Symbian* made clear that the *Aerotel* test is not intended to provide a departure from the previous requirement set out in case law, namely that the invention must provide a "technical contribution" if it is not to fall within excluded matter. The *Aerotel* test has subsequently been endorsed by the Court of Appeal in its decisions in both *HTC*<sup>3</sup> and *Lantana*<sup>4</sup>.
- 22 Lewison J (as he then was) in *AT&T/CVON*<sup>5</sup> set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC* the signposts were reformulated slightly in light of the decision in *Gemstar*<sup>6</sup>. The signposts are:

*i) Whether the claimed technical effect has a technical effect on a process which is carried on outside the computer.*

*ii) Whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run.*

*iii) Whether the claimed technical effect results in the computer being made to operate in a new way.*

*iv) Whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer.*

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<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

<sup>2</sup> *Symbian Ltd's Application* [2008] EWCA Civ 1066; [2009] RPC 1

<sup>3</sup> *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451; [2013] RPC 30

<sup>4</sup> *Lantana Limited and The Comptroller General of Patents, Designs and Trade Marks* [2014] EWCA Civ 1463; [2015] RPC 16

<sup>5</sup> *AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat); [2009] FSR 19

<sup>6</sup> *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2009] EWHC 3068 (Pat); [2010] RPC 10

v) *Whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

- 23 The attorney agrees that it is correct to use the established *Aerotel* test, but points to a number of decisions of the Patents Court and the Office as being of particular relevance in terms of applying the test correctly in the present case. I consider his points about the impact of those decisions as a part of my analysis below.

### **Arguments and analysis – Main Request**

- 24 As the claim set for the Main Request is (save for minor clarity points and deleted omnibus claims) a reversion to a previous iteration, the examiner's final examination report, as relied upon in the pre-hearing report of 11 May 2017, is not directed precisely towards the claims of the Main Request. His position in relation to these claims is in essence set out most recently in his examination report of 30 November 2016, in which the examiner maintains that the claims define an invention which consists of a program for a computer and the presentation of information. Detailed arguments against the examiner's position are contained in the applicant's skeleton argument of 13 July 2017, and these were elaborated clearly and helpfully at the hearing.
- 25 Taking all these arguments into account, I must determine whether the claimed invention relates solely to excluded subject matter under section 1(2).

### Properly construing the claims

- 26 Throughout the examination process, the examiner and the attorney have been in agreement that the scope of the claims is sufficiently clear, such that there have been no issues arising under step one. I agree, and note that the applicant's skeleton argument provided a summary of the content of claim 1, which Mr Sessford helpfully augmented in the hearing.
- 27 Claim 1 is directed to a method of navigation in an operator display in a process control system, and concerns providing relationship value references and identification of associated graphical elements to a process control workstation. Each graphical element identification uniquely identifies a process control graphical element of the operator display, and each process control graphical element graphically illustrates an entity within the process plant.
- 28 Each relationship value reference comprises a process control tag that uniquely identifies a first entity, a process control tag type, a second related process control tag type, and a related process control tag that uniquely identifies a second process control entity. In this way, each relationship value reference uniquely identifies a logical or physical relationship between entities. Each relationship value reference is then linked to two or more process control graphical elements (the claim uses the term "*binding*"). The workstation then, in operation, displays a graphical element which the user can select and then navigate to a related graphical element (representing a different entity) by way of the relationship value reference.
- 29 One of the points that Mr Sessford made is that these entities can be physical devices, control algorithms and parameters, or stored information (such as standard

operating procedures or safety information), and so the contribution is not limited to physical elements such as actuators and valves. I agree with that, and have kept it in mind when considering the contribution.

- 30 Mr Sessford also made clear in the skeleton argument that independent claims 15 and 27 have a “corresponding construction” to that of claim 1, from which the same reasoning followed. I agree with that viewpoint.

#### Identifying the actual or alleged contribution

- 31 In paragraph 43 of *Aerotel*, it is made clear that identifying the contribution is probably best summed up as determining what the inventor has really added to human knowledge, and this involves looking at the substance and not the form of the claim (as construed in step one). However, the court in *Aerotel* acknowledged that, for a patent application (as opposed to a granted patent), it may only be possible to identify the alleged, and not the actual, contribution.
- 32 The examiner’s view is that the contribution made by the invention is a way of linking of graphical representations of related process entities to allow the navigation between those graphical representations to occur.
- 33 Mr Sessford’s view is that, although the claims are limited to a process control system, the contribution provided by the invention is broader, and has implications wider than just for that field. He argues that the invention is about how connections between what he termed “items of interest”– which could be anything from physical items to documents – can be implemented within a graphical interface, and how those links are provided to the system so that it understands that there is a connection. An example Mr Sessford set out in the hearing was of an operating system responding to a selection by a user of a network drive, and then determining “what next to show you” based on relationship information in this context.
- 34 In Mr Sessford’s view, the contribution is not inherently tied to a process control system, and it would be wrong to penalise the applicant because they have chosen to focus on its application in their area of interest. He argues that a proper understanding of the claims should lead to the determination that the contribution is broader.
- 35 The applicant’s submission is therefore that the contribution is a general method and system, within a graphical user interface, of linking graphical representations of entities with graphical representations of related entities, to enable navigation within the graphical user interface. (The skeleton argument sets this in terms of physical entities, but I view that in the light of the earlier discussion of the nature of the entities.)
- 36 The applicant further submits that, if an argument was to be put forward that the contribution is narrower and limited to process control systems, it would be essential to show evidence that the wider sense of the contribution is known. Thus some prior art that shows the contribution in use in another field would demonstrate that the contribution is limited to its application in process control systems. Since, they argue, the examiner did not cite such prior art (and had several opportunities to do so), a narrow view of the contribution cannot be supported.

- 37 During the hearing, I asked Mr Sessford how this wider approach to step 2 built upon the construction of the claims carried out in step 1, as it seemed to render the first step ineffective. If the claim is construed as controlling a process control system, how far can step 2 go in moving away from that construction when determining the contribution?
- 38 In response, Mr Sessford first noted that this could, in his view, be a problem with the *Aerotel* test. He went on to develop his point by drawing a comparison with the invention in *Symbian* and suggesting that, had the claims to its method of operating DLL files been limited to their use in a specific context, this would not have stopped them from being found to provide a wider, more general contribution (and which was not excluded). He also developed an argument that, had such limited *Symbian* claims been found to give rise to only a narrow contribution within the field to which the claims were limited, it would then have been wrong to find them excluded on the basis of this narrow contribution since the actual (wider) *Symbian* claims were allowable. If a claim is not directed to excluded matter, then it is generally accepted that every embodiment covered by that claim must also fall outside of the exclusion.
- 39 I do not think I am assisted by Mr Sessford's initial submission that there may be a problem with the *Aerotel* test. As already noted, he rightly accepts that I am bound to apply the test as it stands. Turning to his other points, I agree with his assessment that all embodiments that fall within a non-excluded claim must themselves be non-excluded – and indeed the corollary that, if there are embodiments of a claim falling within excluded subject matter, the fact that the claim is wide enough to encompass non-excluded embodiments will not be sufficient to save it. These relate to the principle of substance over form, which is obviously important in the identification of the contribution as Jacob LJ set out in *Aerotel* itself.
- 40 However, I am extremely reluctant to draw inferences from *Symbian* in relation to issues which were not explored in the Court's judgment – the facts of that case did not involve a question of this nature. In particular, I do not think it is helpful, in deciding the case before me, to speculate on what the Court in *Symbian* may have determined the contribution to be, in the hypothetical circumstances where the claims were drafted in a more limited way than was actually the case. Nor do I think it is helpful to go on and try to assess what the outcome on excluded matter may have been in these alternative circumstances.
- 41 I now turn to the applicant's argument in relation to the examiner's lack of evidence from the prior art. As already noted, *Aerotel* tells us that identifying the contribution is probably best summed up as determining what the inventor has really added to human knowledge. Thus it is true that prior art can have an effect on the assessment of the contribution (the contrast between the decision in *Aerotel* and the later decision in *Aerotel v Wavecrest* being a prime example), and knowledge of the state of the art is important for this second step.
- 42 However, I do not see that it is necessary for examiners to have to cite prior art simply in order to justify an assessment of the contribution based on a reasonable construction of the claims. It is sufficient that examiners have "some notion of the state of the art", as Lewison J remarked in *AT&T*. I also note that the purpose of searching, as set out in section 17(4), is to identify documents relevant for the assessment of novelty and obviousness. Thus I do not accept Mr Sessford's

contention that, unless the examiner can provide prior art to narrow it, the contribution must be taken to be wider than the type of system to which the claims are directed.

- 43 In my view, the present application is not setting out the broad approach to connecting and navigating between “items of interest” that Mr Sessford relies upon, with a specific embodiment being its use in a process control system. Instead, the specification as a whole is directed towards the operation of a process control system, and there is no indication of a broader impetus or problem in mind – the problem being presented (see, for example, pages 4-5 of the specification) is that these relationships currently have to be hardcoded into the graphical representations to enable navigation, which prevents the inclusion of later relationships or specific useful elements during operation of the process plant. It very much depends on the interconnected, distributed nature of such systems and the need to impart control over process elements that have an effect on other elements.
- 44 The context of the invention as an improvement for a process control system cannot be ignored or set aside. The substance of the claim is directed to the process control system; this is not merely a matter of the form of the claim. I think to take a different view would be to negate the point of step one – which is to properly construe the claim, before moving on to assess the contribution.
- 45 Where then does that leave the contribution? From my conclusion above, it is necessary to include the context of the process control system and its entities. It must also reflect the nature of the problem as discussed above, and that the invention therefore provides a more dynamic mechanism for providing the relationship information to the graphical display. And I must bear in mind Mr Sessford’s reminder that the entities may be more than simply physical elements of the system. Taking all that into account, my assessment of the contribution does not differ greatly from that put forward by the applicant on page 6 of their skeleton argument, save of course for my conclusion that the contribution is limited to the context of process control systems.
- 46 In my view, the contribution relates to a method and system, within the graphical user interface of a process control system, for dynamically providing information which enables the linking of graphical representations of process entities with the graphical representations of related entities, so that a user may be navigated between entity representations within the graphical user interface.

Does the contribution fall solely within excluded matter/is it technical in nature?

- 47 What I must now decide is whether the contribution I have identified above relates solely to a program for a computer and the presentation of information. This corresponds to step three of the *Aerotel* test.
- 48 The fourth step of the test is to check whether the contribution is technical in nature. In paragraph 46 of *Aerotel* it is stated that applying this fourth step may not be necessary because the third step should have covered the question. This is because a contribution which consists solely of excluded matter will not count as being a “technical contribution” and will not, as the fourth step puts it, be “technical in nature”.

Similarly a contribution which consists of more than excluded matter will be a “technical contribution” and so will be “technical in nature”.

- 49 The examiner reached the view that there was no relevant technical effect, because the contribution did not operate at the level of the computer architecture, and did not improve the process control system itself.
- 50 The applicant, relying on the contribution they set out in their skeleton argument, raises two arguments as to why the contribution is technical in nature and so not excluded. Of course, I have determined the contribution to be different and so, whilst I do not think these arguments fall away, I will need to view them in light of that determination.
- 51 The applicant’s first argument is that the contribution provides a better computer system by way of improvements at the operating system level. Mr Sessford returned to the discussion of *Symbian*, noting that the examiner had “argued the well-trodden path” of the invention relating to specific data meaning that it cannot operate at the operating system level. The applicant’s argument is that *Symbian* shows that rejecting such a claim on that basis would be incorrect, because the contribution would have an effect across any program you chose to apply the technique on and is not limited to process control systems. The applicant put it another way – even though some programs may not use a DLL file that relies upon the *Symbian* approach (i.e. the effect is not acting on the data being processed in such circumstances), this did not stop the *Symbian* approach from being considered technical at the architectural level.
- 52 Thus the applicant argues that the contribution lies in the hardware-software interface and “how the computer handles and interprets the hardware system for use in the software”. This, it is argued, has the characteristics of operating system level programs, that operate at the level of the contribution identified in *Symbian*.
- 53 The applicant’s second argument on this front is that the invention provides an improvement to the architecture of the system which aids programming, drawing a parallel with the decision in *HTC*. In other words, the person programming the process control system is better able to design display functionality which encompasses all of the relationship information that the operator will need in order to monitor the process plant. It is said in the skeleton argument that it “reduces the considerable hassle for the operators and programmers...by providing a simple and reliable mechanism for the proliferation of physical entity links into graphical user interfaces”, and this is described as “the architectural backbone which interfaces can use to function”.
- 54 In the hearing, I asked Mr Sessford whether his arguments were being directed at the *AT&T* signposts, and whether any particular signpost was to be considered in more detail. Mr Sessford noted that in his view the signposts tend to blur together, particularly in relation to contributions that function at the architectural level, and so his view was that the contribution made by the invention, which he argues does function at this level, points generally towards the second, third and fourth signposts.
- 55 First, while I do not necessarily agree with the statement made in the skeleton argument that what does or does not form part of an operating system is “arbitrary”, I

do agree with the point made that it is important to look at the characteristics of programs at this level, whilst of course keeping a firm eye on the contribution identified in step two.

- 56 While it is the case that programs such as the one of the present invention provide the ability for the user to interact with and control physical hardware, that is not the level at which the contribution is framed. The program helps the user to be navigated through graphical user interface displays of process control systems. It does this by providing links between graphical representations in a particular way, and this enables the user to be navigated between the different graphical representations. The way of providing those links (via the relationship value references) is said to be a better way of doing this.
- 57 That is where the contribution lies, and it follows that I am not persuaded that it amounts to a contribution which resides at the level of the hardware-software interface. It is a contribution at the level of, and directed to, navigation in a graphical program environment. It concerns the way in which the graphical user software itself functions in providing that navigation. But I do not think it is right to say that the contribution is concerned with “how the computer handles and interprets the hardware system for use in the software”.
- 58 Therefore I am not persuaded that the program’s contribution is one that is made at the operating system or architectural level of the computer. The graphical interface software itself is running in a different way from previous such software. But I do not see that the computer is being made to operate in a new way, or that it is running more efficiently or effectively as a computer. The second, third and fourth *AT&T* signposts point away from there being any technical contribution, and towards excluded matter.
- 59 Turning to the analogies made with *Symbian* and *HTC*, I note first that drawing analogies can be difficult in such a fact-sensitive area. Mr Sessford may be correct that some DLL files might not rely on the technology introduced by *Symbian* but I certainly make no finding on that point. But I do not consider that we are looking at the same sort of contribution in this instance as was the case in *Symbian*. In my view, and setting aside that the applicant’s arguments are directed towards a broader contribution than I have found to be the case, the contribution of this invention does not operate at the same level of abstraction. The invention is an interpretative guide for the display to determine what graphical entities to display and how to interrelate them for navigation purposes. It operates on displaying graphical representations relating to interrelated elements; without such elements or relationships, there is no general principle for the program to provide improvement upon, unlike in *Symbian*.
- 60 The invention in *HTC* enabled programmers to handle multi-touch inputs in a way which was adaptable to the requirements of the application being created; in other words, it was drawing on fundamental operations of the hardware and operating system and enabling programmers to better utilise the functions of the device in all instances of applications doing so. In the present case, and for the reasons set out above, I am not convinced that the invention provides fundamental benefits to the process control system such that it is easier to program in a sense analogous to that set out in *HTC*.

- 61 The applicant's arguments have not convinced me that the contribution is a technical one. I cannot see any other basis for concluding that the contribution provides a technical effect, such that the invention could be said to be more than a computer program *per se*.
- 62 Mr Sessford's arguments in the hearing were directly primarily at the computer program exception, but the general substance of his case was that the contribution being technical in nature meant of course that the invention escaped both the computer program and presentation of information exceptions. However, I have no doubt that the contribution as defined is concerned with how the software provides an improvement to the way in which information concerning the graphical representations of entities and their relationships is provided to the operator. On that basis, it seems to me that the invention also falls within the exclusion concerning the presentation of information.
- 63 Based on all of the arguments, I am satisfied that the contribution is not technical and so the invention resides wholly within excluded matter. It is a program for a computer and the presentation of information and, as such, it fails steps three and four of the *Aerotel* test.

#### **Arguments and analysis – First Auxiliary Request**

- 64 Having determined that the Main Request is excluded under section 1(2), I will move on to consider the First Auxiliary Request. The principles I will apply remain the same.

##### Properly construing the claims

- 65 The additional wording in claim 1 concerns providing the relationship value references and identification of associated graphical elements from a database to a process control workstation, such that a local copy of the references and identifications is stored on the workstation. The claimed invention otherwise operates in the same way as that in the Main Request. I did not consider this to cause any particular issues of construction, and I am grateful to Mr Sessford for pointing me towards Figure 7 of the specification as an illustration of the additional concept being employed.
- 66 The Request also removes the claims in relation to the editor which generates the graphical representations, as they do not relate to how the data is distributed, which is now the focus of the surviving claims. I do not consider that this casts any doubt on the construction of claims that survive.

##### Identifying the actual or alleged contribution

- 67 In the applicant's skeleton argument, they set out the contribution to be the same as for the Main Request except that it includes the feature that the method and system provided is "fast, and reliable". At the hearing, Mr Sessford discussed how the relationship information may be stored in a master database, but that the distributed nature of the process plant means that multiple operators and workstations have to query the master database repeatedly for the relevant data to generate the required display features. Therefore, replicating a copy of the database on the workstation is

desirable. The use of local storage therefore provides reliability and enables more rapid access to the relevant data – hence the additional wording in the contribution which reflects this.

- 68 In the hearing, I asked Mr Sessford whether this shift towards how the data is stored meant that the relationship elements were still part of the contribution. He confirmed that the provision and binding of the relationship data remains key, otherwise the contribution would merely be local caching of data. In his argument, the contribution allows the local workstation to carry out the binding step without having to query the master (remote) database, as it can rely on the local cache instead. It is, in his view, the use of caching in relation to the relationship data which provides the contribution, rather than caching per se.
- 69 The applicant's skeleton argument appears at one point to suggest that this contribution provides a "different architectural model for the distribution of the relationship information"; however, it is not clear to me that the applicant is arguing that the invention of these claims involves a new physical combination of the known hardware. In any event, I can see no basis for concluding that this is the case.
- 70 The difficulty faced by the applicant in my view is that caching at a local computer is very much a fundamental process in computing fields, and it is common general knowledge that caching locally brings the benefits that Mr Sessford sets out in his arguments. Indeed, Mr Sessford agreed that caching alone would not be an appropriate contribution to have identified.
- 71 It is of course the case that, just because a particular feature is known, it cannot simply be ignored or dismissed when assessing the contribution. The interaction between the features of the invention – known or otherwise – must be considered. As Mr Sessford pointed out, there is no evidence that someone has cached this type of relationship data before.
- 72 However, the use of a conventional feature can legitimately be considered not to form part of the contribution where the facts support that view. In my view, this is the case here. It cannot be said that the applicant has added the concept of local caching in these systems to the sum of human knowledge, nor can the applicant be said to have added to the sum of human knowledge the realisation that local caching may improve the speed and reliability of access to data in any system, including the claimed system. That is true regardless of whether anyone has cached this particular data before or not. Furthermore, I do not consider that there is a particular synergy or new interaction between the caching feature and the other elements of the invention (i.e. the linking of graphical representations of process entities with the graphical representations of related entities and which provide the navigation improvements) in a way which would support the contribution including the caching of data. The local caching of data in this system has the effects that would be conventionally expected of caching. As a result, I do not consider that it forms a part of the contribution in relation to the claims of this Request. This means that the contribution is not any different from that of the Main Request.

Does the contribution fall solely within excluded matter/is it technical in nature?

- 73 As I have already considered the arguments in relation to this contribution and found it to fall solely within excluded matter, it is not necessary to go through them again here. However, Mr Sessford raised additional arguments in relation to the nature of the contribution under this first auxiliary Request, which I now consider.
- 74 Under this Request, he contended that the invention was not concerned with the display of information, but rather how the “engine” behind the display functions. Caching, he argued, which was deciding where and when to store data, was technical in itself – he gave the example of virtual memory as an illustration of caching which operates at deep levels of an operating system.
- 75 However, even if it is right to say that caching improves computer performance at an operational level, this argument does not make the contribution a technical one for the obvious reason that caching of the data in a conventional way does not, in my view, form a part of the contribution made by the claimed invention.
- 76 Mr Sessford also raised the judgment in *Gemstar* which, although he considered it not completely comparable, did in his view indicate that the movement of data between storage was an effect outside the computer (which was found in relation to only one of the three patents in dispute in *Gemstar* – the Transfer Patent). He contended that the invention in the present Request was also concerned with movement of data with “a technical intent in mind”; namely faster, more reliable access to data.
- 77 It is once again important to note that the contribution does not in my view encompass the movement or caching of data in the way set out. Furthermore, the discussion of the Transfer Patent in *Gemstar* is relatively brief and I would be reluctant to read more into that discussion than the fact that the movement of data in the circumstances of that particular case was sufficient to avoid excluded matter. I note that judgments of the courts after *Gemstar* have cautioned against simply applying the “transfer of data” point to other contributions; Arden LJ in *Lantana* is an example (at paragraphs 40 and 41 of that judgment). Consequently, for these reasons too, I cannot accept Mr Sessford’s argument that – because the invention relates in some way to the transfer of data – it must contain a technical contribution.
- 78 So, as with the Main Request, I consider that the contribution in this instance fails steps three and four of the Aerotel test, as it resides wholly within excluded matter as a computer program and the presentation of information as such.

### **Arguments and analysis – Second Auxiliary Request**

- 79 Having determined that the First Auxiliary Request is also excluded under section 1(2), I will move on to consider the Second Auxiliary Request.

#### Properly construing the claims

- 80 The additional features provided in the independent claims of this request do not present any particular issues of construction.
- 81 Essentially, they cover the operator using the relationship information provided on the display to modify the functioning of the process control system, and thus

controlling the process plant. The operator's decision to create or modify a control module – which, as mentioned above, is a set of instructions provided to field devices in the plant to carry out the required operations – is informed by what is given on the display, including the relationship information.

#### Identifying the actual or alleged contribution

- 82 In the applicant's skeleton argument the contribution is set out by, in the applicant's words, excising from the definition (for brevity) those aspects of the contribution that apply to the Main Request. The applicant states that "This leaves the contribution as: The provision of a better process plant". At the hearing, Mr Sessford confirmed that the contribution being argued for included all the features and elements of the Main Request.
- 83 Mr Sessford reiterated the point that the entities may be field devices but also documents or other information. The operator therefore could select the representation of a valve, and be brought to instructions on how to control the valve in the circumstances they are being presented with. This would enable the operator to decide what action to take. In other situations, they may be presented with the control module itself, enabling them to make modifications to the instructions given to the relevant field device and return it to the device to carry out the required functions. Mr Sessford emphasised that the relationships therefore have a direct impact on how the operator can access the information that he needs to control the plant. Thus, he argued, the underlying better linking leads to a better user interface, which means that the operator gets access to the information needed in a better way, which means that the plant is controlled in a better way.
- 84 Mr Sessford also remarked at the hearing that he took particular exception to the approach taken by the examiner to assessing the contribution in paragraph 9 of the examination report of 11 April 2017 – which was to state that, because the control operations were those of existing prior art process control systems, the control element does not form part of the contribution.
- 85 Given my analysis in relation to the Main Request, the only question to be resolved at this stage is whether the contribution determined in the Main Request is altered as a result of the inclusion in the claims of the explicit step of the operator using the relationship information to modify the functioning of the process control system.
- 86 As I have already said in this decision, it does not necessarily follow that, because a particular element of a system is known, any contribution made by that element can be dismissed. What is required is to assess the contribution made by the claimed invention as a whole, and so the interaction between the various elements (known or otherwise) needs to be borne in mind.
- 87 It is clear that the invention is able to provide the operator with a better way to navigate to the information that is relevant. Thus the invention provides an improved process plant only in the sense that information is provided to the operator in a more readily accessible form or in a way which allows for more dynamic modification of the relationships behind the display. How the operator acts upon the information provided is unchanged, as is the way in which the plant is controlled by the operator – using the process control software and hardware in a conventional way. There is

nothing added to the sum of human knowledge in terms of the interaction between the improved information, the operator and the control system hardware. The control system itself is not in my view inherently improved as a control system, and it does not operate fundamentally in a way which is different from prior art systems. This indicates to me that the contribution should not be considered to be an improved process control system overall.

- 88 A number of previous decisions of the comptroller were referred to by the examiner and the applicant, and Mr Sessford touched on some of these at the hearing. These included BL O/148/07, O/150/07, O/438/12, O/035/13, O/490/16, O/246/17 in the name of the applicant, and O/312/15 in the name of *The Boeing Company*.
- 89 In particular, Mr Sessford considered the decision in BL O/246/17 to represent a culmination of the reasoning in previous cases and “the nub of the argument” in terms of the question of the patentability of process control systems such as these. The decision, in his view, illustrated that there was a point at which a user interface (which displays information to a user on which they can take action) becomes patentable, as the user’s action forms a contribution made outside the computer. In his view it was the “directness” of the instruction to the user to take action which determined this point. In addition, because the user may be instructed to take a multitude of different actions, it would not be appropriate to require the claim to specify exactly what actions should be taken in order to satisfy this requirement. He argued that a generalised statement as to how the options are presented and acted upon should be sufficient to assess the “directness” of the action, and his point was that the present case falls on the side of allowability when viewed through this approach.
- 90 The previous decisions of the comptroller which Mr Sessford mentions demonstrate, in my view, just how fact-specific the assessment of excluded matter is. The various improvements to process control systems outlined in these cases – which could on one view be considered as in some way “similar” – were clearly found to fall on either side of patentability in different cases and for fact-specific reasons.
- 91 In my view it remains right to consider on the facts of each case whether an invention results in an inherently improved control system, which operates in a different way from prior art systems. Only if it does is it then right to include in the contribution the control system or the step of controlling something (even where that final step of actually controlling a device is not new in itself). An example is BL O/438/12, where the selection of the relevant process model more quickly and with less memory usage led overall to an improved control system. Furthermore, in BL O/246/17 the configurability of the display was held to be a key element in providing a causal link to the control of the process plant, and so resulted in a better process plant.
- 92 I do not consider that these or other decisions show that the contribution I have identified in relation to the present case, and in particular the Second Auxiliary Request, is wrong. It could perhaps be said that this case is closer in terms of the nature of the invention to that discussed in BL O/490/16, which was found not to be patentable. But ultimately I return to the point that these cases are found to be allowable or not on their own terms and based on their facts.

93 In my view, the contribution under the Second Auxiliary Request remains as being a method and system, within the graphical user interface of a process control system, for dynamically providing information which enables the linking of graphical representations of process entities with the graphical representations of related entities, so that a user may be navigated between entity representations within the graphical user interface.

Does the contribution fall solely within excluded matter/is it technical in nature?

94 I have determined that the contribution properly identified by these claims is the same as that of the Main Request. For the reasons set out above, it follows that I consider this contribution is solely within excluded matter and is not technical in nature.

### **Conclusion**

95 I conclude that the invention defined in independent claims 1, 15 and 27 of the Main Request is excluded from patentability under section 1(2)(c) as a program for a computer and under section 1(2)(d) as the presentation of information as such.

96 Neither of the Auxiliary Requests is considered to lead to a different conclusion and, based on the information before me, I cannot identify an amendment that could reasonably be expected to form the basis of a patentable claim. I therefore refuse this application under section 18(3).

### **Appeal**

97 Any appeal must be lodged within 28 days after the date of this decision.

**Dr J E PORTER**

Deputy Director, acting for the Comptroller