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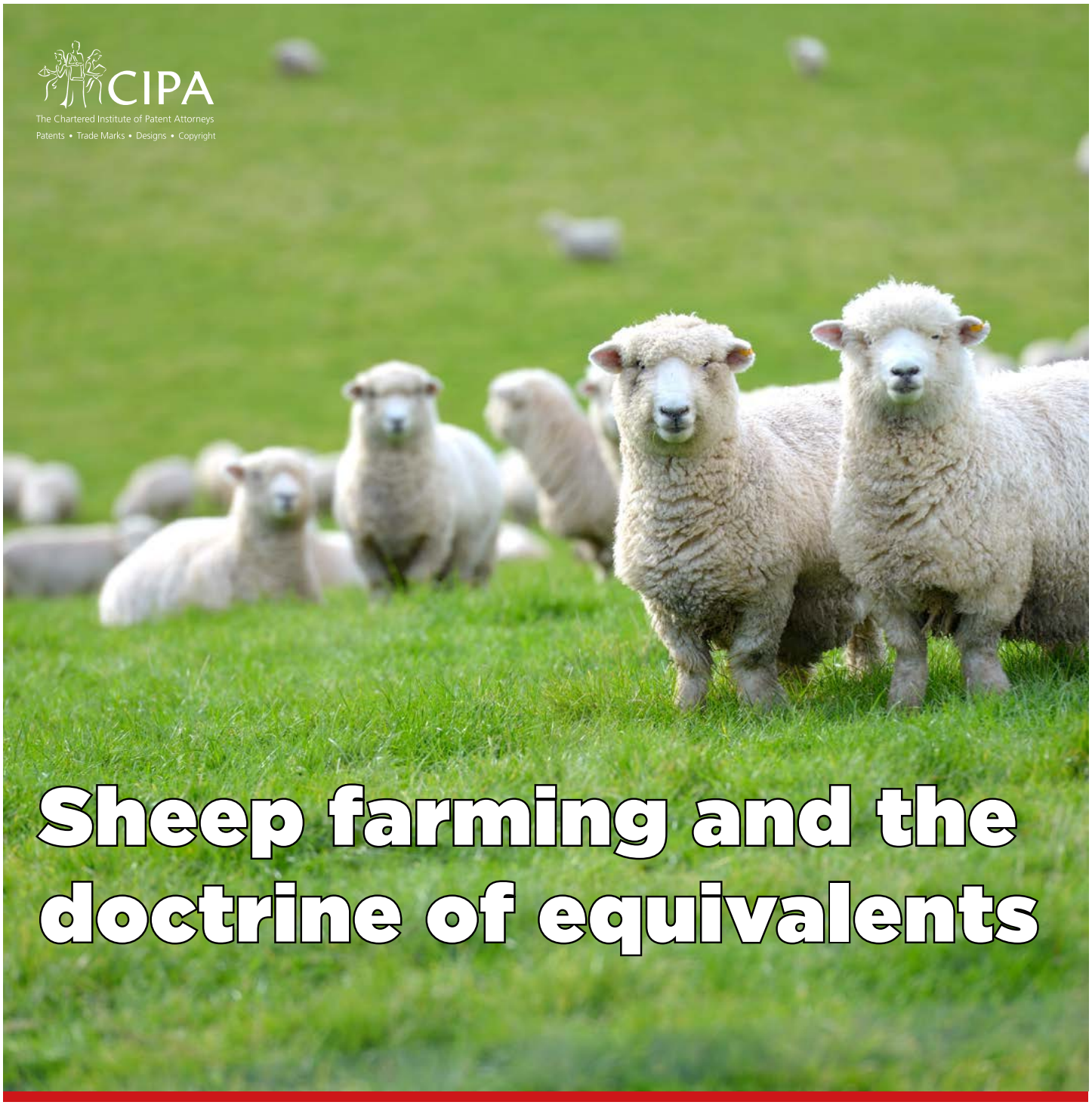

Sheep farming and the doctrine of equivalents

Sheep farming and the doctrine of equivalents

By **Nicholas Fox** (Fellow)

Contemplating the Supreme Court *Actavis v Lilly*[1] decision, and playing around with Word, I was prompted to draw the following two drone's-eye-views of grazing sheep.

As every sheep farmer knows, basically there are two ways you control how sheep graze. You can build a fence (Figure 1), in which case the sheep can eat all the grass in the field. Alternatively you can put a stake in the ground and tie one end of a rope to the stake and the other end of a rope to the sheep in which case the sheep can eat all the grass in the area of a circle centred on the stake (Figure 2).

Patent attorneys may recognise similarities with Article 1 of the Protocol on the Interpretation of Article 69 EPC which states that:

"Article 69 should not be interpreted as meaning that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Nor should it be taken to mean that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patent proprietor has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patent proprietor with a reasonable degree of legal certainty for third parties."

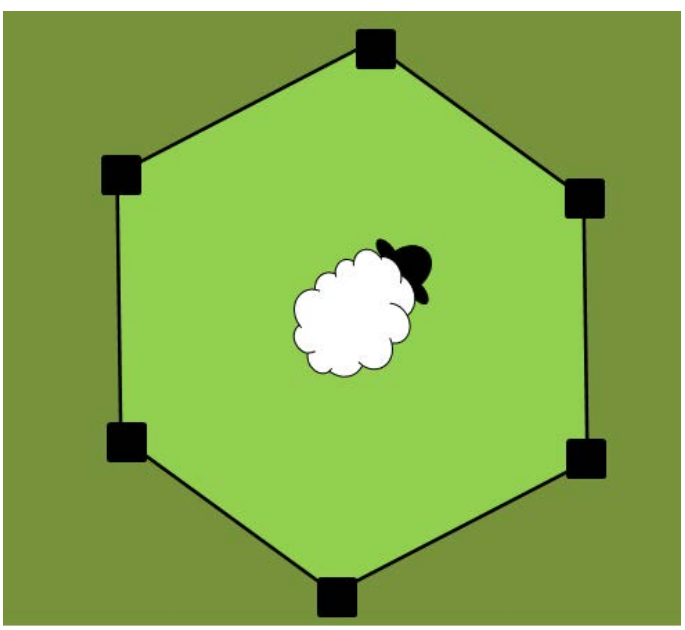

Figure 1 – The traditional English approach

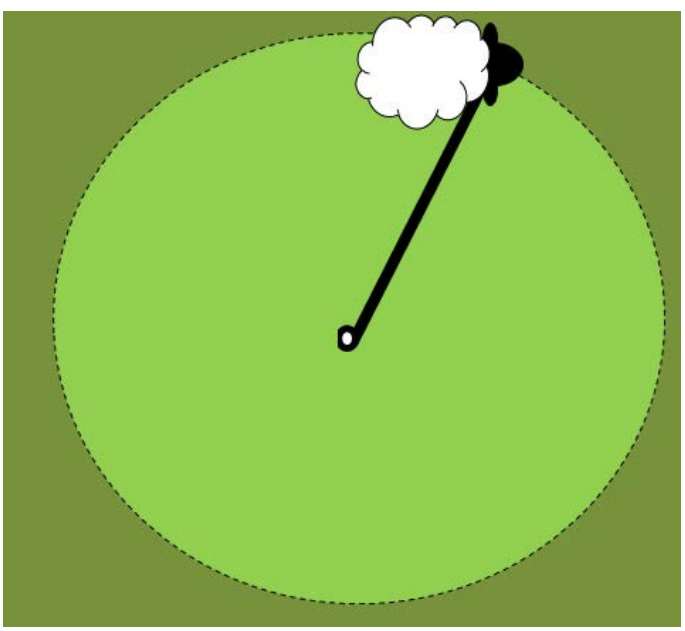

Figure 2 – The traditional German approach

The Protocol on Interpretation was a compromise. Prior to 1978, the Continental view was that the UK courts took an overly strict interpretation limiting the scope of protection to the literal wording of the claims. Conversely, the British view, of German "*Kerntheorie*" was that that the German courts were overly liberal using the claims merely to identify a "stake in the ground" of an inventive concept. The Protocol on Interpretation clearly states that neither such approach is correct.

The Protocol on Interpretation establishes that the scope of protection is neither limited to a strict literal interpretation of the wording of the claims (the fence post approach in Figure 1), nor are the claims used simply to define an inventive concept (the stake and rope approach of Figure 2). Rather, staying with the sheep farming analogy, effectively Article 1 provides that the scope of protection looks something like Figure 3.

Where a sheep is constrained both by a stake and a rope and by a fence but where the sheep is able to reach over the fence in some areas – the areas of equivalents – all of which lie within the outer limit which could be reached in the absence of the fence (i.e. everything within the inventive concept of the invention – the inner circle in Figure 3).

When drafting patent claims an applicant has a choice where they put their fence posts, subject to two main limitations.

First, the fence posts can only be placed within of the clear and unambiguous disclosure of the application – the outer dotted circle in Figure 3. If the claims are amended so that the claim language extends beyond that limit, then a patent will be invalid on the grounds of added matter.

Second, the boundaries of the claims must not extend beyond the inventive concept or technical effect enabled by the patent.

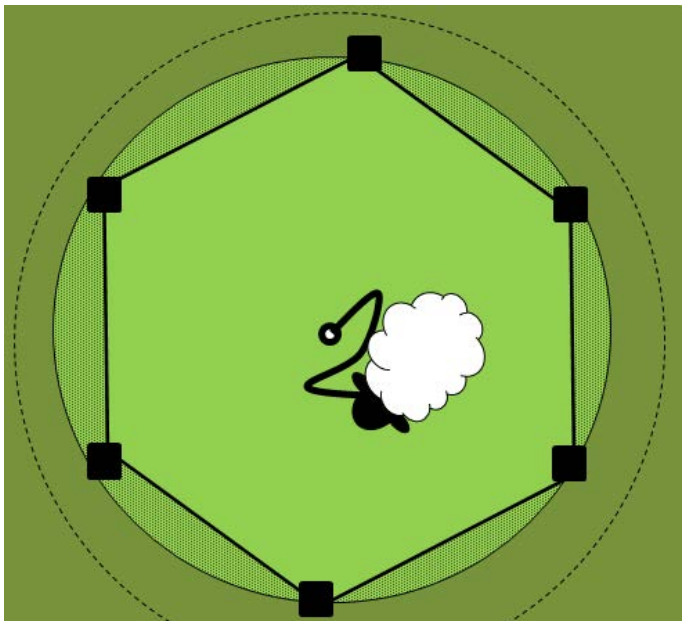

Figure 3 – A European compromise

Putting the boundaries of the claim outside of the "inventive concept" as is shown in Figure 4 will mean that a sheep can only eat the grass in part of the field bounded by the fence.

In patent terms this is a clear example of over-claiming. In such circumstance the patentee is not entitled to the entirety of the monopoly claimed. Objections to such overclaiming can be formulated in terms of a general principle that the extent of a patent monopoly should correspond to the technical contribution in the art as originally formulated in *Agrevo/Triazoles* T0939/92 and has been repeatedly endorsed by the UK courts most recently by the Supreme Court in in *Warner-Lambert*[2] and then again in *Actavis v ICOS*.[3]

As that establishes that Figure 3 is illustrative of the correct approach to claim interpretation – the inventive concept or technical effect must extend at least up to or beyond the scope for the boundaries of the claim – the question then becomes how far beyond the boundaries of a field can a sheep venture?

Following *Actavis v Lilly*, claim interpretation in the UK is a two-step process. First, an alleged infringement is assessed against a purposive interpretation of the claims. Then, if an alleged infringement is found to fall outside of the scope of the claims, a further assessment is made to determine whether the patent is infringed under the doctrine of equivalence. This second step is determined by the Court considering the follow three questions:

1. Notwithstanding that it is not within the literal meaning of the relevant claim(s) of the patent, does the variant achieve substantially the same result in substantially the same way as the invention, i.e. the inventive concept revealed by the patent?

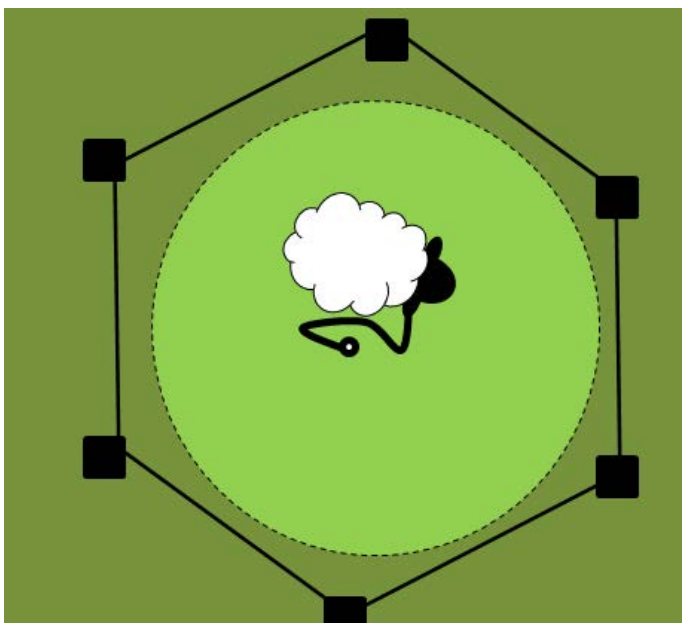

Figure 4 – Not permitted

2. Would it be obvious to the person skilled in the art, reading the patent at the priority date, but knowing that the variant achieves substantially the same result as the invention, that it does so in substantially the same way as the invention?
3. Would such a reader of the patent have concluded that the patentee nonetheless intended that strict compliance with the literal meaning of the relevant claim(s) of the patent was an essential requirement of the invention?"

Effectively these three questions guide the assessment of the extent of the scope of the claims which lie outside of the scope of the wording of the claims as understood by the person skilled in the art. Again using the sheep farming analogy, the area of the field which the sheep can access by reaching over the fence (the wording of the claims as understood by a person skilled in the art) is limited to cases where:

i. an equivalent element to an element specified in the claims utilises the inventive concept revealed by the patent;
ii. where that would have been known at the priority date; and
iii. where the reader would not have understood strict compliance with the language of the claim to be required.

Questions of validity and infringement can be likened to the question of how much are sheep prepared to share.

If we introduce a second sheep into the picture of Figure 3 where the sheep can roam (Figure 5) anywhere in the boundary of the field, then clearly the first sheep is likely to be unhappy.

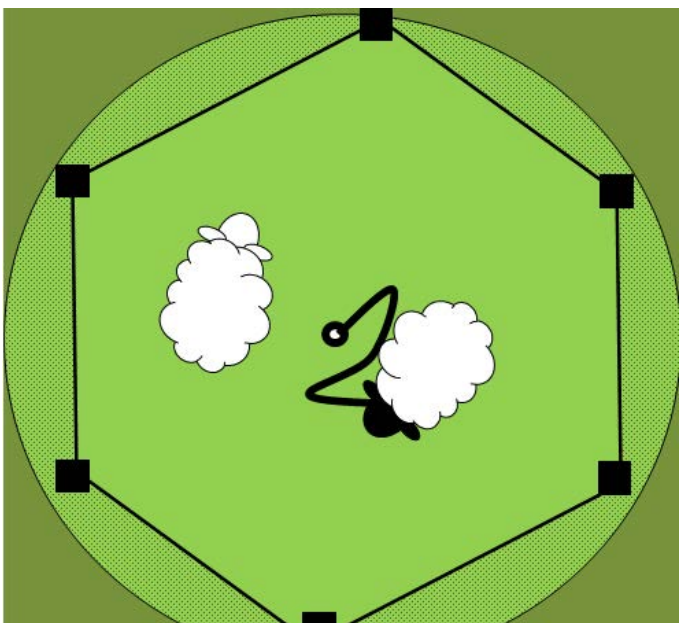

Figure 5 – Sheep don't like sharing

In contrast, if the second sheep is constrained by a stake and a rope outside of the field so that the two sheep are kept separate (Figure 6) then no conflict is likely to arise. Such scenarios correspond to prior art (or an alleged infringement) falling within the scope of the wording of the claim (as understood by a person skilled in the art) and the closest prior art failing to reach the boundaries of the claim, even when assisted by the non-inventive skill of a person skilled in the art.

Rather more interesting is the question of how far into the first sheep's domain is it possible to venture? Would the first sheep be prepared to "share" the area outside of the field which the sheep can still nibble on? (Figure 7) Or will the first sheep only get upset once the second sheep starts eating the grass inside of the fence? (Figure 8).

Presumably, patentees will argue that maintaining the validity of their patent will be a good reason why a reader of a patent would understand that strict compliance with the literal meaning of a claim element is required. If an item of prior art merely renders an equivalent of a claim obvious it will still be the case that a patentee will have taught something useful to the rest of the world.

And what about equivalents of equivalents? In *Actavis v Lilly,* a claim to a disodium salt was found to be infringed by the production of an equivalent potassium salt. What would have been the case if a third salt – say a calcium salt had existed which was an equivalent to the potassium salt but not the sodium salt? Assuming the prior art was only available for the purposes of assessment of novelty, would the calcium salt as an equivalent of an equivalent anticipate the claim? Would the existence of the calcium salt provide a reason for understanding that strict compliance with the wording of the claim was essential?

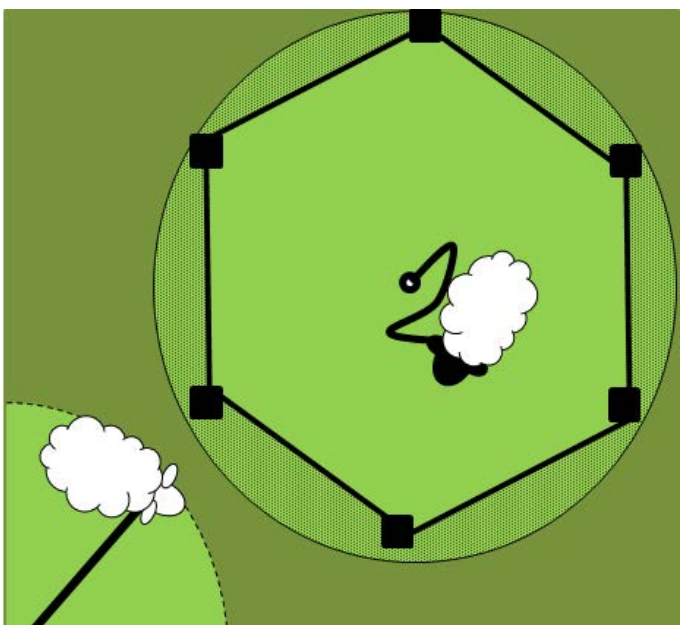

Figure 6 – Keeping sheep happy

Throughout 2018 and 2019, the courts began to answer some of these questions.

First of all, everyone agreed that the "normal" interpretation of a claim amounts to "purposive" interpretation.[4] Claim language is interpreted through the eyes of a skilled person who will understand terms used in a claim in their usual way and with an eye on the purpose of the claims in the light of the invention. So, if a claim were to use the term "vertical", a claim would not be interpreted as requiring something to be exactly vertical but anything sufficiently vertical to obtain the benefits of the claimed invention.

Of course, that does not address how much further beyond those boundaries a monopoly will extend under the doctrine of equivalents, a question which started to be addressed in the case law last year.

Table 1 (on page 15) summarizes how equivalents have fared in the reported case law in 2019, indicating:

i. whether literal infringement was alleged to have occurred;
ii. whether or not infringement by equivalents was argued; and
iii. whether or not the equivalence arguments were successful.

As table 1 shows, 12 infringement actions were reported in the UK in 2019. In four cases only literal infringement was said to occur – *TQ Delta v Zyxel, Illumina v TDL, Takeda v Hoffmann-La Roche* and *Conversant v Apple*. Conversely, in three cases – *Regen v Estar, Conversant v Huawei* and *Excel- Eucan v Source* – infringement was only said to occur on the basis of equivalence.

Interestingly, in all eight cases where infringement by equivalence was argued, the court held a patent to be infringed, although admittedly in some cases the patents in question were not found to be valid. Effectively, in every case an infringer was found, to be nibbling on the grass within or just outside of the literal boundaries of a patent.

As indicated in the table on page 15, the 2019 UK infringement cases covered a wide variety of technologies, ranging from antibody treatments – *Eli Lilly v Genetech* and *Takeda v Hoffmann-La Roche* – and telecoms – *TQ Delta v Zyxel, Conversant v Huawei* and *Conversant v Apple* – through to mechanical inventions – *Marflow v Cassellie* and *Excel-Eucan v Source*. The extent to which equivalents played a role in the decisions, would seem to be fact specific and not particularly favoured by any specific technology. This is perhaps best illustrated by the two Conversant cases – *Conversant v Huawei* and *Conversant v Apple* – one of which (Huawei) was argued solely on the basis equivalents, whereas in the other (Apple), Conversant only presented arguments based on literal infringement.

That said, although it is possibly too early to tell, there are suggestions that equivalents may be of less relevance in the biopharma field. No arguments on equivalents were raised in either *Illumina v TDL* or *Takeda v Hoffmann-La Roche*. And the arguments in *Eli Lilly v Genetech* – the only biopharma case where equivalents was discussed – were very limited with Arnold J essentially stating if, contrary to his interpretation of a claim, a claim were to be restricted to antibodies binding only to a specific site and no others, then the case would have been found infringed on the basis of the doctrine of equivalents.[5]

The key question which is unresolved is what would cause a Court to find that a patentee intended strict compliance with the literal (i.e. purposive) meaning of the claims was an

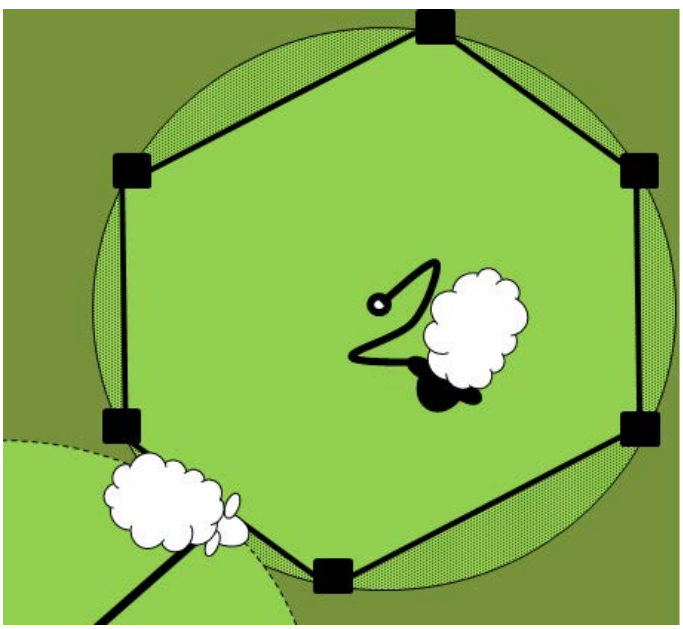

Figure 7 – Are these sheep happy?

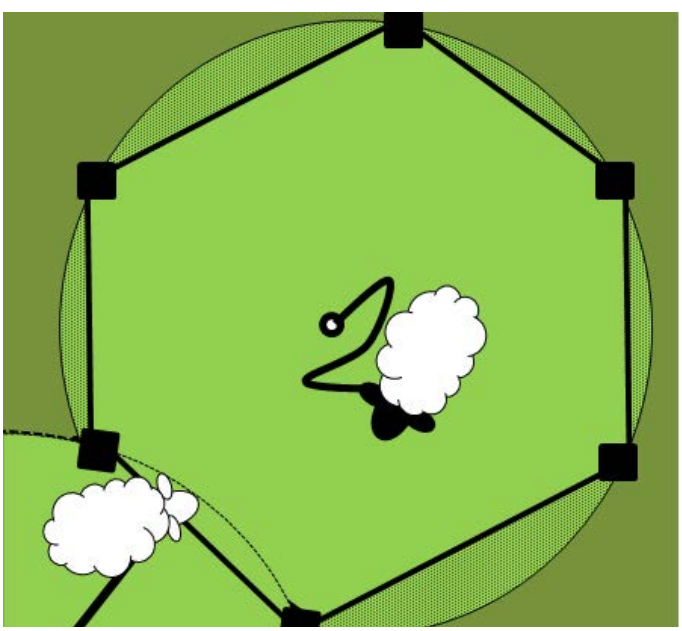

Figure 8 – Some unhappy sheep

Table 1: Equivalents in reported case law in 2019

Case	Literal infringement	Equivalents argued?	Successful?
Technetix v Teleste (IPEC) – Internet TV	Yes	Yes	Yes
Marflow v Cassellie – Showers	Yes	Yes	Yes
Regen v Estar – Blood Plasma	No	Yes	Yes
Eli Lilly v Genetech – Ixekizumab	Yes	Yes	Yes
TQ Delta v Zyxel – Telecoms	Yes	No	N/A
E, Mishan v Hozelock – Garden Hoses	Yes	Yes	Yes
Illumina v TDL – Genetic testing	Yes	No	N/A
Conversant v Huawei – Telecoms	No	Yes	Yes
Takeda v Hoffmann-La Roche – Vedolizumab	Yes	No	N/A
Conversant v Apple – Telecoms	Yes	No	N/A
Excel-Eucan v Source – Ammunition carrier	No	Yes	Yes
Technetix v Teleste (High Court) – Internet TV	Yes	Yes	Yes

No allegation of literal infringement

Both literal and infringement by equivalents asserted

Infringement by equivalents not argued

essential requirement of the invention? In other words, when is a sheep going to be prevented from reaching over the fence?

Here probably, *Regen v Estar*[6] and the *Technix v Teleste* case in the Intellectual Property Enterprise Court ('IPEC'),[7] both of which were delivered by Judge Hacon, have been most instructive.

In *Regen v Estar*, HHJ Hacon sitting as a Deputy High Court Judge in the High Court established some grounds rules for assessing equivalents.

First of all he ruled that equivalence is based on an assessment of a claim as a whole and not on an integer-by-integer basis.[8] Then, he ruled that the doctrine of equivalents applied equally to claims including numerical integers, as much as any other type of claim.[9] And then, the judge ruled that the decision in *Actavis* had modified the law that had been applied in *STEP v Emsom* and that under appropriate circumstance infringement by equivalents could occur even if an alleged infringement omitted a claimed integer, depending upon how the *Actavis* questions were answered.[10]

The fact that a claim includes numerical integers does not preclude the application of the doctrine of equivalents should not be that surprising. Repeatedly, the courts have ruled that numerical limits are treated in exactly the same way as any other claim integer.[11] Compared with other forms of claim language, the boundaries imposed by numerical limits are relatively clear. However, merely because a claim is clear does not appear to prevent the application of the doctrine of equivalents. After all the number of protons and electrons in a sodium or a potassium atom are clear, but that did not prevent the court from applying the doctrine of equivalents in *Actavis* itself.

The other findings of the judge are perhaps more interesting. That a claim can be infringed even if one or multiple claim features are found to be missing, when an infringement is found to be taking advantage of the inventive core of an invention will be of concern to many a third party trying to design around a patent. After all the essence of a design around is often to aim to benefit from a claimed invention without infringing a patent. Following *Regen v Estar*, no one can be certain that they will avoid infringing a patent simply because their activities do not read on to one or more of the integers of a claim, unless they can demonstrate that those missing integers are essential for the performance of an invention. Venturing into any part of the field where a sheep can graze would appear to be dangerous, even if an infringer keeps clear of the portion on a field enclosed by fence posts.

Technix v Teleste suggests possible limits on the doctrine of equivalents. In *Technix v Teleste*, HHJ Hacon, sitting in IPEC, was invited to establish that a *Formstein* defence to infringement by equivalents exists. That is to say, the judge was invited to conclude that if an equivalent within the scope of a claim is an obvious development of the prior art, then that would be a reason for answering the third *Actavis* question in such a way to prevent a patent from being found to be infringed.

Although the *Technix v Teleste* ruling is an IPEC case and hence the case is not a binding precedent and must therefore be treated with caution, HHJ Hacon provided a hint that he considered a *Formstein* defence does exist. As he found that

the patent in question was invalid, he did not have to issue a decision on the matter of equivalents but after commenting on the European case law presented to him, he concluded his judgment commenting that:

> 'Had [the patent] been valid it would have been infringed, unless there exists in English law a *Formstein* defence, in which case Teleste has a *Formstein* defence to infringement.'

In other words, third parties should be permitted to graze on the area outside of the claim boundaries which are "shared" with other sheep illustrated in Figure 7.

If a *Formstein* defence does exist, then that would provide the second example of a reason for restricting a claim to it's literal (i.e. purposive) meaning – the other being where novelty only prior art exists outside the scope of the literal claim language but within the inventive concept of a claim as was touched upon by Arnold J in *Generics v Yeda* in 2017.[12]

So where are we now?

Given the universal success of claims of infringement by equivalence in 2019, it is tempting to think that the UK courts are currently applying the old German approach to infringement, using the claims as a guide to finding an inventive concept and finding infringement if someone takes advantage of that inventive concept. But that would be taking the case law too far. In many cases judges have taken a very conservative path regarding equivalents (cf Arnold J in *Eli Lilly v Genetech*) and even when an alleged infringement clearly omits a claim feature (e.g. in *Conversant v Huawei*) infringement by equivalents has only been found where a defendant has been unable to provide a coherent answer to an allegation as to why one feature is not equivalent to another – in that case where it was found to be irrelevant whether data was based on a previous or a current time period.

Further it is quite possible that the cases which proceed as far a trial suffer from selection bias. After all, it is unusual for a patentee to pursue a case unless they have reasonably strong grounds for assuming that a patent is infringed.

It is not, at least not yet, irrelevant how claims are drafted. The boundaries fixed by the wording of the claims would – it appears to be – save a patent where novelty only prior art lies close to the literal wording of a claim or where, assuming a *Formstein* defence does exist, obvious variants of the prior art occur outside of the claim boundaries but within the inventive concept of a patent.

It is also not the case that patentees get a completely free run with equivalents. The Courts have confirmed that the inventive concept or the "*bit which is clever*", as eloquently put by counsel in *E. Mishan & Sons v Hozelock,* is the same for assessing both equivalents and inventive step (see *Technix v Teleste* in the High Court). This means that if a patentee needs to run an expansive inventive concept, the patentee runs the risk that a similarly expansive inventive concept will apply when determining validity – all sheep are constrained by the same length of rope.

But certainly, the recent case law does demonstrate that many of the certainties which existed before the *Actavis* decision no longer apply. Infringement in the UK is no longer about arguing where the fence posts are. Whether or not an alleged infringer is seen to be taking advantage of an inventive concept now plays a much larger role than was the case in the past. Until, the courts do start to answer the question as to what might cause a claim to be constrained to its literal, or rather its purposive meaning, any attempts to design around a patent claim by replacing or avoiding integers present in a claim are going to be fraught with danger. In such a brave new world, any third parties looking for safety will increasingly have to rely on invalidity arguments rather than any defence based on claim construction.

It might just be safer to take up sheep farming.

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See more at *www.finnegan.com.*



Notes and references

1. *Actavis UK Limited and others v Eli Lilly and* Company [2017] UKSC 48
2. *Warner-Lambert v Generics (UK) Ltd t/a Mylan* [2018] UKSC 65
3. *Actavis v ICOS Corp* [2019] UKSC 15
4. c.f. Lord Kitchin (Floyd LJ and Longmore LJ agreeing) in *Icescape v Iceworld* [2018] EWCA Civ 2219; Arnold J in *Mylan v Yeda* [2017] EWHC 2629 (Pat); Carr J in *Illumina v Prematha Health* [2017] EWHC 2930 (Pat); and Birss J in *Liqwid v L'Oreal* [2018] EWHC 1394 (Pat)
5. *Eli Lilly v Genetech* [2019] EWHC 387 (Pat) *paragraphs 595-599*
6. *Regen v Estar* [2019] EWHC 63 (Pat)
7. *Technix v Teleste* [2019] EWHC 126 (IPEC)
8. *Regen v Estar* paragraphs [210] & [211]
9. *Regen v Estar* paragraphs [212]–[218]
10. *Regen v Estar* paragraphs [219]–[224]
11. c.f. Floyd LJ with whom Kitchin and Henderson LJJ agreed in *Jushi Group Co. Ltd v OCV Intellectual Capital LLC* [2018] EWCA Civ 1416 and Kitchin LJ (with whom Briggs and Christopher Clarke LJJ agreed) in *Smith & Nephew Plc v Convatec Technologies Inc* [2015] RPC 32
12. *Generics (UK) Ltd v Yeda Research and Development Co Ltd* [2017] EWHC 2629; [2018] RPC 2 (at [161]–[167]