

# MASS ~ NAVIGATING A PATH THROUGH LIABILITY ISSUES

## 1. THE CURRENT LIABILITY REGIME IN COLLISION CLAIMS

### 1.1. History

1.1.1. The principles of collision law have developed over many years and can be traced back to the Roles of Oleron in about 1150 when the principle appears to be one of a divided damages law, where regardless of fault, damages were divided 50/50. This principle was picked up in the Laws of Wisby which provided also for divided damages unless the act was wilful.

1.1.2. Interestingly. The Napoleonic Code de Commerce contemplates that where there is a collision between two moving vessels, there is an equal division of liability.

1.1.3. It was only towards the end of the 18<sup>th</sup> Century that it seems to have been established that there were different levels of liability in collision cases depending upon the level of fault<sup>1</sup>.

### 1.2. Modern Law of Collision

1.2.1. Trinity House published the first Collision Regulations in 1840. These were enacted in the Steam Navigation Act 1846, and this act in effect is the origin of the Collision Regulations (COLREGS).

1.2.2.5 The COLREGs provide guidance to mariners on how to prevent collisions at sea and serve as the basis for apportioning blame when collisions do occur.

## 2. AUTONOMOUS SHIPS AND THE COLLISION REGULATIONS

2.1. As autonomous and unmanned ships will operate in the same waters as manned ships, all vessels must follow the COLREGs and behave in an expected manner to avoid accidental collisions.

2.2. However, suppose the navigation system that is navigating autonomously slavishly follows the COLREGs where it would be safer to depart from them to avoid danger. In that case, this could not only create dangerous situations but render the ship unseaworthy if the system cannot make safe decisions. Given that a defective passage plan can render a ship unseaworthy, a system that cannot navigate to the standard of a prudent seafarer is likely to point to unseaworthiness.

### 2.3. Rule 2(b)

2.3.1. Rule 2(b) of the COLREGs, is particularly problematic for a vessel navigated at Degree Four (total autonomy).

2.3.2. Rule 2(b) permits a departure from the COLREGs in certain circumstances:

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<sup>1</sup> The Woodrop Simms 1815) 2 Dods 83, 165 ER 1422

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*In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.*

2.3.3. Rule 2(b) does not permit a vessel to depart from the COLREGs because it is advantageous and, for this reason, Dr Lushington stated that:

*‘You may depart, and you must depart, from a rule if you see with perfect clearness, almost amounting to a certainty, that adhering to the rule will bring about a collision, and violating a rule will avoid it’<sup>2</sup>*

2.3.4. Given that rule 2(b) only applies when there is an ‘immediate danger, perfectly clear’ the navigation system will be required to take action that would be expected as meeting the standard of prudent seamanship.

2.3.5. A further challenge is that a departure from the COLREGs may not only be justified but may in fact be a duty and required in certain circumstances.

2.3.6. The difficulty with this rule at Degree Four, is that if the system is self-learning it will be impossible to interrogate the reason for its decision in the event of a collision.

2.3.7. This leads to an ethical question, whether autonomous ships should be held to the same standards as a prudent mariner, or ought the standards be higher given that there is no risk to human life on board the autonomous vessel but potential risk to life by the autonomous vessel?

## 3. COLLISION AND TORT LAW

3.1. To be held liable for a collision claim the wrongdoer must be at fault. This means that it must be established that the tortfeasor failed to take reasonable care:

*The liability for negligence ... is no doubt based upon a general public sentiment of moral wrongdoing for which the offender must pay<sup>3</sup>.*

3.2. The starting point is to establish which human agencies were responsible for the collision and whether their faults can be attributed to the shipowner. This will involve the application of the principles of vicarious liability.

3.3. As Nick Healy said, the proportionate fault rule is necessary in collision law because “... it makes little sense to say that in the event two vessels are at fault, each must be held strictly liable to the other and pay 100% of the other’s damages<sup>4</sup>.”

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<sup>2</sup> *The Boanerges and The Anglo-Indian* (1865) 2 Mar L Cas (OS) 239, 240.

<sup>3</sup> *Donoghue v Stevenson* [1932] AC 562 (HL), per Lord Atkins

<sup>4</sup> Nicholas J Healy ‘The apportionment of risk between shipowners and third parties – Shipowner & Shipowner Collisions’ CMI Yearbook Report of Proceedings at a seminar held in Aix-en-Provence 9-11 September 1976:

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3.4. Where the negligence arises by some person (or entity) other than a crew member, it becomes critical to establish whether the wrongdoer was acting as a servant or agent of the shipowner, or as an independent contractor. In the case of an independent contractor, the shipowner will be liable only if it is proved to have not taken reasonable care in choosing the contractor. The relevant test was set out in *Mersey Docks and Harbour Board v Coggins & Griffiths (Liverpool) Ltd*<sup>5</sup>.

3.5. Lord Uthwatt said:

*To establish the power of control requisite to fasten responsibility on him, the hirer must in some reasonable sense have authority to control the manner in which the workman does his work, the reason being that it is the manner in which a particular operation (assumed for this purpose to be in itself a proper operation) is carried out that determines its lawful or wrongful character.*

3.6. The development of AI is not within the control of the shipowner. The supplier of the software embedded in the hardware is initially in control but as the system self-learns based on the data it is gathering and monitoring, control moves to the developer. AI systems make decisions by running historical data through an algorithm but currently it is not possible to know how the system has made the decision. This is known as the black box of AI.

## 4. STRICT LIABILITY

4.1. Strict liability entails absolute liability for damage caused by an act even though the damage is the result of pure accident or another person's wrongdoing and is neither intentional nor negligent.

4.2. Strict liability does not apply in collision cases because the inequities that could arise if absolute liability applied in cases of collision between vessels of greatly disparate values.

4.3. However, in the context of ships operating at Degree Four, strict liability seems to be the most appropriate way of determining liability in the event of a collision as it will be difficult, perhaps impossible, to determine fault when artificial intelligence is navigating the ship.

4.4. A further argument supporting making the owner of an autonomous ship strictly liable for harm caused to third parties is that at this stage no-one can say definitively that such ships are safer than crewed ships. While there are statistics that point to the number of collisions caused by human error, there are no converse statistics to indicate the number of collisions that have been averted by the presence of an onboard crew.

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<sup>5</sup> [1947] AC 1 (HL)

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- 4.5. Fault-based liability for collisions has been in place for centuries but the removal of human actors from the navigation and control of a ship suggests that strict liability for autonomous ships in collision cases ought to be considered.
- 4.6. In the maritime context, the International Convention on Civil Liability for Oil Pollution Damage 1992 (CLC) places strict liability on the owners of ships that carry 'persistent hydrocarbon mineral oil'.
- 4.7. Likewise the 2002 Protocol to the Athens Convention places strict liability for death or personal injury of a passenger on the carrier unless the carrier can prove that the incident:
  - (a) resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character; or
  - (b) was wholly caused by an act or omission done with the intent to cause the incident by a third party. If and to the extent that the loss exceeds the above limit, the carrier shall be further liable unless the carrier proves that the incident which caused the loss occurred without the fault or neglect of the carrier.

## 5. IN DEFENCE OF STRICT LIABILITY

- 5.1. Channelling liability to the owner for damage caused by an autonomous vessel does not upset the existing delicate balance between shipowners' liabilities for third-party losses as developed over centuries. Strict liability does not mean that the shipowner is always liable. Rather, the shipowner bears the burden of showing that it did not cause the plaintiff's loss instead of the claimant being required to establish a prima facie case of negligence.
- 5.2. The Convention on Limitation of Liability for Maritime 1976 (LLMC) and its Protocol of 1996 allow a shipowner to limit its liability for certain claims 'whatever the basis of liability may be for claims arising from 'any distinct occasion'.
- 5.3. The LLMC extends to 'any person for whose act, neglect or default the shipowner ... is responsible to prevent claimants from circumventing the limits in the LLMC by claiming against the shipowner's agents or servants. The shipowner is not responsible for the acts of the developer of the artificial intelligence which is neither agent nor servant of the shipowner but the supplier of a product.
- 5.4. If product liability is the basis for a claim against the designer of the system following a collision, this would circumvent the LLMC. The supplier of the system may well have an indemnity or 'hold harmless' clause in its supply contract with the shipowner and a claim based on product liability (which is not limited by the LLMC) could circle back liability to the shipowner.

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- 5.5. If the developers are potentially exposed to unlimited liability, insurance costs will increase, making the technology unfeasibly expensive.
  - 5.6. The software developer or provider of the technology is not the servant or agent of the shipowner. Under a fault-based regime, if there is a collision that is caused by the negligence of the software developer, the shipowner will only be liable to the extent of its responsibility to exercise due diligence in the selection of that supplier.
6. OTHER CONSIDERATIONS
- 6.1. The general function of tort law to discourage wrongful conduct could potentially be undermined by strict liability if this circumvents the producer of the artificial intelligence.
  - 6.2. Further, it may be unjust to hold the shipowner of an unmanned ship strictly liable for a collision where an onboard crew would not have had any effect on the outcome.
  - 6.3. Allocation of fault-based liability may still be possible if the burden of proof is reversed. Negligence may be inferred from facts without the need for further proof and the doctrine of *res ipsa loquitur* could be useful for autonomous ships at Degree Four.
  - 6.4. The application of *res ipsa loquitur* places the burden on the defendant to prove that it was not negligent and appears to be connected with the principle that the burden of providing facts that are only within the knowledge of the defendant lies upon it.

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