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THE ILLOGICAL LINK:

LAUNCHING, LIABILITY AND LEASING

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Abstract

Present day developments in international space activities in a way provide many opportunities for private entities to become more involved therein. One interesting phenomenon which seems to arise on the horizon in relation to these developments concerns the possibility of leasing a spacecraft. Questions arising in this regard focus on such issues as ownership, whether state or private, in view of the registration-obligation, and liability for damage and its close link to the launching of the spacecraft in question.

An effort will be made in the paper to briefly analyze the legal ramifications of leasing a spacecraft. Hence, firstly a factual introduction into the issue of the lease of spacecraft and an attempt to define "lease" will be made.

Secondly, a short survey of relevant elements of the *corpus juris spatialis* will be made, such as Articles VI, VII and VIII of the Outer Space Treaty, and parts of the Liability and Registration Conventions. As a preliminary conclusion it will be submitted that those provisions of outer space law create a link between launching and liability which in some respects is rather illogical, especially as far as private enterprise is involved, and therefore to a certain extent already bodes ill for any occurrence of leasing.

By way of an illustration in the third part of the paper a short overview will be given of the ways in which especially the United States and France, as the two prime launching states of the capitalist world, cope with this illogical link through national provisions concerning liability.

Finally, in the fourth part the leasing-phenomenon will be entered into the equation. The result will be, *inter alia*, that the illogicality of especially the link between launching and liability comes to the fore more clearly and strongly, making for a perhaps unnecessarily complicated framework for private activities in space. Hence, the notion of leasing seems to provide an interesting argument for amending or at least re-interpreting the relevant parts of space law.

1. Introduction

Present day developments in international space activities increasingly provide opportunities for private entities to become involved in those activities. On the one hand, fundamental opposition against private activities is on the wane now that communism internationally speaking is no longer what it was. And on the other hand, with the increasing budgetary problems experienced by almost every state involved in space activities, increasing recourse is being sought to private funds and other private participation.

A few interesting phenomena have arisen on the horizon in relation to these developments. First, the sharing of a spacecraft in terms of its use can take the form of what is called the lease of capacity, such as the lease of transponders on satellites in use for telecommunication purposes. Thus, for example Brazil has leased capacity on INTELSAT satellites before it could afford its own domestic satellite telecommunication system.[1]

Although this example concerns non-private participants, it certainly is interesting for private entities as well, for it affords private entities, usually with less deep pockets than governments, a realistic and attractive opportunity to undertake or partake in space activities. And indeed, lease of capacity by private entities is not an unknown occurrence anymore.

At the same time, since this possible venue does not seem to fundamentally change the practical situation concerning ownership of the satellite in question as a whole, this is not what should interest us most, here, although *vice versa* some

conclusions resulting from the present analysis may be useful for these cases as well.

That remark on the measure of change occurring does not hold good in respect of the second phenomenon. This phenomenon concerns the lease of spacecraft as a whole. INTELSAT for instance at present has an option with the Russian firm Informkosmos to lease up to three of the latter's Express satellites.[2] Again, this example concerns non-private parties to a lease agreement; nevertheless, it is an interesting venue for private parties as well, for the same reasons that were already mentioned.

Thirdly, it has even become possible to buy a satellite second-hand, the way Norway has procured a Marcopolo-I satellite from British Sky Broadcasting.[3] This phenomenon, the most radical of the three, as a matter of fact is so radical that it completely alters the practical situation concerning ownership. The result namely is a comprehensive shift of control and jurisdiction over the object in question, meaning that the legal situation becomes less ambiguous again when compared to the second phenomenon, although it remains a related one.

For those reasons, I will concentrate on that second issue, as it is here that the largest measure of confusion will arise. Professor Wassenbergh recently remarked in a similar context that "[t]o avoid legal confusion, it seems indicated, for purposes of adjudication of liability, to legally separate the "launching state" (...) from space objects as from the moment the space object is placed in orbit"[4]. He went on to state that rather, at such a point, the liable state should become equated to the responsible state[5]. To a certain extent, the present analysis aims at discovering whether, under the specific circumstances of leasing, this would *prima facie* seem a viable option - or at least a valuable approach.

2. The Definition of "Leasing"

In order to provide the necessary preliminary clarity, first an effort will have to be made to circumscribe, if not to define outright, the notion of 'leasing'. The term, not being a complete newcomer to lawyers' lexicons, tends to be used already rather liberally, wherefore the risk begins to loom of dialogues with partners on different wave lengths.

Starting from the outside, speaking not strictly-legally, "lease" as a noun has been defined as, principally, "a contract by which one party (... lessor) gives to another (... lessee) the use and possession of lands, buildings etc. *for a specified time* and for fixed payments"[6]. Note the clause "for a specified time" which already points to a fundamental difference with terms such as "ownership", and furthermore to the fact that after such time use and possession will automatically return to the (real) owner.

In a similar vein, "lease" is linked most intimately to such terms as "benefice", "tenure", "let", "rental" or "hire" rather than to "property" and "possession" without further ado[7], and similarly as a verb is related most closely to "lending", "hiring" and "letting"[8].

Narrowing analysis down now to the more strictly legal use of the term, "lease" has been defined as "[a]ny agreement which gives rise to relationship of (...) lessor and lessee (real or personal property)", such as "[c]onveyance, grant or devise of reality *for designated period with reversion to grantor*" or "[c]onveyance of interest in real or personal property for specified period or at will"[9]. The difference between "ownership" and "lease" as a consequence is also specified: the latter "means a contract by which *one owning* such property grants to *another the right to possess, use and enjoy* it for specified period of time in exchange for periodic payment of a stipulated price, referred to as rent"[10].

In summary, the essentials of lease are, on the one hand a very large and almost comprehensive measure of control over the property in question (as evidenced by terms such as "use" and "possession"), while on the other hand two very fundamental aspects detract from full comprehensive control, thus distinguishing it from true ownership. These are the temporariness of any lease, and the necessity of some form of repeated payment for the use and *de facto* possession pointing to the ultimate ownership of the lessor and not of the lessee. In other words - but ultimately that depends on the contract - lease can comprise, and very often does indeed comprise all elements of ownership except ownership itself. It is in this sense that the term "lease" will be used in the analysis to follow.

3. Relevant Elements of the *Corpus Juris Spatialis*

The definition of lease as comprising all elements of ownership except ownership itself seems to be a crucial one, once one next scans the *corpus juris spatialis* for legal provisions relevant for the issue of leasing. More specifically, Article VI of the Outer Space Treaty[11] and its ramifications under general public international law, Article VII of the Outer Space Treaty and the elaboration thereof found in the Liability Convention[12], and Article VIII of the Outer Space Treaty together with its elaboration, the Registration Convention[13], will have to be scrutinized here.

3.1. Article VIII of the Outer Space Treaty and the Registration Convention.

One should perhaps start in this respect with Article VIII of the Outer Space Treaty, where the term "ownership" itself is also coined in an illustrative fashion. In relevant part it provides for a very strong correlation between the notions of 'registry', 'jurisdiction and control' and 'ownership', to the extent that a state of registry of a certain space object is the one supposed and even obliged to exercise jurisdiction and control over it and, unless evidence to the contrary is shown, at the same time logically must be deemed to be the owner of that space object.[14]

Vice versa that means, that the owner of a space object is a logical first candidate for registry - if not indeed by definition - and the resulting retention of jurisdiction and control, since a situation of one state owning and another state providing for registration and consequently having jurisdiction over the same space object would be a highly unlikely, if only because practically as well as legally complicating situation.

All this sounds very logical perhaps. Starting from the case of a space object really involving only one state and no private entity to any significant extent, a state owning a space object will indeed have to register it since it is, by presupposition, the state which launches it,[15] and will hence exercise jurisdiction and control over its property in order to fulfill the duties and exercise the rights linked to its launching and registration activities.[16]

In case more states should be considered as (joined) owners, in my view usually either an international organization, as representing the total of states concerned, or one of the states with the others merely holding specific claims over the property in question would turn out to be the real owner. In case of the latter option, legal complications could be foreclosed by having the 'real owner' register the space object. As far as the former possibility is concerned, it causes some theoretical problems, since in such cases normally the states involved should still take care to have one of them register the object, and consequently exercise jurisdiction and control over it[17]. Even if the organization has the capacity to act as a virtual state of registry[18] - and ESA so far is the only one to do so[19] - it never has the capacity to exercise true jurisdiction, since that is a typical and very fundamental prerogative of a sovereign state[20]. Under these circumstances legal ownership indeed does *not* (automatically) lead to jurisdiction and control.

Mutatis mutandis, the same applies if several states after all turn out to be truly joined owners of a specific space object without the intermediary of an international organization. In this case the structure of ownership by presupposition - not true joined ownership but one state being the real owner, the others merely having claims upon that property - does not already take care of the complications mentioned. A way out could be provided here by turning things more or less upside down and changing the structure of jurisdiction instead. This would result in the provision of an interlocking system of multiple jurisdictions neglecting the one-registry-leads-to-one-jurisdiction suggestion of Article VIII. In such a manner as well, an alignment will occur between jurisdictional and ownership-structures, be it that the automatism on this point provided for by Article VIII is completely foregone.

The picture becomes even more complicated finally when private enterprise enters the equation. Though perfectly being able - under most national legal systems and consequently also under international law - of being owners of a space object, private entities can neither become states of registry nor exercise jurisdiction, since that again is the absolute prerogative of a sovereign state. Again, legal ownership is seen not to automatically coïncide with jurisdiction and control.

The consequences in theoretical terms of this structure provided for by Article VIII of the Outer Space Treaty and the whole of the Registration Convention turn out to become even more relevant when one considers the relationship between Article VIII and two other crucial Articles of the Outer Space Treaty, Articles VI and VII.

3.2. Article VII of the Outer Space Treaty and the Liability Convention.

To start with the latter, and its elaboration as provided for by the Liability Convention, it revolves around the notion of 'launching state', defined in four different ways[21], and the liability for damage caused to other actors which goes with being a launching state[22].

The link between the ownership-jurisdiction-registry triad of Article VIII and the provisions of Article VII is provided by the fact that the state of registry is either the launching state, if there is only one under the relevant definitions, or one of the launching states, in case there is more than one.[23]

The first case is once more the simpler one. The state which is an exclusive owner of a space object through its qualification as exclusive launching state retains not only jurisdiction and control over its property in accordance with Article VIII, but remains accountable for damage caused by it under Article VII as well. Logically, in case private entities become involved, the state in question can use its jurisdiction to take care of the resulting potential liability problems, although one should keep in mind that such an extra step is indeed fundamentally necessary. Private entities themselves can never qualify as 'launching states' and therefore can not incur liability by means of international space law.

The second case, with more than one state involved, obviously presents more difficulties. Starting again from the assumption that private entities are not substantially involved, the normal legal situation is that Article VIII of the Outer Space Treaty and Article II of the Registration Convention provide for only one state of registry, even where more than one state qualifies as launching state.

This means that the close link between (single) registry and (single) ownership provided by Article VIII is not matched by a single state being liable. And in whatever way the (joined) ownership of the partner states involved has been construed, complementarity with the structure pertaining to liability is not in any way provided. All states qualifying as launching states remain jointly and severally liable, so this situation would even favour true joined ownership rather than single state-ownership with concurrent claims of other states. The very fact even of having a certain 'claim' on some other state's space object namely is to be considered as qualifying the owner of the claim as a launching state[24] with the resulting liability for damage caused by the space object - some other state's space object, to be exact.

On the other hand, as we have seen, a situation of one owner and others with certain specific claims on the property in question would much better fit in with the fact that Article VIII does - in principle - guarantee retention of only one jurisdiction, namely that of the state of registry. A very complex legal situation arises here indeed.

Involvement of an international organization in the launch further complicates the situation, at least as far as such an organization has accepted the rights and obligations of the Liability Convention[25] and thereby has effectively become a relevant entity on its own for the purpose of liability. Suffice it to state here however that even registry and ownership of a space object by an international organization do not coïncide with liability comprehensively; ultimately the states member of the organization will remain accountable for any damage arising.[26]

Even larger problems loom once private entities become involved in a substantial sense in the launchings, either with one state or with more than one state or even an international organization qualifying as launching state. Under Article VII and the Liability Convention private entities can not be held liable for damage caused by space objects in whose launch they are involved, not even if they launched them themselves or are the owners of the space objects in question.

Instead, for the purpose of identifying the liable entities a look still remains to be had at the fourfold definition of launching state, making one or more states, even in cases of private ownership, liable. Of course, jurisdiction again would point out how this problem could be tackled: by the creation of national legislation providing for licensing requirements and derogation clauses[27].

3.3. Article VI of the Outer Space Treaty.

Finally, Article VI of the Outer Space Treaty plays a confusing role in this respect as well. I do not wish to go too deep into the matter here.[28] Suffice it to state that, while the Article itself does not explicitly provide for a link of responsibility, which is the core notion of the Article, with jurisdiction, just like Articles VII and VIII provide for a link of liability with jurisdiction and/or ownership, the contents of it hardly allow for an *a contrario*-conclusion[29]. A state having jurisdiction over a space object will have to be held responsible for the activities in which the latter is involved.

Relating the essence of this provision squarely back to the ownership-question, one can preliminarily conclude that, similar to the situation on liability, states can incur responsibility for activities involving space objects of which they are not the (sole) owners, either because another state is the (real) owner and provides for registration, hence retaining jurisdiction under Article VIII, or because an international organization or a private entity is. For, like it is the case with liability, both under Article VI of the Outer Space Treaty and under general public international law[30] with only few exceptions only states can be held internationally responsible for certain activities and their consequences, even if the real actors, i.e. owners of space objects involved in certain activities, are private entities (or international organizations for that matter)[31].

The liability-issue generally speaking is a more interesting one than the responsibility-question, especially for private enterprise, since it directly relates to financial questions and claims in cases of (material) damage, where this fact concerning responsibility is hardly acknowledged[32]. Nevertheless, by means of the notion of responsibility also states can be held to compensate materially for damage caused by a space object owned by a non-state entity, whether private or otherwise. The automatic link between liability and launching, effectively matched moreover by a link between responsibility for activities of the space object in question in a broader sense but also including launching, even before entering the question of leasing into the equation, becomes an interesting problem for that reason already.

4. Two Case Studies

Before refocussing on this problem and the solution suggested *supra* by Professor Wassenbergh therefore, it is interesting to take a closer look at two cases specifically elaborating the

international liability regime, of two states very regularly involved in the launch of space objects: the United States and France. Within the Western world, still the most capitalist of worlds, those two states would no doubt be or become most involved therefore also in the lease issues to be discussed, simply because they provide by far the best opportunities for private entities to become involved in space activities, read: to launch a space object alternatively to have one launched for them, as much as they do so for other states.

Since those situations are most telling for the issue of leasing as well, it will also be of interest to see whether and how the two states concerned have 'merely' aligned their domestic legal frameworks for space activities with the complexity reigning under international space law, or whether they have perhaps tried to simplify alternatively correct that situation.

4.1. The United States.

The United States have the longest and broadest experience with regard to launching activities on behalf of others. Until two decades ago, however, those others were exclusively states, or international intergovernmental organizations such as INTELSAT acting on behalf of their member states, and as a 'consequence' the space objects sent into outer space were publicly owned.[33] For that reason, the owners, if states[34], were co-liable for any potential damage since by definition they had 'procured' the launching[35].

If the owner happened to be an international organization, things were a little bit more complicated, but not much so. Even in the case of the organization having accepted the rights and obligations under the Liability Convention[36], it were in the end still the member states who could be held to pay for damage arising directly under the regime of international space law[37]. Either way, the United States could easily take the necessary precautions in respect of its position as potentially liable state by means of contract.

Coming to private involvement next, as was already mentioned, private entities can not be held liable by international space law itself. In as far as that meant that private enterprise, whether US or foreign, hired the services of the government's launching agency, as which NASA operated, the same venue would be taken basically as in cases of foreign states demanding NASA's services as a launch vehicle operator but with no other US government involvement. The contract of launch would provide for the buyer of the launching services to take the final burden of any third-party liability arising as a consequence through derogation-clauses.[38]

The other potential form private involvement in launches undertaken from US territory could take, is that of undertaking the launch activities themselves, whether in the service of the US government, of foreign governments, or other private entities. This situation of course diminished the measure of direct US government involvement in principle to the bare minimum of 'merely' lending territory and facility for the launch - which nevertheless still meant the United States could be held liable. Once therefore the policy decision at high levels within the US government was taken to allow and even stimulate such forms of private involvement, it was immediately accompanied with the establishment of national legislation dealing with the legal issues arising *inter alia* as a consequence of the pertinent international liability-regime.[39]

The Commercial Space Launch Act was therefore enunciated in 1984, with Amendments in 1988 substantially altering some of its, for private enterprise most crucial provisions.[40] What remained was, for any private enterprise operating from US territory, the requirement of a license, to be granted only after a number of conditions would have been fulfilled[41], and the obligation to reimburse the US government for any claim arising under the international liability-regime[42].

What does that mean for the present issue? By way of summary conclusion of the foregoing, domestic American legislation does provide for the extra step necessary to involve private entities, whether US or non-US, in a sensible way in potential liability claims. It does so by filling in the international space law liability system, without adding substantially to or detracting substantially from the legal implications of ownership of a space object.

Ownership of any non-US-governmental space object involving the United States' liability, whether a launch vehicle launched from US territory or facilities or another space object on board of a launch vehicle launched from US territory or facilities, through that extra step will basically incur liability. On the other hand, the anomalies and complexities of the international system have not been taken care of either, domestically speaking.

4.2. France and the European Space Agency.

With regard to France, the actual situation is somewhat different. To begin with, the launch base relevant for international space activities, Kourou, does not find itself in France-proper, but in one of the overseas departments (the "*départements d'outre-mer*"): French Guyana. Since French Guyana however still falls under French sovereignty[43], launches from Kourou for that reason alone already turn France into a launching state and hence a liable state in respect of the space objects concerned.

Apart from that, the situation becomes more complicated. The launching facilities were built by France, later on extended with the help of the European Space Agency which also started operations there - helped in turn by the French national space agency, the Centre National d'Études Spatiales (CNES) - with

Arianespace since a number of years actually as its sole important customer.[44]

That makes, to begin with, ESA liable as well, since ESA has promulgated the declaration required thereto under Article XXII of the Liability Convention. As ESA is also the owner of many of the satellites brought into outer space from Kourou, in those cases liability is relatively simply dealt with by space law directly, with basically France and ESA, and subsidiarily (the) other member states of ESA, having to pay once their (jointly or severally)[45] owned space objects cause damage. In cases involving other states' or other organizations' (such as for instance EUTELSAT's) satellites, launch contracts could still deal with this kind of complications in the way already indicated.

With the involvement of Arianespace the situation becomes different however. Arianespace is the embodiment so far of privatization of the launching activities themselves in Europe, and since it had started operating Kourou, back in 1979,[46] the other problems already touched upon in regard of private enterprise have come to the fore in theory here as well.

Arianespace, to be exact, is a private company established under French law[47] and hence basically a French enterprise, but with important international involvement: apart from CNES, some 50 banks and other industrial firms, from France as well as from other ESA member states, are its shareholders[48].

As a private company it is not to be held liable under international space law directly, so at the time of establishment of Arianespace the French government took care to derogate any claims arising as a consequence of international space law, against ESA as well as against France itself, to Arianespace, be it that it took it upon itself not to derogate any amount above the first FF 400 million of any claim[49].

As to the other form of private involvement, private entities buying someone's launching services at Kourou - which since a number of years means hiring Arianespace - that launch service provider again takes care of any potential claims against France or ESA by means of the contract, namely through inclusion of the price of the insurance necessary to cover Arianespace's client as well, up to the FF 400 million-mark, in the launching price.[50] Any owner of such a space object, whether from an ESA member state or from outside, would hence be indirectly confronted through such a contract with the financial consequences of the international third-party liability regime.

The difference with the situation in the United States here lies primarily in the relative simplicity and informality of the arrangement in the France/ESA case as opposed to the comprehensiveness of the licensing system pertaining in the United States. Still, for all launches conducted from Kourou the extra step as to liability is provided for, meaning that any owner of a space object launched from Kourou, whether private or public, will ultimately be held liable, at least by contract. Once more however, this measure only fills in the international system, without adding to, or rectifying it.

In conclusion, both the United States and France have, be it through somewhat different mechanisms, to a rather comprehensive extent taken care of their liability being possibly invoked by reason of their territory being used for the launch, qualifying them as launching states, including cases involving private entities. That is, as long as the ownership of the space objects involved does not change; what happens if it does, or changes color in a manner of speaking, still remains to be seen.

5. The Effect of Leasing in Legal Terms

Finally therefore the phenomenon of leasing is to be entered into the equation now. To start with, this phenomenon should be seen in connection with the problem of states being involved in the launch of space objects which are not their own to the extent of qualifying as a launching state under the relevant provisions of space law. This makes them liable for damage caused by the space objects concerned.

Solutions for this problem at least in principle are rather simple, and have indeed been implemented on every relevant occasion. Through contractual arrangements, the owners of space objects - basically satellites, since expendable launch vehicles are, almost by definition and at least in actual fact, always owned by the state from whose territory the launch was conducted or by that state's nationals - are usually obliged to reimburse other states - notably the state whose sole involvement exists in lending its territory and/or facilities for the launch - in cases where claims for liability are laid at the latter's doorsteps.

Nevertheless, in my opinion this is a serious flaw in the logic of the liability regime, leading to the need for rather complex contracts. Such contractual arrangements would not have been necessary if the launch of a space object would not have been made so all-important for apportioning liability as it is. Under the present system a state solely involved in the launch of a satellite by lending its territory can still be held liable if years after the launch the satellite in question would happen to cause damage, for reasons which under normal logic and law would not have been attributed to that state.

The disadvantageous implications of this flawed structure become even clearer and more pronounced when we take the problem one step further, and one step closer to the lease-issue. Suppose that sometime after the launch the satellite will

be sold by its owner to a new owner, and then proceeds to cause damage - because of certain activities of that new owner. The new owner in principle need not be potentially liable under the present regime provided by space law, because he could very well have had nothing to do with the launch in the first place. The first owner, who by definition has had a lot to do with the launch, on the other hand remains liable for something which is no longer his! Of course, the problem in this particular shape can be regulated away in specific instances by contractually arranging for complete reimbursement in the contract of sale - making extra clauses necessary nevertheless, for every specific instance. Another appearance of the problem, however, can not as easily be dealt with.

A state merely involved in the original launch by the use of its territory, not being the owner of the satellite, is not a party to the contract of sale, and hence can not use that very contract as an instrument for guaranteeing reimbursement where it nevertheless remains liable into eternity for damage caused: it will have to do so by its own contract regarding the launch. All this, theoretically speaking, applies as much if the old and new owners are other states or if they are private entities.

Another kind of problem - which so far remains theoretical, and therefore needs only mentioning at this point - occurs in respect of the phenomenon of aerospace planes. Taking off in a similar ways as airplanes, the notion of 'launching' does not apply to them, yet they - or satellites brought into outer space by them - of course may very well cause damage in outer space or from outer space which nevertheless escapes from the provisions of the present space law-liability regime.

Then we finally arrive at the issue of 'leasing', of handing over effectively the most important or even all elements of ownership without actually transferring ownership as such. In any of the cases considered before, that means that the lessor still holds ownership, with all apparent due consequences in terms of registration, jurisdiction and liability - directly if the lessor is a state, indirectly through juridical filling in-activities if the lessor is a private entity, in yet a different indirect manner if the lessor is an international organization.

Yet, actual control over the space object in question, usually a satellite, by the very act of leasing has been handed over to the lessee, who remains however outside of any liability-problems unless he was already involved in the launch as a launching state on other accounts. *A fortiori* this holds good for a private lessee, who, as stated, can never be held liable directly under international space law.

Thus, for the very reason of such actual control of course, it is the lessee who really should be seen as the causer of any damage to result from activities of the space object in question!

In principle, again, this divergence of ultimate control *versus* legal accountability could yet be taken care of by means of the lease-contract, providing for derogation of any liability-claims by the lessor to the lessee during the time of the lease. That is, if at least the lessor is a state, alternatively itself held to derogate under any filling in-provision.

Apart from the fact, that the awareness of such possible events should be present at the time of conclusion of the relevant contracts, such a construction rapidly becomes overly cumbersome and complex. To protect itself the state merely lending its territory for a launch would similarly have to include relevant provisions in the contract of launch.

As was already alluded to, where ownership itself is not automatically complemented by jurisdiction and/or liability, the addition of another element to the chain by means of leasing provides for the serious risk of states finding liability claims on their doorstep, because of them having launched or having provided territory for the launch of somebody else's space object, possibly privately owned, which was later on leased to yet somebody else, possibly again a private entity, who was thereby in the position to cause the damage leading to the liability claim in the first place.

The first state in this chain may have little overview and little control over what happens at the end of the chain, and even finds itself - as in the cases of US-licensed or Arianespace-undertaken launches, where the latter seems to provide for theoretically speaking larger problems since there is no official licensing-regime in place which would considerably ease routinely included provisions and guarantee the necessary openness - effectively co-insuring an entity, private or public, for which such a form of support was never meant!

6. Conclusion

Coming back to Professor Wassenbergh's proposed solution; would it indeed help to legally separate the launching and the liability in legal terms, to the extent that liability goes with launching only during the launch phase?

I submit it does, provided that in addition it is clear, or if such an interpretation can not be upheld, that it should be enforced by new mechanisms, that once the launching phase has ended liability should be incurred by the very entity - directly if a state, indirectly if an international organization or a private enterprise - having control over that particular phase of operation of the space object concerned.

In other words: I would strongly advise severing the link of liability to launching, finally shown to be illogical through entering the notion of 'leasing' into the equation, and instead (re)installing a link of the duty to compensate for damage to

the actor actually causing that damage, in other words: of using Article VI of the Outer Space Treaty and the resulting responsibility for any national activities - not just launching activities - for the allocation of claims for the compensation of damage. The special role for private enterprise could then very well be taken care of through the concurrent requirement of authorization and continuing supervision by the state concerned, provided for by that same Article VI.

Maybe any sword of theory will in the end get stuck in the Gordian knot of practical reality and established procedure, however imperfect, but the risk is worth taking, if only because it will - hopefully - result in more insight into the complexities and ramifications of that Gordian knot.

Notes

1. See *Space News*, 19-25 July 1993, 30.

2. See *Space News*, 22-28 March 1993, 8; *Space News*, 19-25 July 1993, 30.

3. See S. Chenard, *Lean Times for France?*, 8-5 Space (Oct.-Nov. 1992), 26.

4. H.A. Wassenbergh, *Principles of Outer Space Law in Hindsight* (1991), 30. See also 31.

5. In my paper for the IISL Colloquium of Montreal of October 1991 I also extensively argued in favour of a similar approach; *Liability* Versus *Responsibility in Space Law: Misconception or Misconstruction?*, in Proceedings of the Thirty-Fourth Colloquium on the Law of Outer Space, Montreal, 5-11 October 1991 (1992), 363-71.

6. *Webster's New Twentieth Century Dictionary*, 2nd ed. (1983), 1032. Emphasis added.

7. *Roget's Thesaurus of English words and phrases* (1982), at 777 and 780.

8. *Roget's*, at 784.

9. *Black's Law Dictionary*, 5th ed. (1979), 800. Emphasis added.

10. *Black's*, 800. *West's Law & Commercial Dictionary*, Part II (1985), 29, repeats these phrases; whereas *Osborn's Concise Law Dictionary*, 7th ed. (1983), 199, also emphasizes the difference between the permanency and comprehensiveness of ownership and the temporariness and incompleteness of lease.

11. Treaty on Principles Governing the Activities in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty), of 27 January 1967, 610 UNTS 205, 18 UST 2410.

12. Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), of 29 March 1972, 961 UNTS 197.

13. Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), of 14 January 1975, 28 UTS 695, TIAS 8480.

14. Art. VIII literally states: "A state (...) *on whose registry an object launched* into outer space is carried *shall retain jurisdiction and control* over such object (...) while in outer space or on a celestial body. *Ownership of objects launched* into outer space (...) *is not affected* by their presence in outer space or on a celestial body or by their return to the Earth. *Such* objects (...) found *beyond the limits of the State* (...) *on whose registry* they are carried shall be returned (...)" (emphasis added).

15. Viz. Artt. VII, VIII, Outer Space Treaty jº Art. II(1), Registration Convention.

16. See the Liability Convention and the Registration Convention in general for those rights and obligations.

17. Cf. Art. XIII, Outer Space Treaty.

18. Cf. Art. VII, Registration Convention.

19. It has declared the required acceptance of the relevant rights and obligations as of 2 January 1979; see e.g. *Space Law - Basic Legal Documents*, A.IV.2, 2.

20. See e.g. M. Akehurst, *Jurisdiction in International Law*, 46 British Yearbook of International Law (1972-3), 145 ff.; D.W. Bowett, *Jurisdiction:*

Changing Patterns of Authority over Activities and Resources, 53 British Yearbook of International Law (1982), 1 ff.; N. Mugerwa, *Subjects of International Law*, in Manual of Public International Law (1968), 250-5; F. Seyersted, *Objective International Personality of Intergovernmental Organizations*, 34 Nordisk Tidskrift for International Ret (1964), 46-8, 73; H. Steinberger, *Sovereignty*, 10 Encyclopedia of Public International Law (1987), 397-9, 404, 408-10; S.T. Bernardez, *Territorial Sovereignty*, 10 Encyclopedia of Public International Law (1987), 489-91; A. Bleckmann, *Das Souveränitätsprinzip im Völkerrecht*, 23 Archiv des Völkerrechts (1985), 453-63; J. Crawford, *The Criteria for Statehood in International Law*, 48 British Yearbook of International Law (1976-7), 108-9; K. Doehring, *State*, 10 Encyclopedia of Public International Law (1987), 423-7.

21. See Art. I(c), Liability Convention.

22. Cf. Art. VII, Outer Space Treaty; Artt. II-V, Liability Convention.

23. See Art. VIII, Outer Space Treaty; Art. II(1) and (2) respectively, Registration Convention.

24. Namely as a state "which (...) procures the launching"; Art. I(c)(i), Liability Convention.

25. See Art. XXII, Liability Convention.

26. Ownership and liability once more clearly are far from automatic matches.

27. See also *infra*, para 4.

28. For a more extensive discussion of Article VI in relation to Article VII and the resulting confusion concerning responsibility and liability I would like to refer again to my paper presented at the IISL Colloquium of 1991, in Montreal. See further e.g. N.L.J.T. Horbach, *The Confusion about State Responsibility and International Liability*, 4 Leiden Journal of International Law (1991), 47-74.

29. Art. VI, Outer Space Treaty, provides i.a. that states "shall bear international responsibility for national activities in outer space (...), whether such activities are carried on by governmental agencies or by non-governmental entities", and with respect to the latter adds the requirement of "authorization and continuing supervision". The main thrust of these provisions is the implicit yet fundamental acknowledgement that jurisdiction, even if only the terms "authorization" and "supervision" are used, forms the necessary counterpart to the responsibility for non-state activities.

30. As evidenced e.g. by the International Law Commission's Draft articles on State responsibility, Part 1, II-2 Y.B. Int'l L. Comm'n, UN Doc. A/35/10/1980, Artt. 1, 2. See further e.g. C. Eagleton, *International Organization and the Law of Responsibility*, 76 Recueil des Cours (1950-I), 326-30, 342-5; F.V. Garcia Amador, *State Responsibility - Some New Problems*, 94 Recueil des Cours (1958-II), 369-73, 400-1, 462-7; R. Wolfrum, *Internationally Wrongful Acts*, 10 Encyclopedia of Public International Law (1987), 271-6; K. Zemanek, *Responsibility of States: General Principles*, 10 Encyclopedia of Public International Law (1987), 362-8; I. Brownlie, *The System of the Law of Nations*, Part I (1983), 22-3; M.N. Shaw, *International Law*, 3rd ed. (1991), 481-90.

31. As to general international law, cf. Artt. 11, 23, Draft articles on State responsibility, for the famous 'due care' obligation; further also e.g. Garcia Amador, 401-5; Zemanek, 368; Shaw, 488, 491.

32. Again I would like to point to my paper presented at the 1991 IISL Colloquium of Montreal, *supra* at note 5, where I deal more in detail with monetary compensation as one form of reparation for an internationally wrongful act.

33. Cf. e.g. for telecommunication satellites: N.C. Goldman, *Space Commerce* (1985), 31-7, 55-71, 127-36; also more in general P.M. Meredith, *A Comparative Analysis of United States Domestic Licensing Regimes for Private Commercial Space Activities*, in Proceedings of the Thirty-Second Colloquium on the Law of Outer Space, Malaga, 11-15 October 1989 (1990), 373-4.

34. Cf. Art. VII, Outer Space Treaty; Artt. II-V, Liability Convention.

35. Cf. again Art. I(c)(i), Liability Convention.

36. See Art. XXII(1), Liability Convention.

37. Cf. Art. XXII(3), Liability Convention.

38. National Aeronautics and Space Act, of 29 July 1958, as amended in 1983, *Space Law - Basic Legal Documents*, E.III.1, Sec. 308(a). Further e.g. R.L. Kissick, *Commercial Space Launch Contracts: Disputes and Remedies*, 4 Journal of Law and Technology (1989), 38; P.D. Nesgos, *The Challenges Facing the Private Practitioner: Liability and Insurance Issues in Commercial Space Transportation*, 4 Journal of Law and Technology (1989), 24; P.D. Nesgos, *International and Domestic Law Applicable to Commercial Launch Vehicle Transportation*, in Proceedings of the Twenty-Seventh Colloquium on the Law of Outer Space, Lausanne, 7-13 October 1984 (1985), 106; N.C. Goldman, *Amercian Space Law* (1988), 140-1; H.L. van Traa-Engelman, *Commercial Utilization of Outer Space - Legal Aspects* (1989), 233-4; J.L. Magdalénat, *Spacecraft Insurance*, 7 Annals of Air and Space Law (1982), 368-9.

39. See V. Kayser, *An Achievement of Domestic Space Law: U.S. Regulation of Private Commercial Launch Services*, 16 Annals of Air and Space Law (1991), 341-79.

40. See e.g. Commercial Space Launch Act, Public Law 98-575, of 30 October 1984; 98 Stat. 3055, 49 USC 2601-2633; amended by Commercial Space Launch Act Amendments, Public Law 100-657, of 15 November 1988; 102 Stat. 3900. See further e.g. Meredith, Proceedings 32nd, 373-8; Kayser, 353-76; P.D. Nesgos, *Commercial Space Transportation: A New Industry Emerges*, 16 Annals of Air and Space Law (1991), 393-421.

41. Cf. Sec. 7, 8, Commercial Space Launch Act; further Meredith, Proceedings 32nd, 375-7; P.M. Meredith, *Risk Allocation Provisions in Commercial Launch Contracts*, in Proceedings of the Thirty-Fourth Colloquium on the Law of Outer Space, Montreal, 5-11 October 1991 (1992), 269-70.

42. See Sec. 15(c), 16, Commercial Space Launch Act. In the 1988 Amendments, the second obligation was modified to the extent that damage over an amount of US$ 500 million would not need to be reimbursed to the US government, effectively amounting to a sort of government insurance. See further Meredith, Proceedings 32nd, 377; Meredith, Proceedings 34th, 270; Kayser, 366-72; Nesgos, Annals, 402-7.

43. This was for instance also acknowledged by France's fellow member states of the European Communities; cf. e.g. Art. 227(2), Treaty establishing the European Economic Community, of 25 March 1957; also P.J.G. Kapteyn & P. VerLoren van Themaat, *Introduction to the Law of the European Communities*, 2nd ed. (1989), 52.

44. Cf. e.g. The Cambridge Encyclopedia of Space (1990), 113, 128-9, 145; P.M. Martin, *Legal Consequences of the Lack of French Space Legislation*, in Proceedings of the Thirty-Fourth Colloquium on the Law of Outer Space, Montreal, 5-11 October 1991 (1992), 251-2; S. Lessard & F. Nordlund, *Les Bases de Lancement: Évolution et Aspects Juridiques* [Launching Bases: Evolution and Legal Aspects], 15 Annals of Air and Space Law (1990), 387; M. Harr & R. Kohli, *Commercial Utilization of Space* (1990), 34, 46, 65; K. Iserland, *Ten years of Arianespace*, 6 Space Policy (1990), 342; M.G. Bourély, *La Production du Lanceur Ariane* [The Production of the Ariane Launcher], 6 Annals of Air and Space Law (1981), 296-308; M.G. Bourély, *Commercialisation des Activités Spatiales* [Commercialization of Space Activities], 11 Annals of Air and Space Law (1986), 180-1; K. Iserland, *Trägersysteme: Konkurrenz der Weltraumtransporteure* [Launching Systems: Competition of Space Transportation Providers], in Weltraum und internationale Politik [Outer Space and International Politics] (1987), 106; W. Finke, *Weltraumpolitik der Bundesrepublik Deutschland* [Space Policy of the Federal Republic of Germany], in Weltraum und internationale Politik [Outer Space and International Politics] (1987), 327-9.

45. Cf. Artt. V, XXII, Liability Convention, and the way the issue was dealt with within the France-ESA relationship; see Martin, 252.

46. *Cambridge Encyclopedia*, 113-4; 329.

47. Cf. Statuts de la Société Arianespace, of 26 March 1980, Artt. 1, 3, 4, 6; see also Bourély, 6 Annals, 293; M.G. Bourély, *Quelques Réflexions au Sujet des Législations Nationales* [Some Reflections on the Subject of National Legislations], 16 Annals of Air and Space Law (1991), 264, at n. 21.

48. See e.g. *Cambridge Encyclopedia*, 90, 328-9; Martin, 252; Harr & Kohli, 50-2; Bourély, 6 Annals, 293-6.

49. Cf. e.g. the Declaration by Certain European Governments Relating to the Ariane Launcher Production Phase, of 10 January 1980, 6 Annals of Air and Space Law (1981), 735, Art. 3(8) jº Art. 4(1); see further e.g. Bourély, 6 Annals, 307; Lessard & Nordlund, 387-8.

50. Cf. e.g. Nesgos, Annals, 403: buyers of launch services from Arianespace basically were to take third party liability insurance cover for the amount not covered by the French government's guarantee; also Meredith, Proceedings 34th, 270; further Lessard & Nordlund, 387-8.