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TOO-CLOSE ENCOUNTERS OF THE THIRD-PARTY KIND: WILL THE LIABILITY CONVENTION STAND THE TEST OF THE COSMOS 2251- IRIDIUM 33 COLLISION?

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Abstract

Cynics would say: space lawyers must have been waiting for this for decades, and now will of course immediately call for additional regulation. But indeed, the recent collision between the Cosmos 2251 and the Iridium 33 satellite, the first time since the Cosmos 954 disintegrated over Canada that the Liability Convention stands a chance of officially being invoked, raises a number of issues regarding the applicability of that Convention, and the level of precision with which it can be applied.

The present paper undertakes a critical analysis of some of these issues. Notably, this concerns the involvement of a commercial satellite run by a private operator in the collision (the Liability Convention providing for a very much state-oriented liability regime), the issue of ‘fault’ as determinative of the level of liability of the two principal states involved in the collision, and the concept of ‘space debris’ – as Cosmos 2251 was apparently non-operational and out of control for more than thirteen years – and what to do with it legally, in terms of liability as well as otherwise.

In view of the gradually growing population of outer space with man-made artefacts the Cosmos 2251-Iridium 33 unfortunately but very likely will not be the last too-close encounter of this third-party kind. And cynics or not, lawyers will have to address the extent to which the current

space law regime may need elaboration and refinement to deal with such incidents in an optimal fashion.

1. The facts of the collision

On 10 February 2009 the Cosmos 2251 and Iridium 33 satellites collided at an altitude of some 785 kilometres ‘above’ Northern Siberia, presumably with a relative velocity of at least several hundreds of miles per hour, immediately transforming at least one of the Iridium’s mobile telephony nodes as well as all of the Russian satellite into a debris cloud likely to remain in orbit for at least decades.¹ Iridium 33 was a commercial telecom satellite owned by a US private company, even if *de facto* its operations were sustained by the US military as an anchor customer. Cosmos 2251 was a Russian military satellite also used for telecommunications.

Cosmos 2251 had been launched in June 1993 from Plesetsk in Russia, by the Russian Space Agency on top of a Proton vehicle, and registered by means of a *note verbale* with the United Nations in June 1994.² The satellite, however, had become defunct and – presumably – completely out of control during 1995.³ Iridium 33 had been launched together with six other Iridium satellites in September 1997 on a Proton launch vehicle from Bajkonour, the Russia-run spaceport in Kazakhstan, of which Russia informed the United Nations in March 1998.⁴

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2. The collision and the Liability Convention

There should be – and indeed is – little doubt that liability issues arising from the collision would first and foremost trigger the applicability of the 1972 Liability Convention⁵. The collision concerns two space objects involving at least two different nations, the United States and the Russian Federation, and – as will be seen – both the question of liability as between the two respective operators/owners, and the question of liability towards any potential further victims, be they in outer space, in air space or on earth, are principally to be regulated by the Liability Convention.⁶ Even as the Liability Convention's application hinges on the damage being caused by a space object, which in turn is generally defined as an object intended to be launched into outer space, in view of the altitude of the collision there can be no doubt that it took place in outer space making the two satellites space objects for the present purpose.⁷

Still, it should be noted that as such the applicability of other legal regimes for dealing with liability claims is not to be fundamentally excluded. The Liability Convention itself already expressly declares that its invocation would not stand in the way of any claim regarding the same event being pursued “in the courts or administrative tribunals or agencies of a launching State”.⁸

Furthermore, prior to triggering the application of the parts of the Liability Convention providing for a dispute settlement procedure, the parties to a dispute on liability for damage caused by a space object are supposed to find a solution through diplomatic negotiations⁹ – which may well include the option of using other liability rules or principles than those provided by the Liability Convention, and/or another

dispute settlement procedure that that provided for in the Convention.

The only case where, so far, the Liability Convention has been formally applied, even if only explicitly referred to in the claimant's statement¹⁰, the disintegration of the Soviet Cosmos 954 satellite over Canada in 1978, *inter alia* illustrates this very point. In the final document settling the dispute it was agreed by the Soviet Union to pay an amount of C\$ 3,000,000 *ex gratia* – and the final document itself did *not* mention the Liability Convention.¹¹

It should be pointed out that in the present case the Liability Convention has not (yet) been invoked by either party (neither has any other potentially liability dispute settlement regime been so invoked), but once it would be, such invocation would immediately be seen not to lead to easy and automatic solutions and results. There are (at least) three interrelated aspects complicating any such application, which will be discussed in the following three sections.

3. The involvement of a commercial satellite

Firstly, a closer look at the collision and possible application of the Liability Convention brings the issue of the existing lack of clarity of the proper place of private entities in the international space law liability regime back on the table – the operator of the Iridium 33 satellite, of course, was Iridium, a private US company.

The issue is not so much that Iridium itself, in case it would consider doing so, could not invoke the Liability Convention. This would be undisputed as the Convention unequivocally only allows states to assert claims under it.¹² In this case, therefore, Iridium, being a “juridical person” of the United States,

might try to convince the US government to assert a claim on its behalf.¹³

The problems arise essentially on the other side of the fence: if the Russian Federation would feel like establishing a claim under the Liability Convention, could it do so against the United States? The Liability Convention clearly establishes “the launching State” to be the liable entity for damage caused by a space object for which it qualifies as such a “launching State”, but only lists the four criteria for qualifying as such by reference to “a State” – “*A State which launches or procures the launching of a space object [or] A State from whose territory or facility a space object is launched*”.¹⁴

Does that make the United States the “launching State” of the Iridium 33 satellite? As stated, the launch of that satellite was undertaken by the Russian Space Agency on a Proton vehicle, procured by Iridium itself (which is not ‘the United States’), and took place from Bajkonour, which is in Kazakhstan. The only legal link between the United States as a state and Iridium as a company having procured the launch of a satellite therefore is the latter’s US nationality – but ‘nationality’ of an operator is not as such referred to in the context of the definition of the “launching State”.¹⁵

On the other hand, various scholars have argued that the link of nationality would somehow make the United States the liable entity in a case like the present one, either as the “state which launches” (which thus is effectively interpreted to read ‘a state which itself launches *or whose entities launch*’) the relevant space object, or as the ‘state procuring the launch’ somehow as if by proxy through such nationality of the actual entity procuring it. While a further argument for legally equating

the activities of Iridium to those of the United States as a sovereign party to the Liability Convention could be derived from Article VI – which makes a - relevant state internationally responsible as much for its own activities in outer space as for those of non-governmental entities – also this argument is a matter of interpretation deviating from the literal text of the Convention’s clause.¹⁶

Neither does state practice help much, as various states have determined the scope of their national authorisation regimes, supposed to take care of domestic consequences of international liability claims being paid out of state’s treasuries, quite differently. Some states require entities with their nationality to obtain a license for undertaking space activities, others focus on other criteria for such requirements, for example referring to the territory from which relevant activities are conducted.¹⁷

In the case of the United States, notably, the Commercial Space Launch Act (which takes care *inter alia* of international liability) in its present iteration does require a license with attendant obligations only for those intending “*to launch a launch vehicle or to operate a launch site (...) in the United States*”, as well as any “*citizen of the United States (...) [wishing] to launch a launch vehicle or to operate a launch site (...) outside the United States*” – not, for example, to someone only operating the satellite launched and/or having ordered such launch.¹⁸ In turn, the US Communications Act, which deals with the licensing of satellite operators, does *not* require any coverage of international liability claims under the Liability Convention that the United States might be faced with – and moreover applies its licensing obligation only to those undertaking their satellite operations from US territory.¹⁹

Consequently, in the (so far hypothetical) case of Russia wishing to pursue a liability claim under the Liability Convention, this might serve as a clinching argument for the United States to deny any qualification as a “launching State” with respect to Iridium 33.

This is further reinforced by the fact that the launch of the satellite was *not* registered with the United Nations by the United States, again providing clear evidence that the United States does not consider itself a ‘launching state’²⁰ (whereas Russia merely *mentioned* it in the *note verbale*, in contrast to its also providing for proper registration of some other space objects).

More problematically still, the launch from Bajkonour makes both Kazakhstan (as the state whose territory was used for the launch) *and* Russia (whose launch facilities were so used) into launching states for the Iridium 33.²¹ Even if the United States *would* be considered a launching state, a claim between two launching states would be thus at stake!

The Liability Convention, essentially dealing with third-party liability is – to say the least – not geared to such scenarios. It deals with joint launching state-scenarios only to the extent that *joint liability towards third parties* is concerned – where it provides: “A launching State which has paid compensation for damage shall have the right to present a claim for indemnification to other participants in the joint launching. The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable.”²²

In sum: in the end the qualification of Russia as a launching state *also* of Iridium 33 to use a non-US launch provider launching from non-US

territory and facilities *would make for non-applicability of the Liability Convention* to the collision at issue. This, it should be stressed, was the consequence of the choice of the private US company concerned without further (formal) interference by the US authorities²³ – leading to the somewhat ironic result that Russia, as successor to a Soviet Union which had been so vehemently against granting private enterprise any legal personality under the space treaties, would now be fundamentally unable to recover any damages under the Liability Convention as a consequence of the Soviet Union’s success in this respect...²⁴

Secondly, even if Iridium would have chosen to have its satellite launched, for example, from Kourou by Arianespace, claims under the Liability Convention should have been addressed towards France and not the United States, as an argument that the United States would be a launching state merely on account of Iridium’s nationality, given the lack of clarity on the international level and the interpretation of the United States as emanating from its national acts, meets with considerable – probably insurmountable – problems.

4. The issue of ‘fault’

The difficulties with applying the Liability Convention discussed above left aside, it would be clear that any liability issues under the Liability Convention would be a matter for Article III, as concerning “damage being caused [by a space object] elsewhere than on the surface of the Earth to a[nother] space object”. In those cases liability would be apportioned according to fault.

Prima facie, this seems to be a very sensible and logical approach. Space objects are operated consciously and knowingly, and if one of them leaves its nominal orbit or trajectory or otherwise starts to behave and move strangely, causing it to crash into another, the operator of the former would be held liable on the basis of fault for the damage suffered by the latter, whereas the operator of the latter would in the absence of fault not be liable for any damage sustained by the former as a result of the collision.

'Fault' thus, presumably because of its seemingly obvious clarity, was not defined any further – yet, the first international satellite collision as per Iridium 33 *versus* Cosmos 2251 raises major questions in this regard. *Prima facie*, to be sure, as various commentators have already pointed out, such an analysis would seem to point at liability on the Russian side, as it was with little doubt the Cosmos 2251 that, having enjoyed a complete lack of control from the ground, strayed from its original nominal orbit so as to cross the path of the fully functioning Iridium 33.

However: 'fault' has been defined as: "1. An error or defect of *judgment* or of *conduct*; any deviation from prudence or duty resulting from inattention, incapacity, perversity, bad faith, or mismanagement. (...) 2. The intentional or negligent failure to maintain some standard of *conduct* when that failure results in harm to another person."²⁵ 'Fault liability' then is "liability based on some degree of blameworthiness"²⁶, alternatively "a type of liability in which the plaintiff must prove that the defendant's *conduct* was either negligent or intentional" and as such the opposite of strict liability²⁷.

In other words: a 'fault' presumes a *choice* for the person at fault, a choice

between at least two options of "conduct", where that person whether by 'intention' or 'negligence' has chosen an option (that is by flawed "judgment") leading to the harm concerned, where choosing another option would *not* have led to such harm.

Applying this generic definition of 'fault' to the case at hand, however, would lead to the counter-intuitive conclusion that, if any entity, Iridium would be the liable one. As was confirmed by Iridium spokesperson Elizabeth Mailander, the company indeed could have moved the satellite out of the way if given a precise warning.²⁸ By contrast, ever since Cosmos 2251 had run out of control some thirteen years earlier, there was nothing the Russians could have done to make Cosmos 2251 avoid a collision with Iridium 33.

At the same time: could Russia really hold the United States or the US company concerned²⁹ liable for 'damage' done to a lifeless piece of metal in outer space – the logical conclusion of the above reasoning? While lifeless, it might still serve some practical purposes and/or represent some real value to the owner; in the absence of applicability of any concepts such as 'abandonment' and 'salvage' in outer space law generally speaking it is still for the operator to make a determination of worthlessness.

In order to circumvent the above first-level conclusion as leading "to a result which is manifestly absurd or unreasonable"³⁰ one would have to move to a second level of analysis. The presumption of a choice of action on both sides does not only presume actual capability to manoeuvre, but also knowledge of a need to do so, in other words: a sound basis upon which to make a "judgement" in the sense of

Black's Law Dictionary's definition as to the appropriate course of action.

If the Russian authorities would have had knowledge of at least a substantial risk of a collision, they might perhaps not have been able to move Cosmos 2251 out of the way, but they would certainly have been able to inform Iridium that a manoeuvre might be necessary. A failure to then do so would certainly establish a large measure of fault on their side. As far as can be glanced, however, the Russian authorities so far have denied any knowledge of the potential for a collision.

Inexorably, thereby, the burden of (dis)proof shifts again to the US side. Not only is the US space surveillance network generally considered to be the most advanced and sophisticated globally; according to a *New Scientist* article aerospace analyst T.S. Kelso found that the Pentagon's public data showed that the two satellites would have missed each other by a mere 584 metres – whilst the margin of error ran into several kilometres.³¹ Also moving to this second level of analysis, therefore, still seems to lead to the unsatisfactory result of making one operator of a perfectly operational satellite in its nominal orbit liable for damage caused to another satellite, which had stopped having any apparent useful function many years earlier and had left its nominal orbit as a consequence long since.

One might of course argue that all this is, at least for the time being, mere theory, since both parties have desisted from any formal claims and are actually looking for a de-escalation of any threatening dispute.³² Russia does not wish to pursue a somewhat perverse claim for damage to a useless piece of space junk, whilst Iridium has announced it had a spare ready anyway

and would be able to replace the 33 on short notice.

At the same time all parties hedged their bets, for one good reason: with the hundreds of pieces of debris (counting only the traceable ones) and in view of their lifetime there is a far-from-theoretical possibility for decades into the future that third parties' space objects might be damaged. This would bring into play Article IV of the Liability Convention, which states in relevant part: "In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State, to the extent indicated by the following: (...) (b) If the damage has been caused to a space object of the third State or to persons or property on board that space object elsewhere than on the surface of the Earth, *their liability to the third State shall be based on the fault of either of the first two States or on the fault of persons for whom either is responsible.*"³³ Note, that if – for example – a French satellite would be damaged by a piece of debris of the Iridium-Cosmos collision, it would not matter whether the piece would actually be from the one or from the other; what matters is solely which of the two was at fault for the primary collision.

Mutatis mutandis, the same would apply in case of third-party damage on earth, for which as such absolute liability would apply, but the issue of fault would determine the distribution of compensation to such third parties amongst Russia and the United States.³⁴

In sum: the absence of a clear, or at least workable definition of ‘fault’ that takes into consideration the specifics of space activities and satellites, such as the virtual absence of possibilities of on-site investigations looking for the ‘real’ causes of the accident, might still turn out to present a major problem if somewhere in the future debris traceable to the Cosmos 2251-Iridium 33 collision causes damage to a third state’s satellite.

5. The issue of ‘space debris’

A final important element in the discussion on whom to blame primarily for the collision, not discussed so far, concerned the element of “deviation from prudence or duty” or “failure to maintain some standard of conduct”, in the terms of Black’s Law Dictionary.

Some commentators have sought to circumvent the counter-intuitive result of an application of the Liability Convention to the letter by seeking the fault of Russia in the mere fact that it had ‘allowed’ its satellite to run out of control in the first place, thus creating a piece of space debris and almost ‘willingly’ accepting the risk it might later on cause some damage. Indeed, had Russia by doing so violated applicable rules of international law, the step to declaring it consequently liable for the harmful consequences of its acts would have been relatively small.

However, even apart from the lack of clarity about whether the disablement of the Cosmos 2251 back in (presumably) 1995 was a sudden and unforeseen event or whether the operators had seen it coming, back in 1995, let alone in 1993 when Cosmos 2251 was launched, there was no such thing as a “duty” or “standard of conduct” requiring Russia to, for

example, use the last bit of on-board fuel to relegate the satellite to a junkyard orbit or to have it de-orbited.

Article IX of the Outer Space Treaty, the single relevant clause in this context (and of course in force for Russia in 1993 and 1995) merely required states to “conduct exploration of them so as to avoid their harmful contamination”, which is at best an obligation of effort rather than an obligation of result, of *trying* in good faith rather than being *obliged* to avoid any harmful contamination.

Only in recent years has this fundamental lack of legal limitations to the ‘freedom to create space debris’ started to be curbed – thanks, in first instance, to the Inter-Agency Space Debris Coordination Committee (IADC) and the guidelines it had drafted by September 2007.³⁵ Though still in voluntary fashion, the guidelines on debris mitigation included strong recommendations to move satellites nearing their end of life to junkyard orbits or to de-orbit them; guidelines which are now being implemented as licensing requirements for private operators in some states as well as having been lifted to a higher level of visibility, political and ultimately also legal relevance by means of a UN Resolution.³⁶

Whilst such developments are obviously to be applauded, they equally obviously confirm that back in 1993 or 1995 nothing of the sort existed – in other words, only with great difficulty could Russia be held to have fallen short of “deviation from [applicable] prudence or duty” or “failure to maintain some [applicable] standard of conduct”.

Even now, there is no applicable clear-cut and comprehensive legal obligation of the sort under international law. Once such an obligation would become established beyond doubt – whether by

international treaty or as a matter of undisputed customary international law – the Liability Convention could considerably gain in effectiveness or indeed applicability, since then ‘fault’ could be established by criteria that make sense in the particular context of space activities.

In sum: the collision also confirms that there is great value in further ‘juridifying’ obligations to minimise both the generation of space debris and its potentially harmful consequences, if only to allow the Liability Convention to work more effectively in the context of fault.

6. Concluding remarks

Whilst the above analysis may not even have taken on board all relevant facts – or even facts which as such could not be subject to corrections as a consequence of later investigation – it already shows that the very first seemingly clean-cut case for applying the Liability Convention does not appear so clean-cut anymore. Further too-close encounters of the third-party kind will, unfortunately but inevitably, become more rather than less likely, and hence make the question of whether the Liability Convention stood the test at this occasion rather relevant. Especially where ‘fault’ comes into play, in view of the specifics of space activities, the lack of any definition taking these into account and the lack of clear, legally binding standards to measure ‘fault’ against, the Liability Convention certainly leaves much to be desired in terms of solving the problem, theoretical as it may seem for the time being.

The situation is further aggravated by the key involvement of a private party on one side of the dispute – bringing discussions on a more private

international law-oriented liability regime back on the table.

In view of the absence so far of damage caused to the ‘real’ third parties (that is beyond the United States, Iridium and Russia), the Liability Convention has not been invoked yet, but whether it would stand the test once it *would* be, is still a matter of grave doubt. The cow may not yet have left the barn, but it senses the opening and time may be running out to close the barn door.

Endnotes

¹. See “It Finally Happened – Two Satellites Collide!”, Launchspace Staff, Special Report for SpaceDaily.com, 11 February 2009. The Report refers to some 300 new detectable fragments; the US statement delivered at the 46th Session of the UNCOPUOS Scientific and Technical Subcommittee of 12 February to some 700.

². See ST/SG/SER.E/275, of 13 June 1994, p. 2. Cosmos 2251 was erroneously referred to as Cosmos 2551 here.

³. See statement, “Russian and US satellites collide”, BBC News, 12 February 2009, with AFP at <http://news.bbc.co.uk/2/hi/science/nature/7885051.stm>.

⁴. See ST/SG/SER.E/332, of 19 March 1998, p. 2.

⁵. Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, done 29 March 1972, entered into force 1 September 1972; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No.

16; Cmnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971).

⁶. The Liability Convention's application would be triggered by damage "caused by (...) space object[s]" (cf. Artt. II, III; where Art. II deals with damage caused in outer space itself and Art. III with damage caused in airspace or on the ground), whereas claims only involving claimants and defendants of a single state essentially are excluded from the scope of the application of the Convention (cf. Art. VII(a)).

⁷. See for the discussion on the fundamental relationship between "launching" and "space object" e.g. extensively S. Gorove, Issues Pertaining to the Legal Definition "Space Object", 2 *Telecommunications and Space Journal* (1995), 136-45.

⁸. Art. XI(2), Liability Convention.

⁹. See Artt. IX, XIV, Liability Convention.

¹⁰. See the Statement of Claim by Canada, Space Law – Basic Legal Documents, A.IX.2.2; further e.g. B.A. Hurwitz, Reflections on the Cosmos 954 Incident, *Proceedings of the Thirty-Second Colloquium on the Law of Outer Space* (1990), 350-3.

¹¹. See Protocol Between the Government of Canada and the Government of the Union of Soviet Socialist Republics of 2 April 1981; Space Law – Basic Legal Documents, A.IX.2.2.

¹². See Art. VIII, Liability Convention.

¹³. Art. VIII(1), Liability Convention.

¹⁴. Art. I(c), Liability Convention; emphasis added.

¹⁵. See for further details of this argument e.g. the author's *Sovereignty versus Space – Public Law and Private Launch in the Asian Context*, 5 *Singapore Journal of International Law* (2001), 38-44.

¹⁶. Cf. Art. 31, esp. sub (1), Vienna Convention on the Law of Treaties, Vienna, done 23 May 1969, entered into force 27 January 1980; 1155 UNTS 331; UKTS 1980 No. 58; Cmnd. 4818; ATS 1974 No. 2; 8 ILM 679 (1969); on the interpretation of treaty clauses.

¹⁷. Cf. e.g. already the author's *Private Enterprise and Public Interest in the 'European Spacescape'* (1998), 130-1 on Sweden's Act on Space Activities, 1982: 963, 18 November 1982; National Space Legislation of the World, Vol. I (2001), at 398; Space Law – Basic Legal Documents, E.II.1; 36 *Zeitschrift für Luft- und Weltraumrecht* (1987), at 11; 134-7 on the United Kingdom's Outer Space Act, 18 July 1986, 1986 Chapter 38; National Space Legislation of the World, Vol. I (2001), at 293; Space Law – Basic Legal Documents, E.I; 36 *Zeitschrift für Luft- und Weltraumrecht* (1987), at 12; 142-4 on Russia's Law of the Russian Federation on Space Activities, No. 5663-1, 20 August 1993, effective 6 October 1993; National Space Legislation of the World, Vol. I (2001), at 101; and 149-51 on South Africa's Space Affairs Act, 6 September 1993, assented to on 23 June 1993, No. 84 of 1993; Statutes of the Republic of South Africa – Trade and Industry, Issue No. 27, 21-44; National Space Legislation of the World, Vol. I (2001), at 413.

¹⁸. Sec. 70104(a)(1) & (2), Commercial Space Transportation – Commercial Space Launch Activities, 49 U.S.C. 70101 (1994); emphasis added. Cf. also sub (3) & (4).

¹⁹. See already Sec. 301, Communications Act, 19 June 1934; 47 U.S.C. 151 (1988); 48 Stat. 1064; requiring a license for anyone to “use or operate any apparatus for the transmission of (...) communications or signals by radio” from the territory or quasi-territory of the United States. Though the Communications Act has been thoroughly amended over the years, this clause has remained fundamentally unchanged.

²⁰. Also for application of the Registration Convention (Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975)) the exact same notion of ‘launching state’ triggers the relevant obligations; cf. Artt. I(a), II, IV.

²¹. The two states have concluded a bilateral agreement by means of which Russia agrees to reimburse Kazakhstan for any international claim addressed to the latter as a consequence of a launch from Bajkonour; see Treaty between the Government of Russia and the Government of the Republic of Kazakhstan on the Leasing of the Baikonour-Complex, of 10 December 1994; also M. Hosková, *The 1994 Baikonour Agreements in Operation, Proceedings of the Forty-Second Colloquium on the Law of Outer Space* (2000), 265-8. Of course, this is only an *inter se* arrangement, not capable of

touching upon the definition as such of either states as a launching state or even upon the obligation of either state to answer relevant claims under the Liability Convention.

²². Art. V(2), Liability Convention; cf. also Art. V(1), providing that “a State from whose territory or facility a space object is launched shall be regarded as a participant in a joint launching.”

²³. The main exception here might well have been the application of US export regulations, notably the infamous ITAR’s (International Trade in Arms Regulations) under the Arms Export Control Act of 1976, 22 U.S.C. 2751; and the United States Munitions List (USML), 22 C.F.R. 121, last revised 1 April 2008; for the purpose of ensuring that the launch of the satellite outside the US does not lead to highly-sensitive dual-use know-how falling into the hands of those representing a security threat to the United States. However, in view of the complexity of this issue as well its non-relevance for the liability and launching state issues, this will not be discussed presently.

²⁴. At least, this is the situation under international law; the scenario whereby Russia could apply domestic law to Iridium’s possible liability as a consequence of its satellite being launched from a Russian launch facility – and thus supposedly having acquired the Russian license mandatory for those activities; cf. Art. 9(2), Law of the Russian Federation on Space Activities – is not further investigated here.

²⁵. *Black’s Law Dictionary* (8th ed.) (2004), 641; emphasis added.

²⁶. *Black's Law Dictionary* (8th ed.)(2004), 933.

²⁷. *The Oxford Companion to American Law* (2002), 297; emphasis added.

²⁸. In an Associated Press report (Borenstein, Birch), 13 February 2009.

²⁹. It should be noted that Art. III, Liability Convention, in this context refers to “its fault or the fault of persons for whom it is responsible”, which might make the United States liable once one would accept that private procurement leads to qualification of the state whose company did so procure the launch as a launching state, as discussed before.

³⁰. Under the Vienna Convention on the Law of Treaties, Art. 32 allows for means of interpretation supplementary to terms, object, purpose and context of the treaty in case application of the latter leads to “to a result which is manifestly absurd or unreasonable”.

³¹. See “Satellite crash prediction is plagued with uncertainty”, *New Scientist*, 13 February 2009, at <http://www.newscientist.com/article/dn16592-satellite-crash-prediction-is-plagued-with-uncertainty.html>.

³². Formally, of course, the Liability Convention would allow either party until 10 February 2010, a full year after the collision, to assert their claim; see Art. X(1).

³³. Art. IV(1), Liability Convention; emphasis added.

³⁴. Cf. Art. IV(2), Liability Convention.

³⁵. IADC Space Debris Mitigation Guidelines, IADC-02-01, Revision 1, September 2007.

³⁶. Space Debris Mitigation Guidelines of the United Nations Committee on the Peaceful Uses of Outer Space (A/62/20) endorsed by General Assembly Resolution 62/217, of 21 December 2007; A/RES/62/217.