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Is Blaming for the Captain Enough? STS-oriented Mobilities as Boundary Framework and the Costa Concordia Accident

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Is Blaming for the Captain Enough?

STS-oriented Mobilities as Boundary Framework and the Costa Concordia Accident

by Giuseppina Pellegrino

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1. Introduction

The growing interest in multiple forms of mobility characterizing the late modernity of globalized societies can be considered one of the most fascinating attempts to build up a theoretical turn in the social sciences over the last decade [Urry 2002, 2007; Hannam, Sheller and Urry 2006; Adey 2006]. On the other hand, the enduring and increasing pervasiveness of technologies surrounding our everyday life and accompanying us while being on the move [one for all, the mobile phone, cf. Katz and Aakhus 2002; Fortunati 2005], or allowing us not to move, has become a landmark of contemporary mediascapes [on this concept, cf. Appadurai 1996]. The aim of this contribution is a theoretical one, argued and supported through an exemplary story of im-mobility as “occasion” to illustrate crossroads between Mobility Studies and Science and Technology Studies (STS). The latter, especially when focusing on heterogeneity of agency and materiality [Law 1994; Latour 1987; Law and Hassard

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1999] and ecologies of infrastructures and boundary objects [Star and Griesemer 1989; Bowker and Star 1999; Star 1999] seem to be particularly “tuned” and “apt” to highlight and enrich the mixed, hybrid and multiform character of intertwined movements, where the “entity” on the move can be an individual, a group, a good on the market, a set of cultural norms, an object, a technological device, a procedure or set of routines, or all these things together, in myriads contexts, stages, and often through mixed modalities.

Crossroads between STS and Mobility Studies, here termed as “STS-oriented Mobilities,” can shed light on changes and transformations occurring to practices of mobility, immobility and proximity [Pellegrino 2011] by looking at the role played by sociotechnical infrastructures and artefacts as ecologies [Pellegrino 2008].

Key-words to move across the porous boundaries of the two fields (heterogeneous agency, boundary objects and infrastructures, ecology and moorings) will be shaped by analyzing the accident of the Costa Concordia cruise ship off Giglio island in January 2012. Rather than focusing on the event mainly as a typical example of systemic disruption of a complex infrastructure, the attempt pursued in this contribution is to intertwine the globalized dimensions of immobility linked to cruise tourism with the situated and contingent enactment of heterogeneous agencies in infrastructures, whose ecological and interconnected texture is broken down and unraveled.

The ultimate objective is to show how a STS oriented analysis of mobility infrastructures can enrich the field of Mobility Studies. In fact, the focus on more or less hidden, multi-layered infrastructures of transport and communication, can support an analysis of critical events like the Costa Concordia accident, shedding light on the mobility-immobility nexus.

The article is structured as follows. First, the crossroads between Science and Technology Studies and Mobilities will be framed from an epistemological viewpoint, arguing that both streams share the status of interdisciplinary and even transdisciplinary research fields.

Secondly, a series of theoretical hypotheses and concepts to sustain the feasibility and soundness of a Mobilities perspective informed by STS will be illustrated, through the reconstruction of what is considered to be an exemplary story, namely the Costa Concordia accident. The tragic partial sinking of the Italian cruise ship on the night of 13th January 2012 on the rocks in front of Giglio island, will be enlightened intertwining the specific dimensions of immobility pertaining to cruise tourism, with a STS analysis of agencies, infrastructures and ecologies which produced the event.

Going beyond the almost unanimous portrait of the accident as result of the notorious “bowing” ordered by the Costa Concordia Captain, Francesco Schettino a

portrait that the mainstream media enjoyed depicting - final remarks and directions for further research will be proposed.

2. STS and Mobilities: Converging Epistemologies

What follows is an analysis of the “stances and standpoints” of the two fields of study at stake, namely STS and Mobilities. Besides other differences, they are characterized by a far different degree of institutionalization, maturity and “closure”: if STS approaches can be considered as a more institutionalized and recognized field with a clearer differentiation of strands, Mobilities are very much still in the making, and to trace clear boundaries inside them is harder than in the case of STS. Departing from such a distinction, the aim is not to put the two streams on the same level, rather to discuss possible points of contact and benefit between them, focusing in particular on the contribution of STS to the analysis of im-mobility.

STS and Mobilities share a common epistemological matrix, that of multiplicity and anti-reductionism to a general motive or scope of social action. In fact, at least in the beginning of their construction as fields of knowledge and approaches to social complexity, both STS and Mobilities state the willingness to take into account multiple explanations and pluralities of actors.

In STS, it is the case of relevant social groups negotiating and conflicting around technological frames in Social Construction Of Technology - SCOT [Bijker 1995]; network of translations to build up heterogeneous alliances and anti-dualistic approach to knowledge in Actor-Network Theory - ANT [Latour 1987, 1993]; of social worlds sharing boundary objects, like standards and classifications, in the approach of information infrastructures and Boundary Objects - BOs [Bowker and Star 1999; Star and Ruhdeler 1996].¹

With reference to Mobilities, such a plurality and multiplicity is declined with reference to both global and local forms of movement, to different moving entities, to spaces and topologies [Urry 2002; Hannam, Sheller and Urry 2006; Urry 2007].

The open-ended and anti-reductionist epistemology of the two fields is also made visible through their inter and trans disciplinarity. Both STS and Mobilities constitute themselves as dialoguing fields among different disciplines: as in STS the social is not just sociological but also historical, political, cultural [cf. Bijker and Law

¹ In the context of STS, three main strands are taken in consideration, that means Social Construction of Technology (SCOT), Actor-Network Theory (ANT) and Boundary Objects/Information Infrastructures, following previous reconstructions of the field [cf. Mongili 2007; Pellegrino 2010]. Other strands like Feminist STS, Social Shaping of Technology, or Social Informatics, also being part of the STS field, will not be mentioned.

1992], so in Mobilities geography, anthropology, sociology, transportation and urban planning cooperate to define the combination of all types of movements [Hannam, Sheller and Urry 2006].

However, the intertwining of subjects, approaches and fields goes further in both STS and Mobilities: they create discourses (and, consequently, objects) which are new, and being new, cannot be claimed by anybody, or do not belong to anybody, as in Barthes' definition of "transdisciplinarity" [see Clifford and Marcus 1986].

This is the case of the continuous re-shaping of technological artefacts in SCOT, of translations in ANT, of the peculiar mixture of flexibility and consistency which are characteristics of BOs.

On the other hand, it has been noted that "Mobility has become an evocative keyword for the twenty-first century and a powerful discourse that creates its own effects and contexts" [Hannam, Sheller and Urry 2006, 1]. As a result, both STS and Mobilities have constructed new objects of research and inquiry through links and emerging categories (in the case of STS, both technology and science as constitutive of society, not anymore pushing or pulling one on the other; in the case of Mobilities, the articulation and intertwining of all kinds of movement, considered crucial to the analysis of global societies).

A final but not less important contiguity between the two fields of study taken here in consideration is the relational status they share; especially when considering ANT as founded on interconnectedness and heterogeneity [Law 1994] it is evident that this is true also for Mobilities as based on hybrid, sociomaterial dynamics [Hannam, Sheller and Urry 2006; Adey 2006].

However, an opposite emphasis can be recognized as a difference of epistemological stance. STS focus on closure and stabilization [especially ANT in Latour 1987; but also SCOT, cf. Bijker 1995] is different from Mobilities' orientation towards motion and movement, even if stillness, immobility and moorings are part of it [cf. Adey 2006; Pellegrino 2011].

Given such a set of similarities and differences in their articulation, what can STS offer to Mobilities? Is it possible to think of an explicit set of categories and concepts – a boundary framework – to illuminate Mobilities and Immobilities in their heterogeneity, distributedness, boundaries and infrastructures and to be shared by both fields likewise a BO is shared by social worlds?

The rest of the article will attempt to answer the question extrapolating such a framework through an exemplary story, whose analysis calls for an account of *mobilities as sociotechnical assemblies on the move*: on the move not only in a metaphorical and figurative sense, but in the *literal* and *explicit* meaning of "movement."

To build up the framework of STS-oriented Mobilities, keystones from two of the three STS approaches illustrated above, namely ANT and the BO/ infrastructure approach, are selected and used as complementary perspectives. From ANT, two main concepts – that of “immutable mobile” and of “distributed agency” [Latour 1986, 1987] – are used to address the nexus of mobility and immobility, change and stability happening in a specific object named as “cruise ship.” Then, this same cruise ship will be framed as an infrastructure where BOs [Star and Griesemer 1989] are not shared consistently, and finally as an ecology [Bowker and Star 1999] where interdependencies and diverse species interact, producing extended consequences. Therefore, the physical movement of a cruise ship is taken for granted result of global, mass-scale leisure and tourism mobility, but also subject to transformation and continuous maintenance of a complex, multi-layered infrastructure. Without it, no sailing and no mooring would be possible and, as in the case of Costa Concordia, no survival of the ship itself and of all the actants, networks and infrastructures constituting it.

3. An Exemplary Story of STS-oriented Mobilities: the Costa Concordia Accident

If it is true that “the concept of mobilities encompasses both the large-scale movements of people, objects, capital and information across the world, as well as the more local processes of daily transportation, movement through public space and the travel of material things within everyday life” [Hannam, Sheller and Urry 2006, 1], then cruise tourism is quite a *summa* of all these – only superficially contradictory – characteristics. In fact, the field of cruise tourism is increasingly recognized as a domain in which business and research seem to benefit from each other, and both claim for autonomy from the contiguous fields of tourism/mobility studies [Morgan and Power 2011].

On the other hand, cruise tourism is a vivid example of how physical and informational mobility systems can re-shape geographies of space and access, through dynamics of interaction between local topologies and global regulations [Sheller 2009].

The accident of the Italian cruise ship “Costa Concordia,” happened on the night of 13th January 2012 on the shores of Giglio island, a small archipelago off Tuscany coast, represents one of the most impressive disasters happened to a big cruise ship over the last decades, in terms of both number of victims (32, plus a professional diver who died trapped while inspecting the ship wreck in February 2014) and dynamics of the critical event. In order to frame the specific mobilities

involved into the dramatic partial sinking of the Costa cruise ship, and the peculiar accountability of the event as covered by the mainstream media, a short overview of cruise tourism will be provided, followed by a first account of the accident. This account is based on second hand sources only, mainly mainstream media and web reports of the event, in both Italian and English (the former translated by the author). However, the widespread availability of mobile Internet and connected smartphones, along with the boosting of social media, change the status of these reports, making them coincide more and more with on-the-spot and in-the-making events.² Since more than two years passed, another precious source of information for the present article was represented by media reports of the ongoing trial and witnesses' accounts of what preceded and followed the fatal impact with the reefs.

3.1. Cruise Tourism as Glocal Im-mobility

Cruise tourism represents one of the most profitable and steadily increasing sectors in the industry of leisure tourism [Klein 2011] even if it constitutes only a niche with reference to the global tourism industry [Dowling 2006]. The leisure and pleasure scope of the trip and travelling, along with the mobility (floating) dimension of the resort provided by the cruise ship as a means of transportation, characterize cruise tourism mobilities. Indeed, cruise ships configure themselves more than as means of transportation, or carriers, as mobile and floating resorts, in which “the accommodation and related resort facilities comprise 75% of the ship with the remainder devoted to its operations” [*Ibidem*, 3]. However, it is of the greatest importance in terms of STS-oriented Mobilities, to consider that not only the operations environment, but also most of the facilities are made possible by complex and dense sociotechnical infrastructures, whose saturation is increasing [e.g., automatic scenery machinery for cruise ship theaters, Lindauer 2002].

The popular definition of cruise ships as “floating (luxury) houses,” equipped with all the comforts and luxuries of immobility while being on the move, makes them a peculiar example of im-mobility realized at a global scale, since “cruise ships have developed into floating resorts on the sea where the passengers can enjoy all of the facilities and amenities of a holiday resort *without having to leave the ship*” [Morgan and Power 2011, 276, my emphasis]. Actually, “The ship is sold as the

² Live materials and proofs available on the web in real time in occasion of critical events, tragedies or catastrophes, make them more and more global, as well as mobile. To go in depth into how the mobile Internet changes the way of reporting and witnessing events goes far beyond the scope of this article.

primary destination, not the ports it docks at. Indeed, ‘destinational cruising’ where the ports are central to consumer choice and experience is now considered within the sector to be a niche market. (...) Viewing the sea is optional; even the deck chairs are likely to face inwards” [Wood 2000, 349-350].

Analogously to other mobility systems and infrastructures, then, cruise ships – rather than being no-places in the classical Augé’s definition [Augé 1995] – build up a peculiar sense of glocality and situatedness [cf. Hannam, Sheller and Urry 2006] in which the extraordinary and the extreme become routinized, even if for a definite period of time.

Furthermore, as a segment of the tourism industry, cruise business is able to re-scale local geographies and topologies by introducing (sometimes enforcing) ne-liberal regulations impacting on the quality of the local economies, regulations, and social arrangements. The case of the Caribbean States is exemplary of such a reshaping and rescaling, in which the cruise tourism plays a crucial role “creating new geographies of access to Caribbean ports, beaches, and remote islands. [At the same time] The Caribbean cruise industry is described as ‘uniquely deterritorialized’[...]” [Sheller 2009, 197].

The Costa Concordia, whose story is here re-constructed, was property of Costa Crociere, in turn belonging to the Carnival group corporation. The Carnival company faced in 2013 more than one case of trouble to its fleet: it is remarkable the failure of the ship “Carnival Dream,” which got stuck at St. Maartens’ Port in the East Caribbean mid March 2013 due to problems to a generator [Payne and Levs 2013], but even more impressive was the strand of another Carnival ship, the “Triumph,” which was idled for almost a week in the Gulf of Mexico after an engine fire.³ According to some of the aftermath reconstructions, also the Costa Concordia tragedy likely worsened because of some infrastructural problem and inadequate security checks, like those relative to watertight doors, emergency generator and other protocols, with which the company would have not complied [Gasperetti 2013].

In STS terms, building up a cruise fleet for mass leisure and tourism presents the problems as well as the materials of “long distance control,” differently but analogously to what John Law [1986] showed with reference to the heterogeneous engineering of the Portuguese expansion: durability, stability and undistorted communication allowed the Portuguese fleet to maintain the long distance control between Lisbon and India [*Ibidem*]. Technologies through which durability, stability and undistorted communication are achieved while a cruise ship is on the move are, of course, far diverse from those of the Portuguese vessels. However, differ-

³ <http://www.cnn.com/2013/02/11/travel/cruise-ship-fire>.

ent inscriptions of “documents, devices and drilled people” are at work in cruise navigation, as “Texts of all sorts, machines or other physical objects, and people, sometimes separately but more frequently in combination, these seem to be the obvious raw materials for the actor who seeks to control others at a distance” [*Ibidem*, 23].

The point of the present article, then, is the following: how do documents and devices, networks and alliances stabilized in a cruise ship, stop drawing together and maintaining their stability? It is a counter-question, though complementary, to the “classical” problem of ANT (and STS at large), which looks at how stabilization [Bijker 1995] material ordering [Law 1990] and alignment [Suchman 2003] are both produced and continuously performed. Therefore, it is now that STS enters the stage of mobility analysis.

3.2. Cruise Ships in Trouble: When Immutable Mobiles Get “Mutable and Immobile”

Certainly, Latour’s definition of scientific knowledge and objects as “immutable mobiles” [Latour 1986, 1987] constitutes the most explicit and immediate linkage of STS to Mobilities.

According to Actor-Network Theory, science and technology “travel” through translation across networks, though they keep a consistency which makes them immutable to some extent. While looking at networks in the making, ANT does not separate human from non human agency, as distinctions are factitious events typical of what is named as modernity [Latour 1993]: *ex post* purifications of a blurred and heterogeneous world where texts, machines, centres of calculations as well as engineers and technicians can be enrolled as part of more or less stable actor-networks [Latour 1987]. These actor-networks have to be *both mobile and stabile* to make science and technology, or what Latour calls technoscience, translated and performed. This relational character of im-mobility constituting technoscience according to Latour, then criticized/expanded by other STS scholars [see Law and Mol 2001; Law and Singleton 2003] seems to be far broader, and even more literal and material, when looking at the different kinds of movement and stillness of people, objects, goods, cultures, infrastructures, named as Mobilities.

As argued by Law and Singleton [*Ibidem*] Latour’s notion of immutable mobile “was worked up as a tool for thinking about long distance control, and, at the same time, the work that goes into moving scientific facts around so producing their apparent universality. Empires, suggested Latour, including the empire of science,

hold themselves together because immutable mobiles circulate in and through narrow networks that allow them to retain their shape (...) The argument is easily seen for an object such as a ship. European imperialism depended upon ships. These had to be mobile, and then they also needed to hold their shape both physically (wreckage does not have the same physical shape as a vessel) and as a set of relations, a network, in which the hull, the spars, the sails, and all the rest worked in the way that they did – had the attributes that they did – because they formed part of a stable network. So the argument works for ships” [*Ibidem*, 3-4].

However, the “stability” of a cruise ship – the type of ship this article considers – is not so “immutable,” from both a physical and a functional perspective. Looking at the multiple cases of breakdown occurred over the last one and a half year (see section above), it appears that long distance control is missing and troublesome. In fact, immutable mobiles hold their shape and work in a space which is the Euclidean one [Law and Mol 2001], a topology of stability in which no variance is allowed or if allowed, it is very narrow: “the immutable mobile (...) participates in both network and Euclidean space (...) The immutability belongs to network space: to a first approximation the vessel does not move within this. If it did, it would stop being a vessel. But it is that immutability in network space which affords both the immutability and the mobility in Euclidean space” [*Ibidem*, 612]. While departing from Latour’s “immutable mobiles,” Law and Mol [*Ibidem*] argued about fluid and fire topology of technoscientific knowledge/objects. Inquiring into spatiality and topology, they show how immutable mobiles are only a part of technoscience.

Immutable mobiles represent a technoscience whose main concern and key words are constituted by control, stability of configurations and transmission of immutable mobile through a network which has to aim to both stability and width for transmission. However, “often enough ideas, facts, information, even technologies, turn out to spread in a manner that is much more fluid. It is precisely a lack of rigidity that most helps movement” [*Ibidem*, 619]. This fluidity and flexibility puts in question issues of control and stability, entering a new kind of technoscientific topology.

When cruise ships (as immutable mobiles) break down, the stability or immutability of the network is at danger, threatened, or violated. As a consequence, they start acting in (and interfere with) another topological dimension, that of fluid spaces, which can be described “as a failed network” [*Ibidem*, 613]. However, an important point is that the configurational variance of fluid objects and spaces is incremental and gradual [*Ibidem*, 614], rather than the result of break down, failure, or misuse. All of the latter, in fact, occur in unexpected, sudden and unpredictable circumstances, which mess up the network stability of the object and at the same time its ability

to move on, so that it becomes *mutable and immobile*. Its shape is not anymore the same, in the sense that the usual networks get disrupted. And this prevents the cruise ship to move on as usual. Indeed, the cruise ship has not the potential to sail (both materially and organizationally) another topological dimension, namely to change by adapting its shape and networks, as Law and Mol [*Ibidem*] argue when talking of fluid spaces. So it gets stuck into a spatiality which becomes a tragic entrapment.

This is the case of the Costa Concordia. Not by chance, the story of its tragic partial sinking starts from a “wrong” movement or maneuver, which gets the luxury and gigantic cruise ship (290.20 meters long, able to host 1,100 crew staff and 3,780 passengers) crash against “Le Scole” reefs off the tiny Giglio island.

Such a wrong movement or maneuver is one of the most controversial dimensions of the entire story, namely the notorious “bowing” (in Italian, *inchino*), a close passage to islands or coastal areas reported to be common at least in the case of Giglio island, and not only, as the same Captain Schettino “bowed” Procida Island in 2010 and the Costa Concordia itself sailed very close to Giglio just few months before the tragedy.⁴

The media have been reporting and debating on what seems to be a widespread and common “touristic play” as defined by the same Captain. However, from the point of view of a STS-oriented analysis of mobility, the practice of “bowing” is not just a violation of sailing rules (likely well known and tolerated by the company itself), but the attempt to go beyond the Euclidean topology prescribed by the “cruise ship” network. Acting as if the space were fluid, the ship overcomes a fatal boundary, distorting an infrastructure born as “immutable mobile” and, therefore, unable to fit other categories of sailing, including that of “touristic navigation.”⁵

Classifying (literally, naming consistently) the movement as “bowing,” touristic play, rather than human error or technical fatality is neither neutral nor detached from the type of account, accountability, and consequences which can frame the Costa Concordia tragedy.

Many alternative accounts of the same accident could be provided: looking at it as a simple case of human error of the Captain, which constitutes the favorite plot narrated by the mainstream media. Or, the Costa Concordia could be framed according to more “traditional” frames of sociotechnical disruption: as a case of organizational accident in which the risk is not managed [cf. Reason 1997]; a chain of

⁴ http://www.corriere.it/cronache/12_gennaio_14/multimedia_video-concordia-1sett_0a823c02-46b1-11e1-90ee-63dee1b6b376.shtml.

⁵ What makes a cruise ship such and different from, say, a sailing boat is also a set of classifications and standards which define its size, dimensions, functions, types of sailing and mobilities, and so on. See Bowker and Star [1999] on residual categories and monsters in classification.

unfitting procedures of coordination and control, ending with organizational errors [cf. Catino 2006]; a situation where ambiguities of situated action are neither translated nor recognized as “errors” [cf. Vaughan 2004]. In this respect, STS scholars have shown how technical weakness and accuracy are socially shaped and artfully maintained by multiple actors in organizations [Mackenzie 1990].

Furthermore, what STS tell us is that no account depicts the same accident as such; rather, each account selects partially accountable and situated chains of socio-material, heterogeneous translations. This is the point of departure from which the immutable mobile “Costa Concordia” drifted, to become *mutable* (drifting from the usual shape of stabilized networks) and *immobile* (simply, not being able to move anymore): a tragic, exemplary story which neither a human error, nor a technical and/or organizational fatality, can narrate exhaustively.

The way the story will be re-constructed and re-narrated, then, is aimed at going behind and beyond the break down, attempting to provide a boundary framework to understand how the im-mobility, as well as the status of “immutable mobile” of the cruise ship, got disrupted (and how, reversely, they are usually achieved).

4. Behind/Beyond the Breakdown: a Boundary Framework in Three Connected Steps

From a phenomenological point of view, a breakdown is an unexpected interruption which unveils the taken for granted texture of everyday life, and the practice on which this is based. In Alfred Schutz’s term, everyday life puts doubt into brackets (whereas the doubt is the *epoché* of the natural attitude, namely, the suspension of obviousness, cf. Schutz 1945). Breakdown, also, allows to understand how the cooperative practices of social interaction are repaired and maintained [cf. Garfinkel 1967].

All this applies to sociotechnical infrastructures and artefacts as objects of a progressive and continuous “naturalization” which makes them invisible and unquestioned. It is a learning process, also labeled as domestication [cf. Silverstone 1994] whose stage is everyday life, where the interplay between routinization and innovation (often rising from breakdown) takes place.

If it is true that breakdown (often associated with failure, misuse or unexpected use of technologies) unveils the hidden texture of the practice it contributes to interrupt [cf. Suchman 1987], then breakdowns like the accident of the Costa Concordia can tell many things on how the smoothness of an “immutable mobile” is maintained and repaired, and what practices relies on what infrastructures.

The accident will be analyzed in three connected, STS-oriented steps: that of agencies taking place on the cruise ship (an agent itself); that of boundary objects and infrastructures involved in those agencies; that of ecologies and moorings maintained through agencies and infrastructures, and altered by the breakdown.

The ordinary invisibility of the smooth “immutable mobile” is unveiled this way, and an agenda for future research on STS-oriented Mobilities is proposed in the final remarks of the article.

4.1. Heterogeneous Agencies, or Distributed Guilty

What have I messed up?!

(Costa Concordia Captain, Francesco Schettino, recording)

Even though we were sailing along the coast with the tourist navigation system,

I firmly believe that the rocks were not detected (...)

(Costa Concordia Captain, Francesco Schettino, official declaration soon after the impact)

One thing stroke almost everybody in the first, dramatic moments following the Costa Concordia accident, on the night of 13th January 2013, around 9.20 pm. The ship impacted on superficial reefs, which opened a 70 meters laceration on its left side, and one reef got trapped into the ship. The peculiarity of this accident is the ship route and position, so close to the tiny Giglio island shores. Much too close for that type of ship, not conceived to sail close to the coast, and needing a lot of space to stop, move and change route [Minella 2012].

More than two years later, the ongoing trial sees the Captain as the only accused. All of the other officials co-accused of the disaster, as well as the company, bargained and avoided the trial (see section 3.3.). However, there is more of an only-guilty-character in the story: following the perspective of ANT, guilty, as much as action, is actually distributed and constituted by heterogeneous actor-networks [Latour 1987].

Of the two classical elements of the conundrum “human *vs* technical error” so typical of deterministic reasoning concerning science and technology [cf. Winner 1977] the Costa Concordia represents very well the first one. Responsibilities of the Captain immediately appeared very tough: he was not leading the ship, he was not on the pilot house [17 meters of “pure” technology aimed at monitoring all of the ship, see Minella 2012], he ordered the “bowing,” the salute to the Island as a “touristic play” – or showboating – to entertain the passengers aboard. Last but not least, during the rescue operations, he left the ship with his second official, as testified by

the notorious phone call with the Port Authority: that is the incontrovertible evidence he was not aboard in the middle of the evacuation and rescue procedures.⁶

However, it is very interesting, from the point of view of a STS-oriented analysis of the “bowing” and subsequent consequences, to go further down the materiality and hybridity taking place on the cruise ship, which is itself an agent, as much as the Captain, the other officials, the crew staff, the passengers, the pilot house, the watertight doors which did not impede the ship to partially sink (as they did not work properly).

Then, the “distracted and out-of-place Captain” (he was not leading the ship during the impact) is just a bit of a far broader puzzle. Not by chance, to defend himself he blames for technology, stating neither the nautical charts nor the ship instruments signaled the “Scole” reefs. In fact, what sense of direction and orientation in a such a complex environment can be trusted as human skill or ability to maintain the route straight? Is this separable or separated from the hypersophisticated infrastructure of a gigantic cruise ship pilot house? And what about the technical training of the other officials acting on behalf of (or in substitution for) the Captain?

Indeed, the practice of “showboating” (the so called “bowing” very close to islands and coasts), represents a clear violation of nautical security and procedures, However, this was anything but “unusual” inside the company, as testified by the first witness in the trial, the Captain’s assistant: the “bowing” to Giglio was even planned before departure by the Captain himself, and it was usually “agreed on” with assistant officials to vary the route accordingly. On 13th January, however, as a tapping makes evident, the showboating decision was a last minute one, and as such it was communicated to the first official.⁷

Apparently, space and route are constantly challenged through the practice of bowing and showboating, and the Concordia case could be easily archived as an “unlucky implementation” of such a practice. However, this would be a far incomplete picture of the event, at least when assuming a STS perspective.

According to such a perspective cartographies, locations and topologies are all actants [Akrich and Latour 1992] on the scene: notwithstanding *either* human error *or* technical breakdown are blamed for accidents, disasters like the Costa Concordia one show once again that agency is a distributed quality inside complex environments. A cruise ship – moreover moving within a specific location at risk of collision

⁶ cf. <http://www.youtube.com/watch?v=dNsqDTdykrc>.

⁷ http://www.unionesarda.it/articolo/cronaca_italiana/2013/10/07/concordia_riprendono_le_udienze_in_aula_l_assistente_di_schettino-5-333542.html.

– is a complex environment. The so called “touristic navigation” – deliberately or inadvertently – starts a series of inadequate translations. As recounted during the trial by the first official and Captain assistant, the close passage to Giglio was planned on the evening of 13th January and it was not part of official programs. The Captain ordered a route variation which made the cruise ship sail to half a mile instead of 5 miles from the island as usually planned. Officials aboard took charge of the new route and amongst them the cartographer, who drew it in the nautical maps available, including the order to warn the Captain as soon as the ship was close to the island. Both the first official and the cartographer – as testified by the first official, rest in the cabin playing with the playstation at the moment of the impact. He declared: “I went down to inferior decks and running I checked out the operation room and noticed that diesel generators 1, 2 and 3, the generating station and electric engines were flooded. I felt the ship was lost. I phoned the cartographer and he would tell the Captain. The situation was serious.”⁸

Heterogeneous assemblies of contested charts (the Captain said the reefs were not on the charts but the route was updated by the cartographer), unattended instruments (neither the Captain nor the first official were on the operation room), inefficient watertight doors (all electric infrastructures were flooded as well as the emergency generator, see section 3.2.), lacking human skills and competencies, distracted or confused officials, delayed alert and evacuation decisions: all stabilized in a tragic result. Risky, or hazardous motion, ends in immobility: passengers stuck and trapped on the ship, helpless crew staff, delayed alert, attempted escape from personal responsibility. Boundaries get dangerously fuzzy, as there are no shared objects to bridge them sufficiently.

4.2. Infrastructures and Boundaries, or Fragile Sharing

Oh [...] But are they able to make us drop off?

(Costa Concordia passenger, live audio)

Keep calm. There has been only a little inconvenience to the electrical system of the ship [...]

Technicians are at work [...]. This is only a black out.

Technicians will repair it as soon as possible.

(Captain’s spokesperson, live audio)

In the immediacy of the impact, along with the sinister sound of a siren, two things happened: somebody asking “But where have we clashed?” then the Captain’s

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http://www.unionesarda.it/articolo/cronaca_italiana/2013/10/07/concordia_riprendono_le_udienze_in_aula_1_assistente_di_schettino-5-333542.html.

spokesperson attempting to reassure passengers of a little electric inconvenience going on, soon classified as a “black out.”⁹ That means, an attempt to make sense of how the ship was moving on, and the enactment of a “comfortable,” “plausible” classification of the event. Since electric energy shut down, this was the first framing of the event.

As it emerged from the trial sessions, such a framing of the critical moment, was the “convergence” of at least two events: first of all, the failure of the emergency generator which did not work at all, even if it had been successfully tested four days earlier in Barcelona. During the trial the following reconstruction was provided by the electronic officer of the ship: “the emergency generator had a short circuit, but we didn’t know the cause; certainly it fosters helms, emergency pumps, fire system, lifts and lifeboats [...] we didn’t know there had been such an impact to affect the electric infrastructure of the ship... nobody told us.”¹⁰

Secondly, the communication of the “black out” frame was extended to passengers, but also to the Port Authority; consequently, the actual alert was given with a conspicuous delay, likely decisive in terms of the final number of victims and overall consequences.

As the cruise director assistant testified: “I was told to tell passengers it was a black out [...] I announced what they asked me to say, that ‘we have an electric problem to generators’.”¹¹

The conditions of electric generators – and especially those dedicated to emergency – appear to be a key actant under these circumstances, and this is confirmed by the fact that the Costa Company intervened on this component of the ship infrastructure, two months after the accident (see *infra*).

To passengers, a cruise ship (as any other technology to final users) is more or less “black-boxed” as long as it holds together and maintains itself as working smooth while sailing and while mooring. The “incursion” into the space of “touristic navigation” and “bowing” can be even part of such a black box, but this implies that all the infrastructures, as well as human and non human agents, have to know their role and act consistently. This was not the case of the Costa Concordia.

According to one of the most impressive statements reported by the media, that of “passenger Benji Smith [on Saturday recounted] making his own rope ladder to save himself and his wife,

⁹ <http://www.corriere.it/cronache/speciali/2013/costa-concordia-un-anno-dopo/>.

¹⁰ <http://www.lanazione.it/grosseto/cronaca/2013/12/16/997583-concordia-schettino-udienza.shtml>.

¹¹ http://tg24.sky.it/tg24/cronaca/2013/11/25/costa_concordia_processo_grosseto_testimoni_isola_del_giglio.html.

‘It was the Marx brothers, watching these guys trying to figure out how to work the boat, [...] I felt like he disaster itself was manageable, but I felt like the crew was going to kill us’.”¹²

What is then the gap between what could have been a “manageable disaster” and an actual tragedy?

Boundary Objects (BOs) like classifications and standards [Star and Griesemer 1989; Bowker and Star 1999] are of crucial importance to the immediate organizing of an emergency situation. In the case of a cruise ship as “immutable mobile,” BOs guarantee im-mobility going smooth. The flexibility and consistency of classification and standards is then crucial to the activation of emerging procedures. It becomes of the greatest importance how they are interpreted and who does (not) share them.

In the case of the Costa Concordia disaster, the immutability and stability of the network goes disrupted, due to multiple gaps: a lack of sharing, a fragility of authority as well as the missed enactment of processes of learning and training. A clamorous recorded conflict takes place between the Captain and the Port Authority, but inconsistencies and ambiguities pervade the whole role of the ship owner, the Costa Crociere company, with reference to if and how the chain of command was activated. The Captain, in an intercepted phone conversation, said “one of the managers asking him to showboat.” Furthermore, no formal “may day” was sent to the Port Authority and one hour passed between the clash and its formal communication.¹³

The role of Costa company in the disaster has not been either clear or clarified, as the company bargained and avoided the trial. But the manipulation of files concerning the working of the Concordia generators by Costa Crociere two months after the accident emerged and was formally contested to the company.¹⁴

The consequences of a prohibited but usual maneuver (the showboating) have to be framed in the context of an absence of working BOs and of a common language: none of the standard procedures to follow in case of accident, from the “may day” to the evacuation guidelines was attended. Under such circumstances no communication is possible; and not only organizational inter-communication, but even the basic possibility to share a common code and a common world, as some passengers testified that some of the crew staff did not speak Italian.

¹² http://www.cnn.com/2012/01/15/world/europe/italy-cruise-scene/index.html?iid=article_sidebar

¹³ http://firenze.repubblica.it/cronaca/2012/01/15/news/corsa_contro_il_tempo_rumori_al_ponte_3_nella_notte_salvati_due_intrappolati_in_cabina-28144252/?ref=search.

¹⁴ http://www.unionesarda.it/articolo/cronaca_italiana/2013/10/07/concordia_riprendono_le_udienze_in_aula_1_assistente_di_schettino-5-333542.html.

Therefore, infrastructures (informational and physical, from the “may day” to the watertight doors which seemed not adequately resistant) fall into pieces, not only in a figurative, but in a literal and concrete sense. An unlikely and relatively trivial event unveils the high vulnerability and fragility of a big piece of infrastructure, due to the failure of both articulation and categorical work [*Ibidem*]. In fact, “infrastructure work frequently entails frequent and ongoing articulation work in order to enable continued functionality” [Bowker et al. 2010, 107]. This work is real time, invisible, performed in the face of the unexpected and able to accommodate unanticipated contingencies [Bowker and Star 1999]. Also this kind of work failed during the Costa Concordia accident, due to the missing or inadequate enactment of categorizations and standards in face of what was disguised as a “black out” but rapidly turned out to be a more complex and serious emergency. While articulation work allows to face contingency as a “natural” occurrence in the infrastructure, when BOs are not made available, also the texture of articulation work is compromised and damaged.

4.3. Ecologies and Moorings, or Extended Consequences

More than 200 technicians are currently working on the removal operations at Giglio Island and the project completion percentage is 82,2% (<https://mobile.twitter.com/InfoParbuckling>, 4th March 2014)

The Costa Concordia accident is also a tragic and unexpected “mooring” resulting from a peculiar, distorted relationship between mobility and immobility [cf. Hannam, Sheller and Urry 2006]. In both a literal and a figurative sense, the ship moored in a last trip, due to a complex mobility breakdown, which transformed the ship as an “immutable mobile” into a “mutable and immobile” wreck, still facing the Giglio island. The wreck was re-adjusted and set upward thank to a densely sociotechnical operation, carried out through a very sophisticated control room: a team of eleven highly specialized technicians has led the parbuckling from a control room with eight screens.¹⁵

Then the Concordia will be dismantled through an exceptional and unprecedented logistical operation, which further testifies how much mobilities are constituted by hybrid systems [*Ibidem*] and how economies of mobilities (cruise tourism) can become dis-economies of immobilities (environmental pollution, disaster and unsustainability of mass cruise tourism).

¹⁵ <http://video.repubblica.it/dossier/costa-concordia-il-recupero/costa-concordia-dentro-la-control-room/140101/138636>; <http://www.theparbucklingproject.com/>.

Beside the tragic loss of human lives, the immediate focus was on environmental risk for the Giglio island and archipelago [Adinolfi 2012], due to the water pollution, the toxicity of the ship components and the fuel. The environmental damage for the island ecosystem has been calculated into 80 billion Euro, that is the amount formally requested by the municipality during the ongoing trial [Faetti and Innocenti 2013]. On the other hand, the Costa company got out of the trial paying one billion Euro and changing its position by entering into a civil lawsuit,¹⁶ so that no further investigation will be done on organizational issues like training and recruitment policies, human resources management, coordination and adequacy of security controls as well as compliance to safety standards (put into doubt in the aftermath of the accident).

Even being a punctual event and a tragic singularity, a mobility breakdown like the Costa Concordia one has enduring traces in people's lives and places reconfiguration. Not only did it impact on the reefs (the reef which stayed inside the ship side was re-located to its original place in July 2012) but also on the whole coastal environment and island, and collectively on the global imaginary.

The permanence of the Concordia wreck in front of the island even fostered a phenomenon of "disaster tourism," especially during 2012: "Giglio's mayor, Sergio Ortelli, confirmed: 'There has been a rise in the number of tourists coming for the day, with curious people taking photos of the giant sprawled on the rocks'."¹⁷

The extended (and unexpected) consequences of the accident illustrated above can be framed through the concept of ecology, not just in environmental sense, but also as a metaphor of technology [Nardi and O'Day 1999; Pellegrino 2008], a metaphor largely used in the STS approach to infrastructures [Bowker and Star 1999; Star and Bowker 2006]. When looking at infrastructures as ecologies, characteristics like interdependency, the role of keystone species in local contexts and the importance of keeping a backward and forward look emerge as crucial.

Following this metaphor, the equilibrium of the im-mobile ecology of a cruise ship depends on interdependent keystones (e.g. the captain's role, the crew skills, the watertight doors, the pilot house infrastructure), none of which is in itself sufficient to keep the system in dynamic equilibrium (the immutable mobile in Latour's term). And this because an ecological perspective avoids the primacy of a single point of view or motive in accounting for phenomena [Bowker and Star 1999].

Looking backward and forward, already one year after the tragedy the European cruise tourism industry had overcome the crisis due the tragic accident, new gigantic

¹⁶ <http://www.lastampa.it/2013/04/10/italia/cronache/naufragio-giglio-costa-patteggiata-mln-CfqK0Omo3dm9PZ6CuD8ZI/pagina.html>.

¹⁷ <http://www.dailymail.co.uk/travel/article-2188623/Costa-Concordia-tragedy-Disaster-tourism-boom-Giglio-day-trippers-visit-stricken-ship.html>.

ships were under construction and new routes open. Even the number of cruise companies operating in Italy increased [Grassano 2013]. The show keeps going on, the status of “immutable mobile” is restored and made up again.

Until the next breakdown, no new discussion of environmental risks and sustainability of the cruise industry will be on stage. Indeed, both of the issues are resilient, persistent and a lot more global of what the worried debate following the Costa Concordia accident would suggest.

Possibly, STS and Mobilities can address some of the gaps linked to mobility breakdowns, through a joint research agenda and a common, convergent effort.

5. Final Remarks for Further Research

This article looked at im-mobility dynamics and processes from a STS perspective. The fruitfulness of such a perspective is fostered by similarities in the epistemologies beneath the fields of STS and Mobilities, both dealing with an anti-dualistic, multiple and situated account of the social, and explicitly constituting themselves as inter and trans disciplinary fields.

The case proposed to illustrate the STS-oriented Mobilities framework was the Costa Concordia accident. As a fatal breakdown covered by the media through the plot of “human error/blaming for the Captain,” the Costa Concordia represents an ideal, exemplary story of how a carrier and a transport infrastructure, or what Latour [1986, 1987] defines as an “immutable mobile,” stays together because of multiple, heterogeneous agencies, infrastructures and ecologies. All of them get disrupted in case of breakdown, the point at which a sometimes tragic shift takes place: the immutable mobile becomes a mutable and immobile entity, almost not recognizable as all the invisible work of maintenance is contradicted, disrupted and suspended.

STS-oriented Mobilities, this way, allow to focus on the heterogeneous, relational, ecological, and temporal character of mobility systems, on their boundaries and topologies, and on the (lack of) adjustment and articulation when breakdown and failure occur. Both occurrences are keys to unveil the hidden complexities of mobility infrastructures.

A joint research agenda between STS and Mobilities fields, therefore, seems to be the ideal place to unfold narratives of happy, uncoerced mobilities, focusing on the risks and consequences of gigantic infrastructural assemblies, saturated with all kind of sociotechnical artefacts and oriented to mobilize an enormous amount of human and non human resources. This is not only the case of cruise tourism as an industry and a mass leisure activity. Most of our mobile world is made possible by saturated

sociotechnical environments, whose absolute indispensability becomes visible (and is put in question) upon different degrees and kinds of breakdown.

STS and Mobilities can benefit from each other as fields of study, starting to focus on joint issues in which mobility of people and mobility of information overlap but also contradict each other. In this respect, no univocal explanation of im-mobility is done: a concurrent vision of agencies, infrastructures and boundaries is needed to penetrate the texture of movement and stillness, the changing nuances of networks, routes, and motives which lead sailing and mooring in an unquiet sea.

Maybe, alternative networks, routes and motives could be discovered, while changing the perspective of sight, the travel, and the destination.

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Is Blaming for the Captain Enough? STS-oriented Mobilities as Boundary Framework and the Costa Concordia Accident

Abstract: Science and Technology Studies as well as Mobilities (or Mobility Studies) share the status of interdisciplinary and even transdisciplinary research fields, the former being more consolidated, the latter in ongoing formation over the last decade.

This article focuses on similarities and differences between the two fields at large, then attempting to show how the study of science and technology can benefit the study of multiple mobilities. Key-words to move across the porous boundaries of the two fields (heterogeneous agency, boundary objects and infrastructures, ecology and moorings) will be shaped by analyzing the accident of the Costa Concordia cruise ship off Giglio island in January 2012. Rather than focusing on the event mainly as a typical example of systemic disruption of a complex infrastructure, the attempt pursued in this contribution is to intertwine the globalized dimensions of immobility linked to cruise tourism with the situated and contingent enactment of heterogeneous agencies in infrastructures, whose ecological and interconnected texture is broken down and unraveled.

Keywords: STS, Mobility, Heterogeneity, Infrastructure, Costa Concordia, Cruise Tourism

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