Antifragile Practices to Design Social Dialogue in Contemporary European Public Spaces

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Abstract: European territories are crossed by an uneven transition that highlights a new geography of inequalities, fragilities, and fragmentations. Public spaces are one of the core features of European culture and today a number of events undermines their everyday body-scale dimension, exacerbating risk perception. This paper shows some preliminary outcomes of my ongoing PhD research, that digs a new spatial-relational strand involving the concept of *antifragility*. Introduced in opposition to the notion of fragility, antifragility describes the capacity of getting better from shocks taking advantage of volatility by dealing with randomness, disorder, and unpredictability. Holding this perspective, the paper deepens some specific antifragility features (i.e. the ability of learning from errors, the capacity of gaining from disorder –maintaining a certain degree of uncertainty–, as well as optionality and redundancy as methods to reduce shock exposure). The spatial value and design potential of these features is investigated through some remarkable public spaces recently built in Europe, so to show not only the potentialities of antifragility as a design issue, but also that public space is still the best environment in Europe to activate new urban dialogues –considered as the sum of social actions and spatial forms that co-design publicness.

Keywords: Contemporary European public space; antifragility; social and spatial justice; new planning and design tools

1. Introduction. Public Spaces as a key-factor in rethinking European territories

Europe is now facing a profound transformation, whose outcomes have still to be built. Indeed, what is already visible about the current change is not encouraging: it makes Europe a network of territories in crisis (Bianchetti *et al.* 2015). This crisis is deeply diversified across European territories, highlighting a new geography of spatial and social fragilities, inequalities, and fragmentations. Further, it goes widely beyond the economic boundaries and its strict involvements, as it is a crisis of meaning that questions the issue of European –open– identity.[1]

[1] "There isn't an all-European culture" (Hobsbawm, 2007), indeed, Europe hasn't a bounded identity, but an open one, made of multiplicities, differences, exceptions, incompleteness, and contrasts. European identity took shape over time through accumulation, addition, superimposition, rarely replacement or elimination. It is based on a strong urban culture,

Since a decade, public institutions, academia, private agencies, as well as practitioners and informal groups are working on an unprecedented number of studies, researches, awards, and activities concerning contemporary European public space. I argue that this proliferation is symptomatic and that it could suggest the centrality of public space in the general rethinking of European territories, in order to consciously face the current epoch-making transformation. Hence, on the one hand, public spaces are the *loci* of presence –even for the powerless–, and thus of relations as dialogue, conflict, sharing, reciprocity (Cogato Lanza and Pattaroni in Bianchetti *et al.* 2015), and, finally, of difference considered as a right (Lefevbre 1996; Cogato Lanza *et al.* 2013). In particular, difference has an intrinsic creative value (Bauman 2005) able to make life more intense, moreover public space is the place where differences can be supported in starting a meaningful dialogue. On the other hand, public spaces are one of the core features of European culture (CCCB and Gray, 2015) and they should be intended as repository of *mixophilia* as well as space of resistance to *adiaphorisation* phenomena, considering mixophilia as the ways in which the city prompts attraction and tolerance toward strangers and adiaphoria as moral indifference (Bauman, 2005; Bauman and Donskis, 2013).

During the last decade public spaces deeply changed. The increasing presence of new technologies transformed the way collective spaces are experienced, furthermore the transformation of uses made spaces more flexible, variable, and temporary than in the past, embodying a continuous and perpetual resignification (Tornaghi and Knierbein, 2015). Today, beyond the progressive cordon off of many public spaces, a number of events has increased the attention on the topic of urban public spaces control in Europe. The terrorist attacks all over the continent, as well as the institutional reactions to different forms of urban social contentions (Neguerela Del Castillo in Bianchetti *et al.* 2015) undermine the everyday body-scale dimension of public space, exacerbating risk perception and bringing mixophilia in danger of being lost (Bauman in CCCB and Gray, 2015). With the increasing sense of insecurity all the charming aspects of urban life, such as spontaneity, surprise for unforeseen, and adventure are jeopardised (Bauman, 2005). Thus, public space has become place of crisis representation, but, thanks to its open and inclusive nature, it is also the potential playing field of a change-maker social dialogue.

1. 1 Contents and contribution of this paper

Starting from these premises, this paper shows some preliminary outcomes of my ongoing PhD research, that intends to dig a new spatial-relational strand by testing *antifragility* (see section 2) as an operational design issue applied to public space, so to give rise to a highly transferable and applicable approach in architecture and urban design practice. The goal is not so much to produce new design tools, as rather to further articulate the "framework" (Lévy, 2007) of sustainability in spatial design disciplines (see paragraph 2.3). I argue that antifragility could be helpful to look at the current moment of fundamental change for society. In particular, when design of public spaces is concerned, it could be particularly useful to consider antifragility as a design issue. Indeed, being open to all, public spaces

considering urbanity as a concept of self-limitation of rights in respect to cohesion, feeling that city belongs to everybody, in a dimension of sharing (Zucchi, 2015).

are the places in which all the things that nourish antifragility –such as complexity, chaos, disorder, randomness, etc.– are more massively present.[2]

Thus the next section of this paper introduces the notion of antifragility from a theoretical point of view, presenting its origins, the reasons for which it is useful to discuss about fragility –and, consequently, about antifragility–, the relationship among fragility, antifragility, and robustness, as well as how antifragility could profitably substitute resilience in pairing with the framework of sustainable development. Then, by means of some remarkable examples of recently built or renovated public spaces in Europe, section 3 examines a number of antifragility features, that could be usefully applied in design disciplines, notably in architecture and urban design. In conclusion, section 4 presents some final considerations and opens up to future developments of my ongoing doctoral research.

2. Antifragility

By writing of antifragility I refer to Nassim Nicholas Taleb's neologism, first proposed and widely examined in his book *Antifragile: Things that Gain from Disorder*, published in 2012. Taleb, statistician expert of randomness, probability, and uncertainty, introduced the term antifragility to describe the "functional opposite" (2012, p.17) of fragility. Namely, fragility and antifragility are intended as opposite poles of the same spectrum. The author states that the opposite of fragility is already present in our daily life, although no name has been previously coined to describe it. Robustness is commonly mistaken for the opposite of fragility, even if it is not. In keeping with possible misunderstandings, antifragility is sometimes confused with resilience, even if they are utterly divergent. This second section of the paper delves into the notion of antifragility and inquires how it differs from robustness and resilience. But before getting into these issues, a focus on fragility has to be done.

2.1 Why discussing about fragility?

The argumentation that follows focuses on fragility starting from a spatial example: the renowned public space of Superkilen. Superkilen is located in Copenhagen –more precisely, in the multicultural neighbourhood of Nørrebro– and it has been designed by the art collective SUPERFLEX together with a joint team of architects, urban, and lanscape designers –BIG and TOPOTEK 1. During the 2000s Nørrebro was notorious as the most restive neighbourhood of the city, being the stage for violent social clashes. Thanks to an attentive municipal governance, an integrated urban and social development programme has been developed for Nørrebro, in order to work on social co-existence issues. The realisation of Superkilen (2007-12) has been part of this programme. Indeed, through a participatory process that involved people from all the ethnic groups inhabiting the neighbourhood, Superkilen transformed a 4 hectares wedge –*kilen* in Danish– in an intriguing system of public spaces that celebrate cosmopolitanism. Today, seven years after its completion, Superkilen is still widely considered as a successful case of participatory design, and violent clashes are just a bad memory. But can designers – as well as promoters and other stakeholders– assess the risk of negative events that could affect the

[2] These characteristics should refer at least to all open collective spaces of public property. Indeed, chaos, disorder, and complexity are strictly excluded from the so-called *privately owned public spaces*, that are silently multiplying all over the world. See the work of Jeremy Németh, as well as of Matthew Carmona *et al.* (2010, 2012, 2014).

conditions and usability of this place? Some measures can be undoubtedly taken to face the most probable negative events. However, even a common event as vandalism, riots –or a typical Danish flood– can happen in an unpredictable way or concomitantly with other situations, causing unexpected damages.

So, if it is not possible to robustly determine the consequences of a probable event, is it then possible to predict more rare events? For Taleb the answer is negative. Indeed, he argues that, by its very nature, risk is not precisely measurable, and a sheer number of circumstances are not predictable at all –being unexpected as black swans (2010). Thus, Taleb suggests a shift of focus from risk assessment, to the analysis of existing fragility features. Notably, Taleb avers that: "It is far easier to figure out if something is fragile than to predict the occurrence of an event that may harm it. Fragility can be measured; risk is not measurable […]. This provides a solution to what I've called the Black Swan problem–the impossibility of calculating the risks of consequential rare events and predicting their occurrence. Sensitivity to harm from volatility is tractable, more so than forecasting the event that would cause the harm" (2012, pp.4-5).

To work on existing fragility features –and thus on antifragility solutions– means to make the most of what is already present. Fragility features are measurable and, furthermore, no prediction is needed. Hence, unlike risk assessment, a decision-making process based on fragility and antifragility features involves a *nonpredictive* logic: "By grasping the mechanisms of antifragility we can build a systematic and broad guide to *nonpredictive* decision making under uncertainty in business, politics, medicine, and life in general–anywhere the unknown preponderates, any situation in which there is randomness, unpredictability, opacity, or incomplete understanding of things" (2012, p.4).

Even though Taleb has never explicitly mentioned the work of Albert Hirschman, I suggest that Taleb's *nonprediction* attitude has an interesting overlapping to Hirschman's *possibilism*. Hirschman started to develop his notion of possibilism from his book *A Bias for Hope* (1971) in which he states that: "I have of course not been disinterested in claiming equal rights for an approach to the social world that would stress […] the possible rather than the probable. For the fundamental bent of my writings has been to widen the limits of what is or is perceived to be possible, be it at the cost of lowering our ability, real or imaginary, to discern the probable" (1971, p.28). In the early 90s, during an interview published in the book *Passaggi di frontiera* (1994), Hirschman claimed that, throughout his career of Development economist, he has always been more interested in exploring the domain of *possibility* rather than the one of *prediction*. This means to focus the attention on the real –or perceived– possibilities that something –good or bad– may occur. Rephrasing with Taleb's lexicon, this means to adopt a nonpredictive attitude, by working on fragility and antifragility features that are present in a specific situation –even when they are latent resources.

2.2 Fragility, robustness, and antifragility

Taleb affirms that fragility can be described as "*what does not like volatility"*, adding that "*what does not like volatility* does not like randomness, uncertainty, disorder, errors, stressors, etc." (2012, p.20). Consequently, the opposite of fragility gains from volatility, as well as from randomness, uncertainty, disorder, errors, stressors, and so forth. To explain this theoretical statement, Taleb gives the example of a package to be sent (2012, p.40-41). Namely, a fragile package is breakable –so it should be handled with care–, while a robust parcel does not break –as it remains unharmed regardless of how it is handled.

Thus, robustness is not the opposite of fragility, as the opposite of a fragile package is a parcel that gets better from being mishandled. As no name has already described this condition, Taleb purposes to call it antifragility. As seen in Figure 1, fragility and antifragility are relative terms, they are opposite poles on a spectrum, while robustness is not part of it. Further, the perfect robustness is an ideal condition, but in real circumstances one can just be robust up to a certain point.

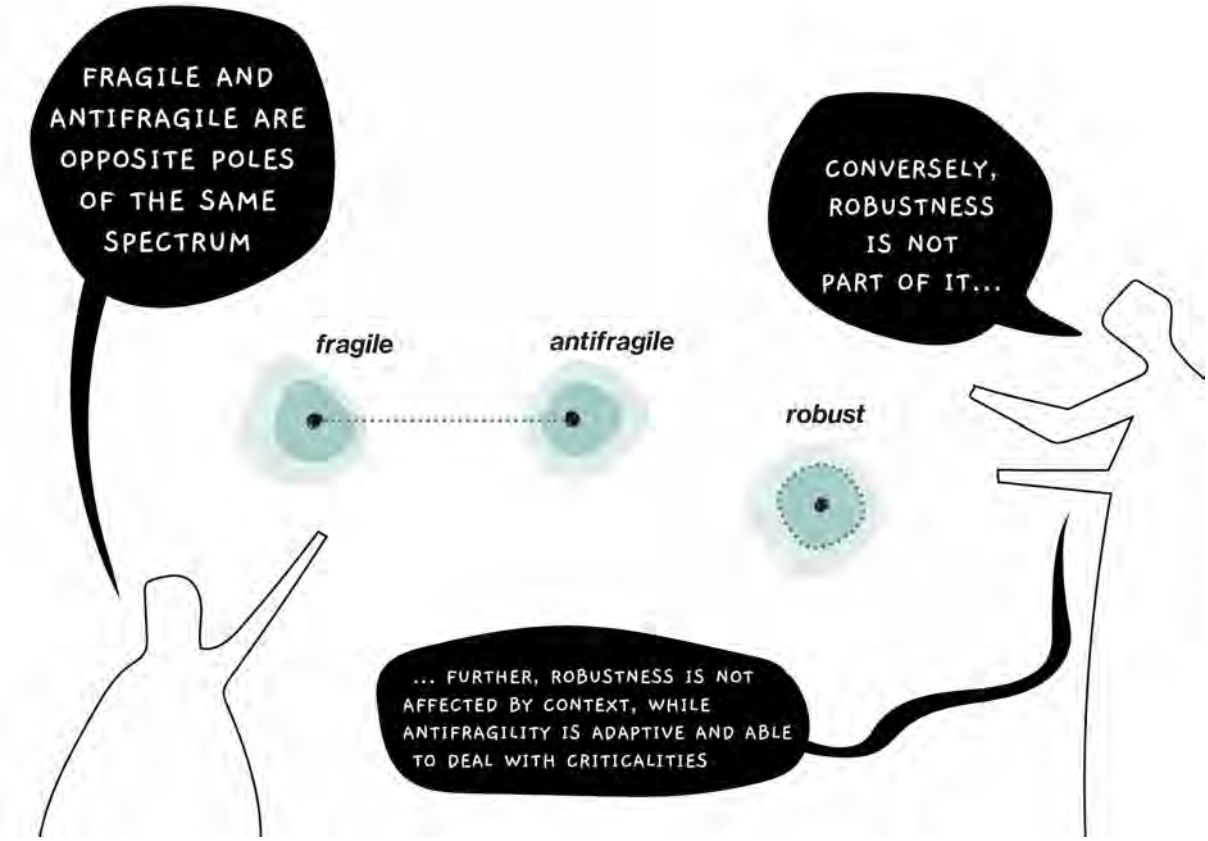

Figure 1. The relationship among fragility, robustness, and antifragility. Elaboration by the author.

Investigating the relationship among fragility, antifragility, and robustness is not an exercise of abstract thinking. On the contrary, it allows to bring into focus a wide range of practical implications that affect the decisions we make as well as, I would suggest, the spaces we design. Taleb argues that, in many cases, to acquire some antifragility features is more advantageous than to reach a certain level of robustness. Indeed, robustness is a safe condition, but it is not affected by context, while antifragility is context-sensitive, it is adaptive and able to deal with criticality. An antifragile system is ready to change and to take advantage of stress, disorder, imperfection, error, chaos, and chance. The next section of the paper exemplifies some of these aspects by means of spatial cases. But before coming to examples, the current section continues with some theoretical observations. The final aim is to clarify why investigating antifragility is a fruitful operation, indeed antifragility "makes us understand fragility better. Just as we cannot improve health without reducing disease, or increase wealth without first decreasing losses" (2012, p.11).

2.3 Antifragility, resilience, and sustainable development

In 2007, the French geographer Jacques Lévy wrote a short but significant article about sustainable development on EspaceTemps.net, an interdisciplinary online journal of social science. Lévy stated that "sustainable development is more of a framework rather than a standpoint within a debate. In other words, sustainable development is more of a language than a discourse". The concept of resilience is frequently associated with the "language" of sustainable development (Rees, 2014). But, by looking at this pairing from the point of view of the flow of time, it is possible to identify an inconsistency between the two notions. Indeed, on the one hand, sustainability is literally the ability to sustain indefinitely over the course of time. Whereas, on the other hand, resilience –a notion originally coined in the domain of Systems Theory– is the ability to restore a previous condition after a shock. Thus, resilience concerns the capacities of re-establishing and reinstating, it involves a movement on a close path that permits to come back to the start. To come back means to openly contradict the linear becoming of time and, consequently, to be incompatible with a sustainable development inscribed in the linear becoming of time. On the contrary, antifragility is linked to the becoming process, as it involves the concepts of change and improvement. To design means to project an idea in the future, in order to build something never existed before. So, the notion of resilience could be profitably substituted by the one of antifragility in association with sustainable development.

2.4 Antifragility as a nomadic concept

Taleb considers antifragility as a highly transferable concept, emphasising its possible application far beyond the study of uncertainty. Throughout his book, he introduces heuristics that allow a system to gain a certain level of antifragility. These heuristics are transformative actions and they reveal traces of a design attitude that I try to start grabbing in this paper. Although just a few efforts have already been done to use antifragile heuristics in architecture, urban design, and planning, antifragility has already been fruitfully applied in several scientific fields as physics, biology, computer science, and transportation planning.[3] The spreading of antifragility across different disciplines encourages its

[3] An empirical systematic application of antifragility in architecture, urban design, and planning is still missing. One of the first efforts has been made by Tanzil Shafique from the pages of *Studio* (2015), where he proposed antifragility as a possibility to re-situate contemporary urbanism. Ivan Blečić and Arnaldo Cecchini have been working on the role of antifragility in urban planning field (2016, 2017, 2019). However, their work concerns the proposition of a general notion, no direct relation with public space has been inquired. Up to now, the only effort bridging antifragility to public space, is an article by Mark Brown (2017), an urban planner active in the United States who wrote germinal remarks on North American public spaces, focusing on security and flows issues. Further, Strong Towns, a movement active in US and Canada, dedicated a section of its blog to design-oriented reflections on Taleb's book.
A cluster of interests has been aggregating around the relation between antifragility and design in critical contexts. In this sense *Fragile/Antifragile: Shigeru Ban + VAN, the Voluntary Architect's Network* (exhibition by Microma, Turin, 2014) opened the way by using antifragility as a metaphor to describe the socially engaged work of Shigeru Ban. Camillo Magni has referred to antifragility to comment some contemporary architectures in the Global South for *Casabella* (2015). More recently, Cherubino Gambardella has considered antifragility among a list of concepts selected to describe some of the most interesting contemporary architectural and urban projects on peripheries all over the world.

comparison with the definition of nomadic concept. According to Isabelle Stengers' definition (1987), a concept is nomad when it *propagates* from a scientific discipline to another one. Stengers argues that *propagation* takes place in different ways. Indeed, the nomadic concept can be:

1. A metaphor: a concept used in a new field of study, even if its definition is still referring to the starting field of study –Stengers calls it propagation as diffusion;
2. A pure concept: a notion grafted in a new field of study, in order to build new theories in the new field and the definition of which can be given inside the new field of study, without referring to the starting one –Stengers calls it propagation as epidemic;
3. A pirate concept: an absolute interdisciplinary concept, free from any bond with local concepts and single fields of study.[4]

Thus, is antifragility a metaphor, a pure concept, or a pirate concept? As written at the start of this section, antifragility has been coined at the beginning of the current decade. Thus, the *propagation* is still ongoing. However, I would argue that, considering the current point of *propagation* in the aforementioned disciplines, antifragility is half-way between a metaphor and a pure concept. Indeed, antifragility is characterised by a number of widely applicable heuristics that make it a potential pure concept. As far as pirate concepts are concerned, they just set up a tight group, further, many external factors could influence the admittance within this group. Time will tell if antifragility could be a pirate concept. For the moment, I am interested in highlighting that antifragility is a potential operative concept for several disciplines, and, in particular, for design disciplines –including architecture, urban design, and planning.

3. Antifragility as a design issue

This third section of the paper presents a set of case studies. Each of them concerns a remarkable example of recently built or renovated public space in Europe, and it has been selected to investigate a particular feature of antifragility. The value of these case studies has already been recognised by international architecture critics, indeed two of them have been mentioned by the most important awards for contemporary European architecture: the *European Union Prize for Contemporary Architecture – Mies van der Rohe Award* and the *European Prize for Urban Public Space*. Furthermore, in this paper each case has been selected for its capacity to reinterpret a previous open space –through space and processes– in an innovative way that breaks with the *status quo*.

Up to now, this investigation involves a simplification, as these spaces have more than one characteristic that deals with the notion of antifragility. However, the choice of isolating a single feature for each case

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On this topic, Gambardella –with *Annali dell'Architettura e delle Città foundation*– has organised *Periferie Antifragili* (conference, Naples, 2018) and *Metropoli Novissima* (exhibition, Naples, 2018).

[4] For instance, the French geneticist Michel Veuille (Stengers, 1987) considers the notion of correlation a pirate concept.

is a first attempt to show the potential of antifragility as a design issue, as well as to understand that a number of antifragility features are already –unwittingly– present in spatial projects. In particular, the following paragraphs focus on some antifragility features mentioned by Taleb, as the ability of learning from errors, the capacity of gaining from disorder –maintaining a certain degree of uncertainty–, as well as optionality and redundancy considered as a method to reduce shock exposure. Among all the antifragility features already recognised, these are the most directly connected with spatial design. But this list is just a start, ready to be discussed and implemented.

3.1 Learning from errors. The case of *Place de la République* in Paris

Starting from the traditional recommendation *learning from errors* and its corollaries –according to which stressors, errors, and their consequences can provide powerful information–, Taleb avers that the fundamental heuristic of *trial and error* has to be kept in the foreground. Indeed, "the random element in trial and error is not quite random, if it is carried out rationally, using error as a source of information. If every trial provides you with information about what does not work, you start zooming in on a solution –so every attempt becomes more valuable, more like an expense than an error" (2012, p.81). Furthermore, learning from others' mistakes is vital. For instance, if a single individual fails, its error can still be a lesson to be learned by its community.

The antifragile attitude is the one that, after slipping up, takes advantage of the lesson learned from its mistake, and moves on "enriched with a new piece of information" (2012, p.83). More in general, "antifragile loves randomness and uncertainty, which also means –crucially– a love of errors, a certain class of errors" (2012, p.12). By writing about "a certain class of errors", Taleb refers to small and diffused mistakes, a frequent little variability, namely the opposite of an isolated major shock. He writes that "such variability helps improve the system (hence the antifragility). A week with declining earnings for a taxi driver […] provides information concerning the environment and intimates the need to find a new part of town where clients hang around […] a small (nonterminal) mistake is information, valuable information, one that directs him in his adaptive approach" (2012, p.97). *Fluctuat nec mergitur* (2012, p.113), as Latins said.

Fluctuat nec mergitur is also City of Paris' motto and, during the recent renovation work for *Place de la République*, this motto was written in capital letters along the fences of the square's building site. No writing could be more appropriate, as the renovation of Parisian Place de la République by French architects TVK is a true example of how to learn from errors, in particular from past errors –that is to say the previous configuration of the square–, as well as from current small mistakes –the daily variability– by means of a blog that acts as a permanent observatory of the square.

Originally realised during Haussmann's renovation and located among the 3rd, 10th, and 11th *arrondissement*, during the 20th century Place de la République had been progressively downgraded to the level of a huge roundabout. It had become a sort of traffic junction among seven main urban axes. Both private and public transports had increasingly colonised almost all the surface of the Haussmannian square, making pedestrian space marginal and devalued.

In 2009-10 the City of Paris organised an ambitious competition to entirely rethink the square. TVK won the competition and, in 2013, the realisation of their design project was completed. The new configuration has remodelled Place de la République as the largest pedestrian square of the city –280 x

120 meters, approximately 2 hectares–, subverting the spatial proportion between transport area –reduced from 2/3 to 1/3 of the total surface– and pedestrian space –increased from 1/3 to 2/3. By so doing, the square harmonises the metropolitan scale of transportation systems together with the local scale of pedestrians, as well as the magniloquence of its Haussmannian dimensions with its everyday uses.

The square is conceived as a wide and continuous pedestrian surface, composed by different tones of grey concrete slabs and characterised by a "serene balance of the mineral element and a horizontal ground", as TVK states on their website. The prevalent horizontal dimension is even underlined by the few vertical elements that are present, as the aligned masses of treetops that shade pedestrians, the 19th century monumental statue of Marianne that orients gazes and fluxes, and a café located in a glass pavilion that seems to float on a reflective pool. The entire square constitutes a *plateau* that TVK considers as "an urban resource, available and adaptable for different uses". Further, the designers state that the entire redevelopment of Place de la République "is based on the concept of an open scene with multiple urban uses". Indeed, today the square hosts a great variety of daily uses, as well as informal public gatherings, institutional parades, mass demonstrations and protests.

Figure 2. Place de la République: left, learning from past errors; right, studying current daily variability. Elaboration by the author.

As seen in Figure 2, TVK has not only learned from past errors by redressing the spatial configuration of the square, but, together with the City of Paris, they have also decided to continue learning from present configurations, uses, and mistakes, by establishing an open online blog that works as a permanent observatory of the square. In fact, the blog *republique.tvk.fr* is a dialogical virtual space that

documents the survey of the renewed space by means of pictures, videos, interviews, and drawings. Far from being a neo-functionalist tool, the blog reports daily uses as well as exceptional uses of the square, also documenting unexpected uses and temporary appropriations of the spaces. The aim is to provide the necessary adjustments to be made along the way, as well as to build a repository of information for future projects.

3.2 Gaining from disorder. The shared space of Sonnenfelsplatz in Graz

Errors and stressors are just two specific components of what Taleb calls *The Extended Disorder Family (or Cluster)*. Thus, by saying that antifragility gains from disorder, the author refers to "(i) uncertainty, (ii) variability, (iii) imperfect, incomplete knowledge, (iv) chance, (v) chaos, (vi) volatility, (vii) disorder, (viii) entropy, (ix) time, (x) the unknown, (xi) randomness, (xii) turmoil, (xiii) stressor, (xiv) error, (xv) dispersion of outcomes, (xvi) unknowledge" (2012, p.21).

In this paragraph I would emphasise a spatial interpretation of gaining from disorder and chaos. When someone is immersed in a disordered or even chaotic space, he/she has to compensate the surrounding sense of uncertainty by being vigilant and staying focused. The popular Shared Space approach goes in this direction. Indeed, it aims to design more liveable and human-sized streets by introducing a certain degree of chaos. To reach this goal, shared spaces seek to minimise the separation among pedestrians, cyclists, and drivers –in favour of the slowest– by removing traffic signs and by weaken the difference among sidewalks, cycle paths, and roadways. The absence of traditional street rules produces a greater sense of uncertainty. For instance, it is no longer completely clear who has the precedence at some point, thus drivers and cyclists are inclined to slow down, with a general increase of awareness and alertness. As it is well known, the first spaces of this kind were conceived in the early 80s by Dutch engineer Hans Monderman. Since then, they spread to the extent that, in 2003, *European Shared Space Project* was established, leading to the development of specific shared spaces policies and design approaches. Today this kind of spaces are widespread in Anglo-Saxon Countries as well as in Northern and Central Europe and, despite criticism, an actual reduction of accidents has been found.

As other Shared Spaces, Sonnenfelsplatz in Graz is interesting because it tests the importance of self-regulation in a chaotic context. Sonnenfelsplatz has been built by the municipality between 2009 and 2011 and, being part of the European Shared Space project, it has been the first case of shared space in Austria. The square is located in a neighbourhood strongly characterised by the presence of University's buildings, and it is close to the border between the compact inner city and diffuse tissues. Sonnenfelsplatz –approximately 3.000 square meters–conveys five busy streets and has an average of 15.000 motor vehicles per day. In particular, during peak hours, it has an average of 1.000 motor vehicles, 3.000 pedestrians, and 600 cyclists per hour (Schönauer *et al*., 2012). A quite crowded square for a city of 435.000 inhabitants. In order to make the square more liveable and to decrease the number of accidents, the municipality of Graz has introduced the idea of a shared space through a number of participatory sessions together with inhabitants, city users, University's personnel and students, followed by live training phases on the field. The participatory process has led to a collective welcoming of shared spaces solutions, that have involved de-regulation of traffic as well as introduction of seatings. Further, the perimeter of the square has been delimited by an uneven sequence of stripes miming the projection of the buildings that delimit Sonnenfelsplatz, in order to suggest –but nothing more than suggesting– a safe area for pedestrians and cyclists' rest.

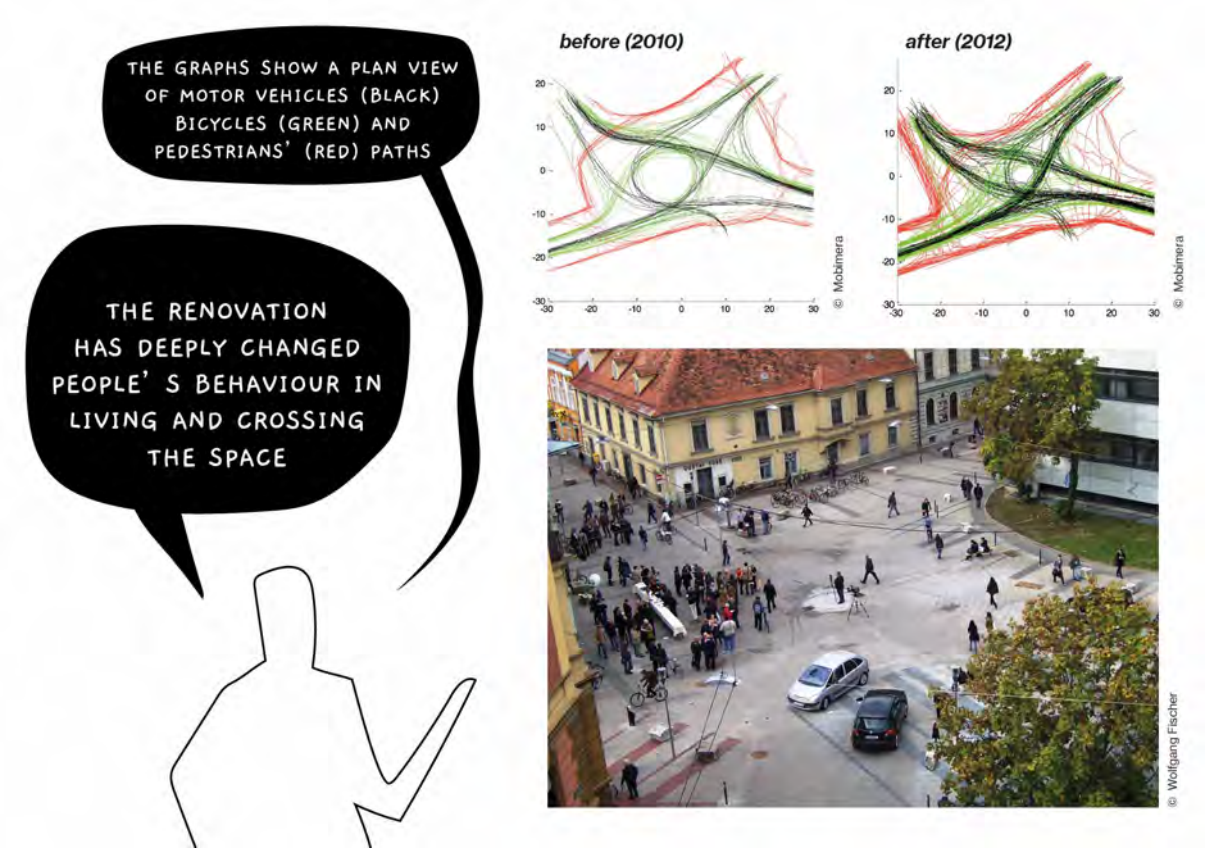

Figure 3. The shared space of Sonnenfelsplatz in Graz. Elaboration by the author.

Spatial self-regulation is not an invention of Shared Spaces. It is an ancestral behaviour. Nevertheless, shared spaces have the merit of its introduction in contemporary planning of public spaces. Besides, Sonnenfelsplatz is a useful case to be considered as it has been the subject of a traffic survey conducted immediately before and after its renovation (2010-2012). As seen in Figure 3, the survey was led by Mobimera –a Viennese consulting start up working in the field of urban road design and traffic organisation– and it showed that Sonnenfelsplatz redesign has deeply changed people's behaviour in living and crossing the space. Indeed, already in the first year after the renovation, drivers, cyclists, and pedestrians' paths smoothed in a more fluid configuration, motor vehicles systematically decreased their speed, the perception of safe areas deeply increased, car accidents significantly decreased and no accident involving pedestrians was registered (Schönauer *et al*., 2012).

3.3 Optionality and redundancy to reduce shock exposure. The case of Superkilen in Copenhagen

An antifragile behaviour is the one that preserves the possibility of choosing, changing, adapting, and keeping options open. In this direction, Taleb states that "the fragile has no option. But the antifragile needs to select what's best –the best option" (2012, 197). Further, optionality –namely the possibility to have more options– "will take us many places, but at the core, an option is what makes you antifragile and allows you to benefit from the positive side of uncertainty, without a corresponding serious harm from the negative side" (2012, 184). In particular, the author introduces redundancy as a particular –simple– case of optionality. A redundant system has some kind of extra features, that could apparently

seem a waste of resources, but that can turn into precious reserves ready to use in case of need, shocks, unexpected events, and so forth.

In order to delve the spatial value of redundancy, I propose to return to the renowned case of Superkilen, already introduced in paragraph 2.1. Indeed, Superkilen is an interesting example of redundancy. Along approximately 700 meters of length, Superkilen keeps changing its morphology to establish a meaningful dialogue with its contexts. In this regard, one of the chief designers, Bjarke Ingels from BIG, says: "[w]hen we looked at the topographic map, there were somehow already three parts. We just transformed them into the *Red Square*, the *Black Market*, and the *Green Park*" (Steiner, 2013, p.25). Each part has a colour in its name, as it is the main colour that characterises its soil. Another of the chief designers, Jakob Fenger from SUPERFLEX, avers that the three coloured soils are "a sort of backdrop for the objects collected from different places" (*ivi*). These "objects" are the main feature of Superkilen. People of all nationalities living in the neighbourhood have been called to suggest an amazing and special object to represent their nation, culture, and tradition. Designers asked for objects "which usually furnish cities –ranging from litter bins, benches, manholes, bicycle racks, play and sport items, street lighting to ads (light boxes), bus shelters, a fountain, and even to sculptures" (*ibidem*, p. 13), and, after a process of selection, some objects have been directly transported from their country of origin and installed with the direct help of neighbourhood residents –thus triggering a deep sense of identification with the space–, while others have been reproduced on site with small variations. As a result, 108 objects and 11 new trees have colonised the space of Superkilen, creating "emotional connectivity" (*ibidem*, p. 16) and even "deliberate conflicting constellations, such as soil from Palestine and a manhole from Israel next to one another" (*ibidem*, p.18).

This process of summation, juxtaposition, inclusion, and incorporation of various objects has its roots in Cabinets of curiosities –*Wunderkammer*–, passing through English landscape gardens –as suggested by Martin Rein-Cano from TOPOTEK 1 (*ibidem*, p.30), and after through kitsch amusement parks as Tivoli Gardens in Copenhagen and Epcot Centre in Florida –as claimed by Rasmus Nielsen from SUPERFLEX (*ibidem*, p.31). Further, Bjarke Ingels from BIG adds that "[t]hings somehow fuse, and I think this was the case with Superkilen. I would like to call this 'inclusivism', […] but different from the way that it does not become *Frankenstein*. In the beginning we said 'lets the dogs loose and see what happens'[…]. There were moments of elegance *and* a lot of moments of incompletion. But still, it has become much more tasteful than I had actually imagined" (*ibidem*, p.72). This kind of operation of summation is antifragile as it introduces an interesting degree of redundancy. Indeed, if a few of the 108 objects composing Superkilen are damaged, broken, ripped out, or simply under maintenance, they do not prevent to use the space, that will still be full of objects, uses, and possibilities. Further, many of the items are shaped so that they are versatile and can also be used for other purposes –i.e. a bench as a sport item, a bicycle rack as a game for children, and so forth. Superkilen's redundancy of objects also provides a rich and varied experience of the space even if not all objects would ever be realised, in this sense Bjarke Ingels from BIG states this very clearly "The *Black* Market should get a bump. That is a quite successful little element. On the *Black Market* we wanted to create a little shelter. Unfortunately, this has not been realised yet, and it may never be. If it comes to the worst, I think the park can survive with just the bump" (*ibidem*, p. 25-26). Redundancy takes place also on a broader level. Indeed, the three parts composing Superkilen –the *Red Square*, the *Black Market*, and the *Green Park*– are deeply different from each other in terms of typologies of spaces, soils, materials, and so forth. Consequently,

the temporary impossibility to access one of the three parts –i.e. the *Green Park* after a typical Danish flood– will not prevent to enjoy the other two parts –featured by more impermeable soils.

4. Conclusion

This paper has investigated a number of antifragility features by means of recent projects of European public spaces, in order to start inquiring the spatial value and design potential of antifragility. As argued at the beginning of the third section, these features are just a start. Many others are presented in Taleb's writings and, more in general, in writings that have already tried to graft the notion of antifragility in other disciplines. Further, my work will not just be limited to the spatial interpretation of some features already identified. It will define features that make public spaces antifragile places to enhance existing local environmental and social resources, relate contexts, and generate new ecological and relational interactions as formative elements to strengthen culture and design of European collective dimension. To do so, two general considerations will be kept in mind all along the development of the work. The first one concerns the strategic role of public space. Indeed, if public space is a place of sharing, of reciprocity, and, ultimately, a space of democracy representation, then it has to be considered for contributing in framing a new bio-political project (Viganò, 2018) that will shape the future of European territories. The second one starts from the considerations of paragraph 2.3, notably from the suggested pairing between sustainable development and antifragility. In this sense, ecological and environmental dimensions are more and more inseparably intertwined at different scales with social concerns. Thus, a critical reading of contemporary European territories that considers overlapping dynamics and articulations among ecological, environmental, and social priorities, could be useful in understanding the nature of contemporary European public spaces.

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