

$$\Sigma \frac{a.a.(sl.) + f.a.(sl.)}{2} + \%wi * s.w. + \frac{\sum_{j=1 \rightarrow 6}^N \hat{Z}_j}{N} + \frac{\sum_{0, \infty} F.C_{i,j}}{N}$$

= *MATHEMATICS<sup>OF</sup> RESISTANCE*

Beatriz Peró Giannini

Graduation Project Chair  
Alex Suárez

Design Supervision  
Ephraim Joris

Theory & Design  
Füsün Türetken

Theory Supervision  
Max Bruinsma

Mathematics of Resistance

Master Program  
Master Interior Architecture: Research +  
Design

Educational Institution  
Piet Zwart Institute  
Willem de Kooning Academie  
Hogeschool Rotterdam

Contact  
[beatriz.pero@gmail.com](mailto:beatriz.pero@gmail.com)

Rotterdam, The Netherlands  
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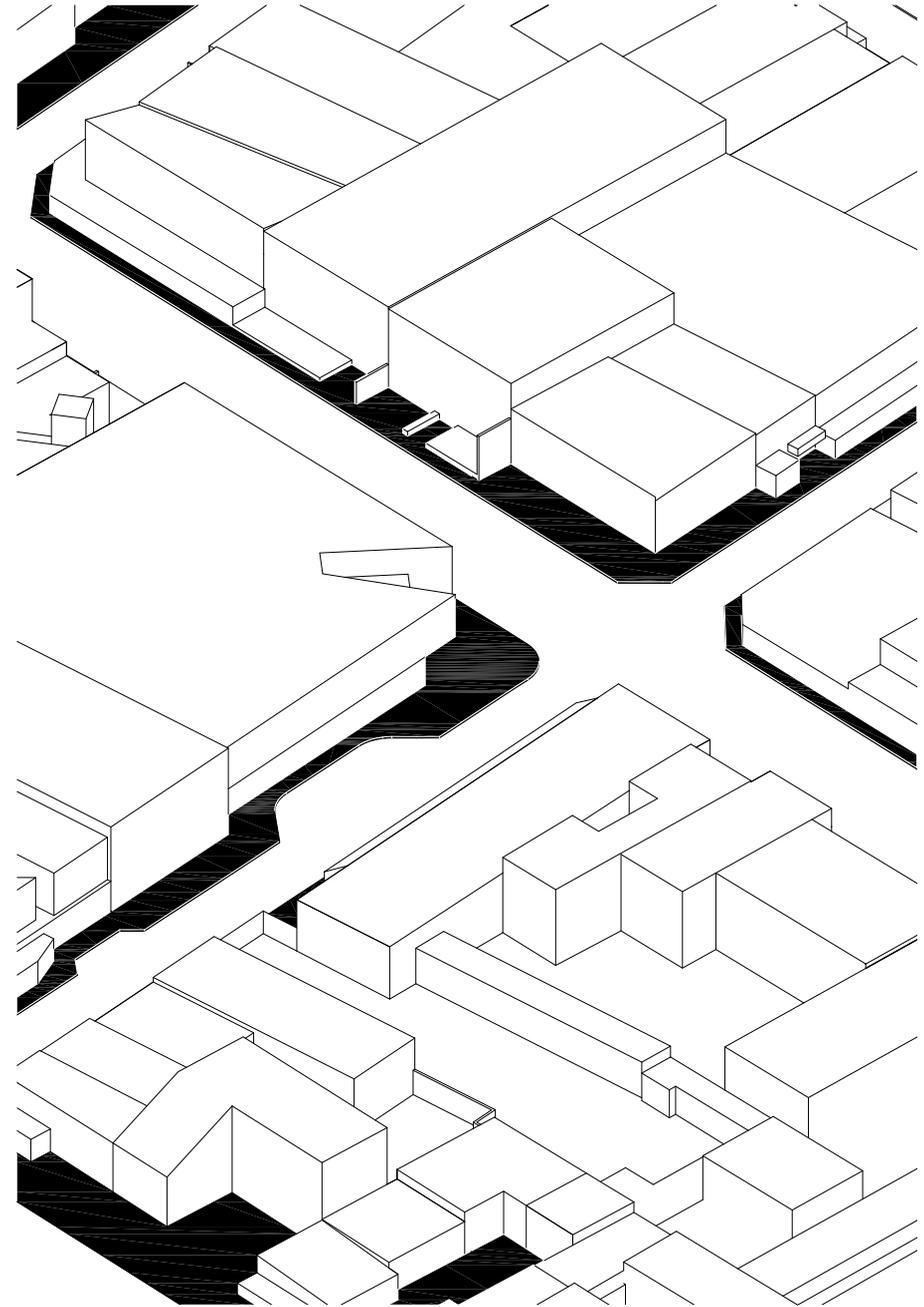
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### WHY MEASURE YOUR SIDEWALK?

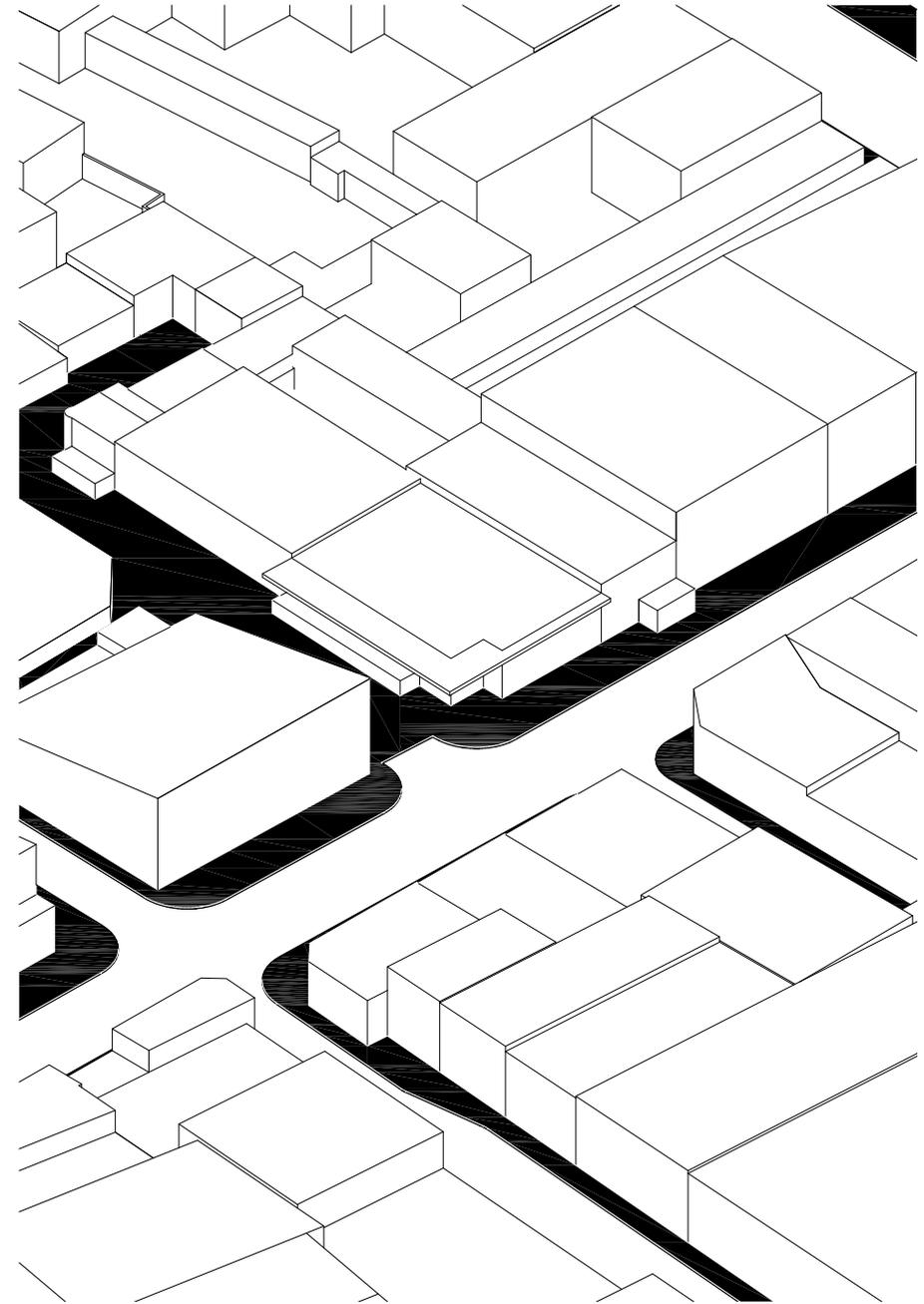
Humans need to feel in control, they need to rationalize and categorize life in order to make sense of it, feel safe and survive. They measure, size, calculate and try to standardize both the natural and built environments. From 14th and 15th century colonial explorers who mapped and transformed new territories into numbers to 19th century modern men who endeavored to standardize the production of life, measuring has been the path to understanding. So much so, that it has been a driving force that directs people to measure and squeeze things into seemingly objective mathematical equations, no matter what variables might escape these equations or may remain far out of reach.

On the sidewalk, although objectively everyone is physically occupying the same space, you are not experiencing the same world. While for the dominant subject it is a collection of pathways that connect him to the city, for you – the 'other-woman' (see book 01) – it is a collection of restrictive sociopolitical boundaries and obstacles to overcome, i.e. harassment, legislations, cultural violence, advertisements and mindsets (Gardner, 1995; Kirby, 1996), which often result in your absence from the space.

So, as your sidewalk is not only constructed of physical elements, but more importantly of non-tangible sociocultural and political structures, and the experiences, emotions and memories they produce in you, it cannot be measured or understood with traditional objective tools. You need a new measuring guide with new tools that are able to measure your immeasurable emotions, experiences and the constructs that shape your sidewalk, in order to develop a more precise

understanding of it. Moreover, by understanding your sidewalk, a design that positively alters the space and your experience of it can be conceived.

Thus, these two books are a multidisciplinary approach to do just that, both of which keep the contributions and collaboration of the women interviewed at their core. Book 01 is the afore mentioned measuring guide for your sidewalk, which was created with and for you. Book 02 is an exploration of "Maria's sidewalk", an application of the measuring guide, and a speculation towards how to improve your sidewalk.



# 1 YOUR SIDEWALK & OTHER-WOMAN

## 'Your Sidewalk'

The sidewalk is an intrinsic part of the city<sup>1</sup>. It is not a stable, fixed space, it is a complex and dynamic network of movement<sup>2</sup> with many functions<sup>3</sup>, where the fabric of urban life is made up of encounters<sup>4</sup> between strangers and their differences. It is a space shaped by the constant back and forth of the interests of capitalism<sup>5</sup> and the raised voices of politics<sup>6</sup>. It is the spectacle<sup>7</sup> of everyday life, and the public stage within which the spectacle takes place. But is the sidewalk really public<sup>8</sup> in nature? Or is it also private<sup>9</sup>? It is the border<sup>9</sup> that merges private and public, while at the same time the boundary<sup>10</sup> that keeps them separate and other. Thus, the sidewalk you, Maria, inhabit or 'your sidewalk' is a transient space of dynamism and conflict<sup>11</sup> that comes into existence because of your interaction with its physical space and the people who inhabit it in a specific local context, and is then dissolved as you move on; which can coexist and overlap with versions of the sidewalk created by others.

<sup>1</sup> **noun City** / s ti/ Complex and challenging, the sidewalks are inescapable features of everyday life and a city's "most vital organs" (Jacobs, 1961, p. 29). They have meaning because of their connection to the places around them (Jacobs, 1961; Valentine, 1996; Loukaitou-Sideris and Ehrenfeucht, 2011).

<sup>2</sup> **noun Movement** / mu vm( )nt/ Movement, dynamism and fluctuation, a space where pedestrian unobstructed mobility is the primary function and the ultimate goal (Jacobs, 1961; Parsons, 2000; Loukaitou-Sideris and Ehrenfeucht, 2011).

<sup>3</sup> **noun Functions** / f ŋ(k) ( )n/ The sidewalk was intended as an emancipatory space for the movement of pedestrians. To separate them from the mud and dirt of the road.

<sup>4</sup> **verb Encounter** / n ka nt , n ka nt / Socialization and contact. A shared space between strangers, filled with endless and intriguing possibilities to connect with each other (Sennett, 1977, 2018; Lofland, 1998; Loukaitou-Sideris and Ehrenfeucht, 2011).

<sup>5</sup> **noun Capitalism** / kap t( )l z( )m/ Consumption and production, the eternal cycle. Capitalism has redefined who can enter the sidewalks and how, by redrawing the public urban space through paid labor and paid leisure (Leach, 1984; Sewell, 2003).

<sup>6</sup> **noun Politics** / p l t ks/ The ability to be visible and heard. Sidewalks enable citizens to claim rights and space in the public realm, physically and ideologically (Mitchell, 1995; Valentine, 2001; Harvey, 2013).

<sup>7</sup> **noun Spectacle** / sp kt( )l/ The stage and auditorium. Active actors and passive spectators flow and share roles with each other on the pavement, repeatedly performing ritualized identities to the backdrop of a grid of buildings (Butler, 1990; Valentine, 1996; Loukaitou-Sideris and Ehrenfeucht, 2011).

<sup>8</sup> **adjective Public** / p bl k/ **adjective Private** / pr v t/ Is the sidewalk public? How is its publicness defined? Does it depend on who has access to it? Is it defined by the activities that take place there? If so, would private activities taking place alongside public activities make it also a private space? (Kirby, 1996; Loukaitou-Sideris and Ehrenfeucht, 2011). Additionally, the ongoing capitalist privatization of urban public spaces is raising questions over what defines a space as public.

<sup>9</sup> **noun Border** / b d / Permeable zones where different urbanites are active and interact. These sidewalks become full of life, opportunities and transformative sociocultural potential because they house diverse human exchange (Lofland, 1998; Sennett, 2018).

<sup>10</sup> **noun Boundary** / ba nd( )ri/ Territorial limits onto which non-dominant subjects don't have access. These sidewalks are stagnant, little to nothing happens and there is no space for possibilities (Lofland, 1998; Sennett, 2018).

<sup>11</sup> **noun Conflict** / k nfl kt/ It is an integral function of public space, or rather "[public] urban space is the product of conflict" (Deutsche, 1998, p. 278). It is necessary for the negotiation of social, political, cultural, economic and spatial limits.



Figure 01: Arequipa Avenue, Miraflores, Lima  
Sebastian Eslava, 2016

## 'Other Woman'

## noun Body

Women have historically been defined by their body, a body which has always been understood in asymmetrical opposition to the male body, perceived as closely tied to nature and as a threat to the female mind. Furthermore, the belief that gender is a natural concept instead of a social construct (Butler, 1990) has been used to justify the inequality between sexes, the natural subordination of women to men and the definition of most spatial realms as masculine (Butler, 1990; Valentine, 2001). 'Body' means women's presence on the streets being opposed because their body is simultaneously deemed too fragile and too sexual to be afforded unsupervised movement (Loukaitou-Sideris and Ehrenfeucht, 2011). 'A woman's period signifying that the woman is sick or impure, barring her access to certain spaces until it passes, or the belief that women shouldn't be educated due to their small brain size resulting in damage to their ovaries (Shilling, 1993).

## adjective Disabled

Disability is a social construct, a geographical project and method of classification, not a natural immutable difference nor a biological category (Grant and Chouinard, 1996; Mitchell, 2000). However, in western society mobility is perceived as socially and culturally neutral, and the behavior, preferences and activities associated with it as normal, which by default means that the multiple physical and mental impairments and illnesses understood as disability are perceived as abnormal, different and deviant. Furthermore, disabled citizens are circumscribed as threatening and dangerous to able-normativity because of their otherness and transformative capabilities. Thus, consciously and unconsciously, these perceptions and prejudices structure environments and everyday interactions, and are deeply embedded in unbalanced social relations (Grant and Chouinard, 1996; Butler and Parr, 1999; Valentine, 2001). 'Disabled' means someone using crutches for a few months due to a broken leg, who can no longer access their office or anyone with mental illness who is unable to hold down a job as soon as their condition is known.

## adjective Non-white

Race is a social construct, a geographical project and method of classification, not a natural immutable difference nor a biological category (Mitchell, 2000). However, in western society whiteness is perceived as racially and culturally neutral, and the behavior, preferences and activities associated with it as normal, which by default means that the multiple races understood as non-whiteness are perceived as abnormal, different and deviant. Furthermore, non-white citizens are circumscribed as threatening and dangerous to white-normativity because of their otherness and transformative capabilities. Thus, consciously and unconsciously, these perceptions and prejudices structure environments and everyday interactions, and are deeply embedded in unbalanced social relations (Frankenberg, 1993; Mitchell, 2000; Valentine, 2001). 'Non-white' means Middle-Eastern taxi drivers in New York who are thought of as dirty or African-Americans workers considered to be lazy.

## adjective Lower Class

Social classes are social construct, a geographical project and method of classification, not a natural immutable difference nor a biological category (Mitchell, 2000). However, in western society the middle-class is perceived as socially and culturally neutral, and the behavior, preferences and activities associated with it as normal, which by default means that the multiple identities understood as the lower-class are perceived as abnormal, different and deviant. Furthermore, lower class citizens are circumscribed as threatening and dangerous to upper and middle-class normativity because of their otherness and transformative capabilities. Thus, consciously and unconsciously, these perceptions and prejudices structure environments and everyday interactions, and are deeply embedded in unbalanced social relations (Robinson and Gregson, no date; Mitchell, 2000; Valentine, 2001). 'Lower-Class' means a woman who is trapped in poverty because of childcare or teenagers who attend overcrowded and understaffed schools.

## adjective Non-heterosexual

Sexuality is a social construct, a geographical project and method of classification, not a natural immutable difference nor a biological category (Butler, 1990; Mitchell, 2000). However, in western society heterosexuality is perceived as sexually and culturally neutral, and the behavior, preferences and activities associated with it as normal, which by default means that the multiple sexualities understood as non-heterosexual are perceived as abnormal, different and deviant. Furthermore, non-heterosexual citizens are circumscribed as threatening and dangerous to heteronormativity because of their otherness and transformative capabilities. Thus, consciously and unconsciously, these perceptions and prejudices structure environments and everyday interactions, and are deeply embedded in unbalanced social relations (Butler, 1990; Duncan, 1996; Myslik, 1996; Valentine, 1996; Mitchell, 2000). 'Non-heterosexual' means lesbians who are told they are going through a phase or bisexual people whose identities are not acknowledged as real sexual identities.

## adjective Old adjective Young

Age is a social construct, a geographical project and method of classification, not a natural immutable difference nor a biological category (Harper and Laws, 1995). However, in western society young-adulthood is perceived as socially and culturally neutral, and the behavior, preferences and activities associated with it as normal, which by default means that the multiple age groups understood as old or young are perceived as abnormal, different and deviant. Furthermore, old and young citizens are circumscribed as threatening and dangerous to adult-normativity because of their otherness and transformative capabilities. Thus, consciously and unconsciously, these perceptions and prejudices structure environments and everyday interactions, and are deeply embedded in unbalanced social relations (Harper and Laws, 1995; Valentine, 2001). 'Old and young' means children in the city not allowed to go outside without an adult or the elderly segregated into retirement homes.

## 2 HOW TO MEASURE YOUR SIDEWALK?

Currently, designers obsess and plan the inhabited urban public spaces within the city, the width of the street between buildings, the dimensions of a parking space, the materiality of a facade or the proportions of the plaza, but the dimensions and geometry of a city do not equal to a pedestrian's experience of it. They produce the sidewalk as a physical, manageable space with clear boundaries and distinct functions, categorized into types, depending on the capacity – expressways, arterial roads, collector roads, local roads and passages – and zoning – residential, commercial, industrial, special uses – of its street (MVCS, 2006). On the pedestrian scale it can be measured by length<sup>12</sup>, width<sup>13</sup>, materials<sup>14</sup> and objects<sup>15</sup>. Which are calculated by:

$$\text{length} = bl + w1 + w2$$

$$\text{width} \geq 0.60 * mo$$

$$\text{materials} = c / a / p$$

$$\text{objects} = \frac{\sum^i oi * ni}{\sum d}$$

$$oi = \frac{\sum_{0, \infty}^n}{\sum d}$$

However, your sidewalk is a transient space of dynamism and conflict that comes into existence because of your interaction with its physical space and the people who inhabit it in a specific local context, and is then dissolved as you move on, which can coexist and overlap with versions of it created by others. It cannot be measured only in the physical dimensions of length, width, materiality and objects, as it is created in notions, sensations and feelings of affect, which build upon previously experienced sidewalks. To measure your sidewalk, you need to understand and measure the non-tangible length, width, materials and objects that define it, which are proposed to be legal control, cultural normativity, fear, and conflict and negotiation.

While the rest of the research is empirical, the formulas, created with the help of M.Sc. Physics Rafaella Chiarella Hoyle-Cox, form part of my own knowledge and are part of my analytical and creative process.

b.l = block length (m)  
m.o. = number of width modules  
c = concrete  
a = asphalt  
p = paver stone  
oi = object I (street furniture)  
ni = occurrence of object i  
 $\sum d$  = distance measured (blocks)

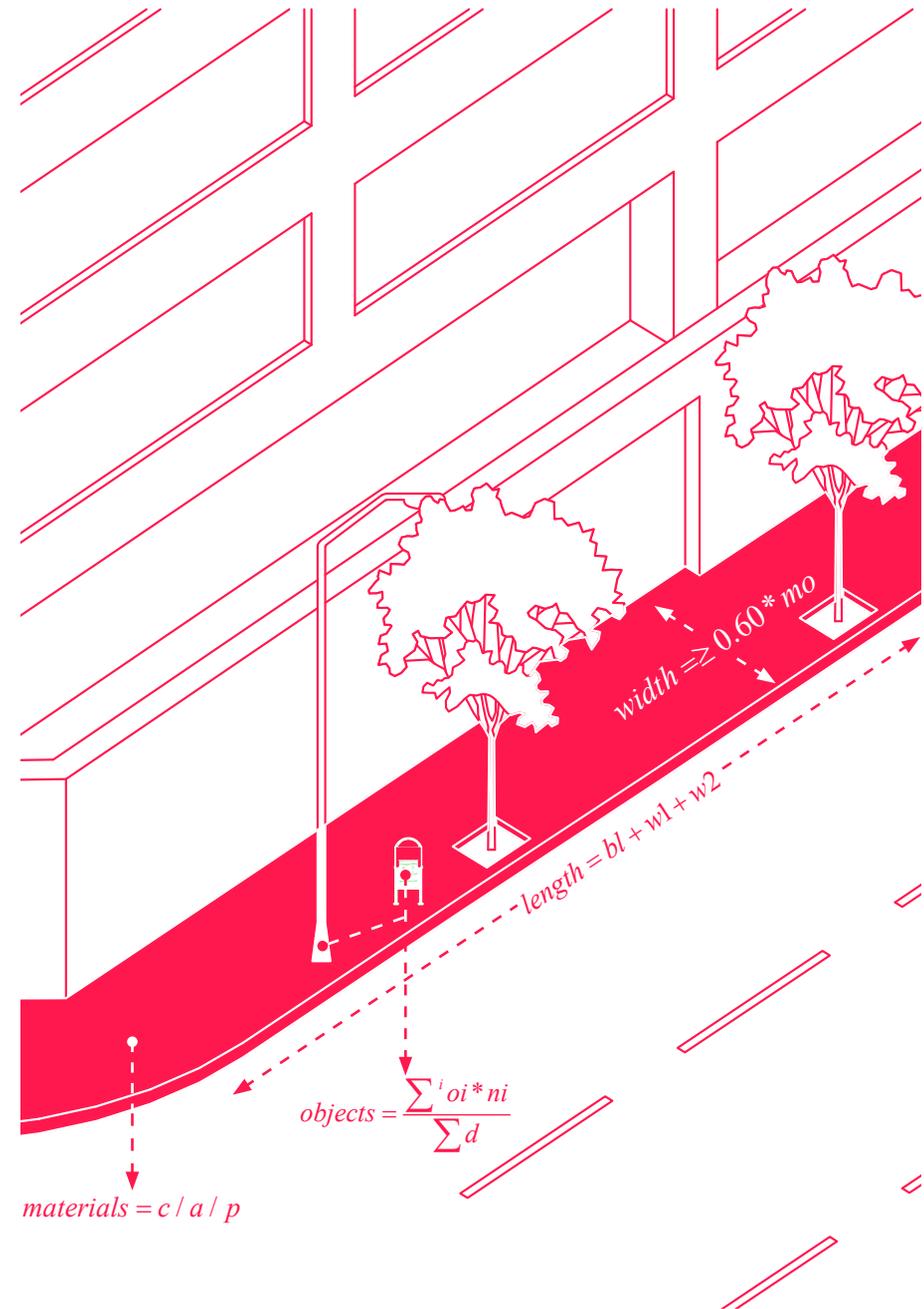
<sup>1</sup> **noun Length** The measurement or extent of the sidewalk from one corner to the other, in meters. It is defined by the length of the block of buildings plus the width of the sidewalk on each side.

<sup>2</sup> **noun Width** The measurement of the distance between the buildings' façade and the buffer, or the roadbed if there isn't a buffer. It is based on modules of 0.60m, which is the width of a person, and the minimum number of modules depends on the type of the street where the sidewalk is located (MVCS, 2006).

<sup>3</sup> **noun Materials** The matter from which the sidewalk is made. It can be concrete, asphalt or paver stone in light colors (FHWA, 2002).

<sup>4</sup> **noun Objects** The material furniture and fixtures spaced on the sidewalk. They can be street lights, trash cans, benches, fire hydrants and street signs (FHWA, 2002; MVCS, 2006). Their number and placement is defined by municipalities.

<sup>5</sup> **noun 'Your sidewalk'** Is based on concepts explored in the work of Karen Barad (2003), Richard Sennett (1977, 2018), Bruno Latour (2005), De Certau (1986), Anne Lambright (2007) and Kathleen Kirby (1996).



### 3 LENGTH OF LEGAL CONTROL<sup>17</sup>

If the length of your sidewalk is legal control and not distance. How does it define your sidewalk and why? And, how do you measure it?

Legal control is necessary for urban public places to function and be shared by many different people, however that does not mean that it is unbiased, fair or crafted to benefit all citizens (Valentine, 1996; Loukaitou-Sideris and Ehrenfeucht, 2011). You, Maria, often find that the legal control extended over you restricts your access and actions on the sidewalk, which is ironic as the space was created to be an emancipatory space of movement.

Even though the sidewalk might appear to be an innocent spatiality of social life, relations of power and discipline are inscribed into it (Soja, 1989, p. 06). Governing entities, such as municipalities, have the power to define what kind of space the sidewalk is, and how it is regulated and controlled, because they have been responsible for providing and maintaining the space since the 18th century Parisian trottoirs<sup>19</sup> “unconnected, protruding limestone curbs, serving to hold off carts” and provide a safe space for the transit of pedestrians (Geist, 1983). However, these entities don’t regulate or control the sidewalk impartially, depending on location, context, and the economic, po-

<sup>17</sup> This chapter draws from the following articles, books and interviews: (Jacobs, 1961; Sennett, 1977, 2018; Denegri, 1996; Duncan, 1996; Valentine, 1996, 2007; Graham, 1998; Allen, 2006; Latour and Yaneva, 2008; Loukaitou-Sideris and Ehrenfeucht, 2011; Mela, 2014; Perez, 2018).

<sup>18</sup> **noun Maria** are other-woman, explained in the introduction.

<sup>19</sup> **noun Sidewalk** had appeared in most European cities by the middle of the 18th century, because urbanites favored it, as it separated them from the mud and dirt that accumulated in the roadbed.

litical and cultural frameworks, their biases, prejudices and internalized discriminations form naturalized dominant ideologies, which then influence the creation of both the “hard arm of command” and the “soft arm of seduction” of legal control, which target you and protect Luis<sup>20</sup>.

*Examples of these are policies and laws influenced by colonial ideologies regarding gender, class and race that define women as inherently sexual beings who should not be unaccompanied in the street as they eroticize the space with their presence which still shape the Peruvian public landscape (Martin, 1986), and the prevalent naturalized and normalized belief that public spaces are not only inherently masculine but also heterosexual (Duncan, 1996).*

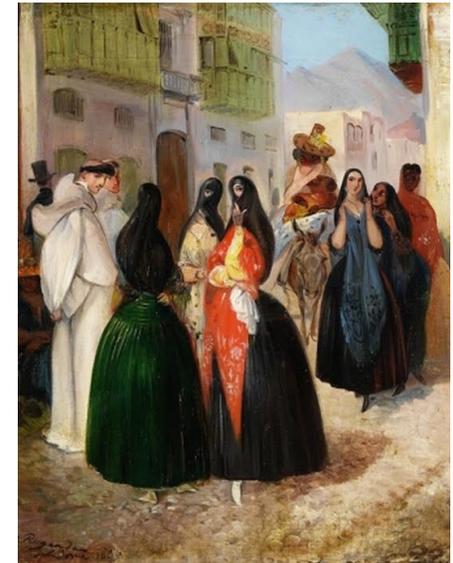


Figure 02: Strassenszene in Lima  
Johann Moritz Rugendas, 1844

This is exacerbated through the practice of excluding women and other minorities from decision making (Criado, 2019).

<sup>20</sup> **noun Luis** are the dominant subjects of society, those with power and influence, not only over other people, but also over institutions, the spaces they inhabit and shape, and the situations they have to contend with. Usually, they are white, cisgender, heterosexual, middle or upper-class men (Grant and Chouinard, 1996; Spivak, 2015).

To know how legal control shapes your sidewalk, the extent of both arms of legal control needs to be understood. While both are used to regulate, control and dominate you on the sidewalk, they work in contrasting but complementary ways. On one hand, the "hard arm of command", articulated through explicit control and exclusion, is comprised of legal measures, law enforcement and crime-safe spaces & politics-safe spaces<sup>21</sup> (Jacobs, 1961; Bittner, 1990; Graham, 1998; Mela, 2014).

*For example, in 2016 law enforcement equipped with riot gear used tear gas and arrested women, who were non-violently, although topless, protesting presidential candidate Keiko Fujimori in Lima (Costa, 2016). While the officers claimed they were acting to maintain the order of the sidewalk, they were acting on institutionalized prejudices (lower-class, non-white women), to maintain morality as their chests were nude, and to try to suppress the dissenting voices that threatened the structure of economic and political power.*



Figure 03: Women protest presidential candidate Keiko Fujimori  
Janine Costa, 2016

As the example shows, led by intolerance, the "hard arm of command" claims to be solely focused on creating safety and order on the sidewalk by legally expelling, policing, restricting and relocating behaviors, activities and the presence of certain individuals and social groups, who are deemed disruptive or incompatible with the needs of governing entities, economic powers, established institutions or Luis. However, its main

<sup>21</sup> **Noun Safe Space** To label an area as safer because it has better security measures signifies to people that the other areas are then unsafe as they do not count with the same measures to ensure safety (Loukaitou-Sideris and Ehrenfeucht, 2011).

focus is to legally or physically restrict your access and freedom in the sidewalk to ensure that you and your actions don't threaten society's hegemony, normality or white middle-class morals. Nonetheless, because this arm is clearly visible due to its confrontational and restrictive approach, its grasp is also controversial and frequently contested (Bittner, 1990; Mela, 2014).

On the other hand, the "soft arm of seduction", articulated through subtle attraction and domestication of the urban space, is comprised of privatization, beautification and gentrification of the sidewalks (Waltzer, 1986; Mitchell, 2000; Allen, 2006; Latour and Yaneva, 2008; Mela, 2014).

*An example is Mid-Market Street in San Francisco, where the sidewalks were domesticated by "clean up" and "blight reduction" programs that targeted homeless and other vulnerable groups and beautified the space, to entice tech-companies to move into the area (Hayoun, 2014). While the municipality claimed the policies were to improve the quality of life of the city for everyone, it was actually trying to remove marginalized others who could create conflicts with the wealthier desired population.*



Figure 04: Mid-market Street in San Francisco  
Patricia Chang, 2018

As the example shows, it claims to focus on "quality of life" by creating beautiful, safe and comfortable secluded environments, attracting desired consumers and filtering out all others users who are deemed incompatible with the needs of governing entities, economic powers, abutting property owners or Luis. However, its main focus is to remove the sidewalk's potential as a space

of conflict and transformation by deemphasizing its public nature, controlling diversity and economically, culturally and socially homogenizing the faces on it. And because this arm is difficult to see due its seemingly peaceful and pleasant approach, it is often undisputed (Allen, 2006).

Still, as the sidewalk is assumed to be an open space, the strategies of both arms of legal control need justifications to be implemented. As long as those in power are biased against you, any type of activity, even movement, can justify legal control, such as social gatherings, entertainment and play, demonstrations and celebrations, political displays, or commercial activities, if you are the one executing them (Mohanty, 1984; Loukaitou-Sideris and Ehrenfeucht, 2011).

*For example, in 2016 at the peak of the 'Pokemon Go' craze many teenagers flocked to all sorts of urban public spaces in order to play the cellphone game. In the district of La Punta - Lima - those playing were mostly white middle and upper-class teens, who did so without any problems. But as soon as non-white, lower class teenagers from the neighboring district of El Callao went to La Punta to play, because La Punta had a larger amount of 'Gym Stops', the municipality began to see the players as disorderly, disruptive and an obstruction to the free movement and normal activities of the sidewalk, in other words, a threat to the residents and economic activities. So, it passed ordinance N°011-2016-MDLP/AL (Huamani, 2016), which quickly restricted the hours and areas where the game could be played, and enforced fines and cellphone requisitions on those who broke the new regulation.*



Figure 05: Pokemon Go PuertoGame, 2016

*Another example is the control of street prostitution in the district of El Cercado, Lima, where female, trans and male sex workers work in at least 17 streets, such as the corner Zepita with Cañete, throughout the day (Zubieta, 2014). Voluntary adult street prostitution is not illegal under Peruvian law, but the public and the government want to remove it from the streets, because they see it as immoral, dirty, dangerous, exploitative and sinful. However, female sex workers, particularly transwomen, are regulated and harassed in a way that their counterparts are not, because of their identity as public-women they challenge the street's morality, their placement within the private space and the economic hierarchy. They are continuously marginalized and targeted by discriminatory measures in the shape of police operations i.e. "Operation Candy", verbally harassed, relocated by being drenched with water hoses, assaulted by men who throw eggs at them, and fined with expensive economic sanctions i.e. ordinance 1718 (fines of 7600 soles, equal to 1900 euros)(Garcia Bendezu, 2017).*



Figure 06: Mercado del Sexo (Sex Market) Raúl Rodríguez, El Comercio, 2015

Thus, if your activities or behavior cause Luis discomfort or fear, are considered incivil, disorderly, challenge social expectations, or obstruct Luis's circulation – in short if they threaten social, economic or political hegemony or homogeneity – they are considered illegitimate and often equated to criminal activities, which is good enough for the long arms of the executive powers of legislation to extend their discriminatory measures to control, dominate and exclude you (Bauman, 2000; Loukaitou-Sideris and Ehrenfeucht, 2011).

Therefore, one could argue that legal control as the length of your sidewalk, determines how long your sidewalk is. By using its bi-ased arms to regulate, control and dominate you and your activities, in its local context, in order to maintain society's hegemony and protect its homogeneity. You can measure its length by calculating the ability to access and freedom of action you have on the sidewalk.<sup>22</sup>

$$\text{length} = \frac{a.a.(s.l.) + f.a.(s.l.)}{2} = \text{meters}$$

a.a. = ability to access

f.a. = freedom of action

s.l. = physical length of the sidewalk

Considering the next variables according to an index<sup>23</sup>.

You can measure ability to access by,

$$a.a = \frac{h.a.a. - l.a.a.}{h.a.a.} = \%$$

h.a.a. = hypothetical ability to access

l.a.a. = limitations to your ability to access

You can measure ability to access by,

$$f.a = \frac{h.f.a. - l.f.a.}{h.a.a.} = \%$$

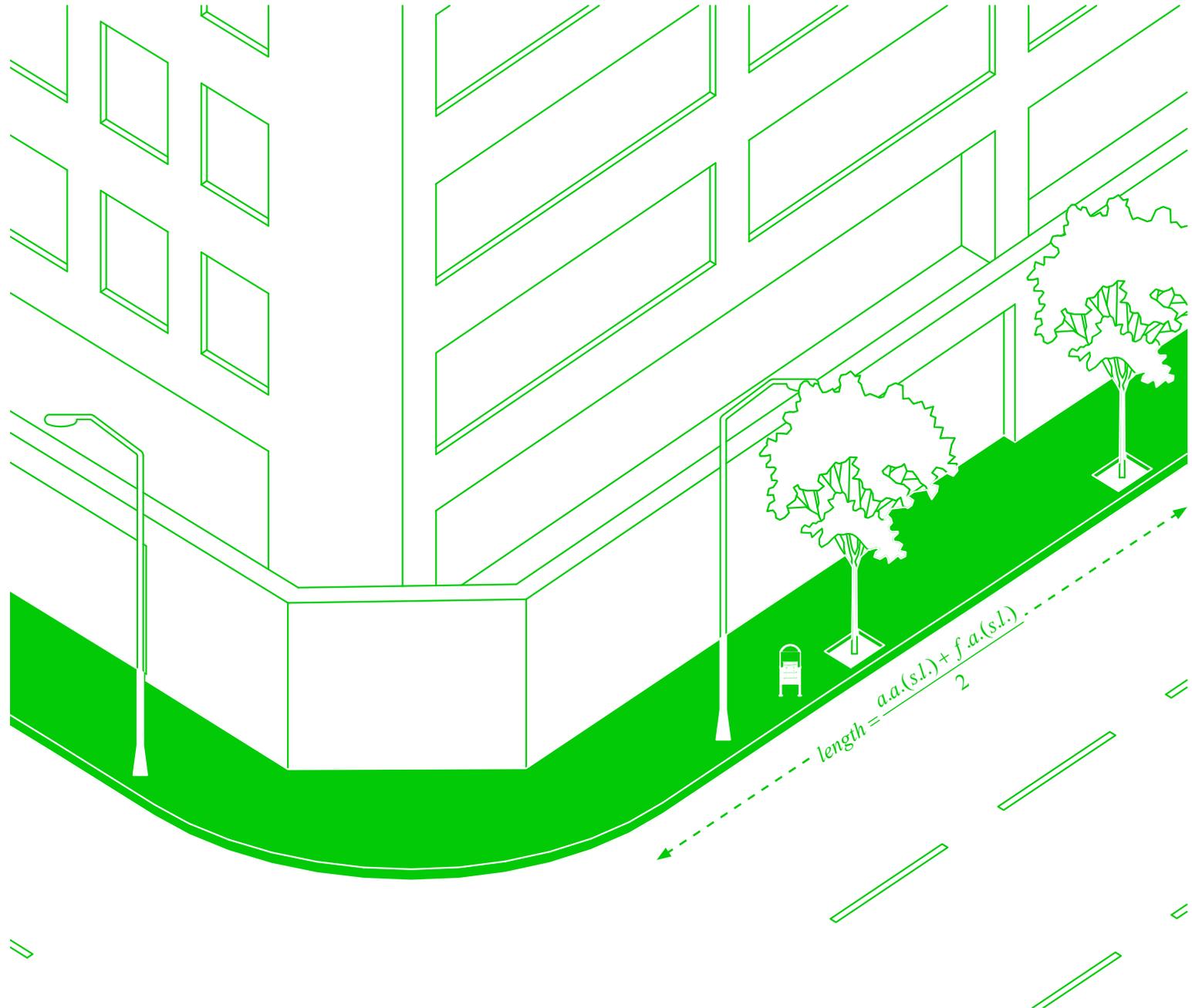
h.f.a. = hypothetical freedom of action

l.f.a. = limitations to your freedom of action

Remember that although you will often find that the length of your sidewalk is much shorter than Luis's, its length is not a fixed measurement, it can be modified through contestation and negotiation.

<sup>22</sup> Formulas developed with the help of M.Sc. Physics Rafaella Chiarella Hoyle-Cox

<sup>23</sup> Index varies according to specific location and context.



## 4 WIDTH OF CULTURAL NORMATIVITY<sup>24</sup>

If the width of your sidewalk is cultural and religious normativity and not distance. How does it define your sidewalk and why? And, how do you measure it?

Who is normal? And what does normal mean? The concept of “normal” is defined and modified by entities and individuals that hold economic, political and social power, who are influenced by naturalized dominant ideologies based on location, context, the economic, political and cultural frameworks, their biases, prejudices and internalized discriminations. “Normal” is limited to a small group of identities in a society, based on the social power structures of age, gender, race, sexuality, class and ability, their behaviors and appearances, and the corresponding acceptable and proper activities, which are internalized as natural, commonly seen as an aspirational goal and can homogenize a group. To define who is “normal” is complex because different power structures are mutually constituted and simultaneously experienced by people, such as age processes that also occur through gender oppression, and because the dynamics of their various dimensions mean that anyone, including you, can “simultaneously be the oppressed and the oppressor”<sup>25</sup> (Valentine, 2007).

<sup>24</sup> This chapter draws from the following articles, books and interviews: (Mohanty, 1984; Butler, 1990; Myslík, 1996; Valentine, 1996, 2001, 2007; Lofland, 1998; Mitchell, 2000; Loukaitou-Sideris and Ehrenfeucht, 2011; Harvey, 2013; Rodó de Zárate, 2014; Perez, 2018).

<sup>25</sup> **noun Intersectionality** “offers an important potential tool for feminist geography to understand the intimate connections between the production of space and systematic productions of power” (Valentine, 2007, p. 19).

*For example, in western culture, if you, Maria (Perez, 2018), are a non-heterosexual white adult woman, you are “normal” because you identify as white, woman and adult, however you aren’t “normal” because you aren’t heterosexual; additionally, if your appearance or behavior isn’t feminine enough then you aren’t behaving “normal” in regards to your gender, and if you are doing political speeches on the street then you aren’t acting in a “normal” socially accepted manner.*



Figure 07: Woman with megaphone at Occupy Wall Street  
Timothy Krause, 2012

Furthermore, normality is regulated and protected by cultural normativity, that is, society’s use of social norms<sup>26</sup> - informal rules that allow members of a society to police others and themselves - shaped through intersectional institutionalized and individual discriminatory processes, which are conveniently not visible to those not under their pressure. As a social construct, it is fragile and needs to be socially regulated and maintained through daily repetition, and it acquires meaning once it is produced on contextualized spaces, not only through social norms but in and through spatial strategies and social relationships.

On your sidewalk, society’s cultural normativity is the naturalized informal “intricate, almost unconscious, network of voluntary [and involuntary] controls and standards among the people themselves, and enforced by the people themselves” (Jacobs,

<sup>26</sup> **noun Social Norms** are informal rules that allow members of the society to police others and themselves, they are cultural products of religion, political ideologies, language, art and science. They include values, customs, and traditions, morality.

1961). Its aim is to produce and ensure the safety, order and stability of your sidewalk according to the concept of “normal”, by defining and then controlling, incivility<sup>27</sup> and disorder, that only who is “normal” warrants respect and has a right to the city, the activities that bother Luis and are incompatible with consumption such as panhandling, public speaking and loitering, and who has the ability to move unobstructed. To achieve them, omnipresent spatial social norms of “normality” are enforced daily by Luis and to a lesser degree by you, such as dress codes, civility, moral codes, values, etc., through expected deference, harassment, allowing people to walk unimpeded, and gestures or looks of disapproval, etc.

*For example when you, as the previously mentioned Maria, conduct dissenting political speeches on your sidewalk, other people will informally endeavor to control you, and through you the political potential of the space, with dirty looks, muttered comments, by ignoring you or by harassing you, because they might feel threatened or uncomfortable and feel the need to restore order; while at the same time you might simultaneously police yourself by not displaying affection to your partner or deciding not to walk at all, and police others, such as a non-white, lower-class person by expecting them to move aside for you, or might try to prohibit teenagers from playing on the sidewalk in front of your house.*



Figure 08: BBQ Becky Michelle Snider, 2018

So, by controlling and regulating yourself with social norms, your sidewalk is also regulated, and kept “normal”, ordered, safe.

<sup>27</sup> **noun Social Norms** are informal rules that allow members of the society to police others and themselves, they are cultural products of religion, political ideologies, language, art and science. They include values, customs, and traditions, morality.

However, besides ensuring safety, order and stability on your sidewalk, cultural normativity is employed by those in power for the following. Firstly, to help maintain the boundaries between public and private spaces by restricting your use of the sidewalk to transit, classifying which activities and behaviors are appropriate for either the public or private sphere according to their respectability and morality codes, and disciplining you if you don't respect these boundaries through harassment or sometimes violence (Loukaitou-Sideris and Ehrenfeucht, 2011). Secondly, to produce and display several “conflicting social hierarchies” (Loukaitou-Sideris and Ehrenfeucht, 2011) and their power structures, by reproducing different “self-other gradient of human value”(Galtung, 1990) relations simultaneously, where Luis positions themselves as the religious or politically ideological chosen ones – closest to a transcendental God or to the ideal being – and positions you, the unchosen, in the dominated categories underneath<sup>28</sup>, by equating the ability to move freely through the space to a “white middle and upper-class prerogative” (Harvey, 2013) and the right to legitimate citizenship, and by reinforcing the notion that people deserve to be treated with varying amounts of respect based on their class, gender, race, age, sexuality and ability. Finally, the continuous performance of “normality” on your sidewalk overtime reproduces the assumption that “normal” identities, behaviors and activities are the only valid ones, and creates a false sense of homogeneity, which might then become real, by trying to restrict your presence on your sidewalk to limited and scripted roles, and by enacting discriminatory processes if you don't follow them, and

<sup>28</sup> **noun Self-Other Gradient of Human Value** i.e. “men are stronger / more logical than women; whites are more intelligent / logical than non-whites”

by conditioning your “voluntary” consenting self-exclusion from fear or discomfort (Koskela, 1999).

*To continue with the example, your society's classification of your sexual identity as only acceptable in private spaces pressures you and others into policing your corresponding behavior and activities on your sidewalk, which reinforces the appearance of it as a heterosexual space. Men obstructing your movement of the space with sexual harassment reinforces asymmetrical power relations between the idea of men and women. And defining your dissenting political speech as disorderly or incivil removes your voice and protects the hegemonic political structure.*

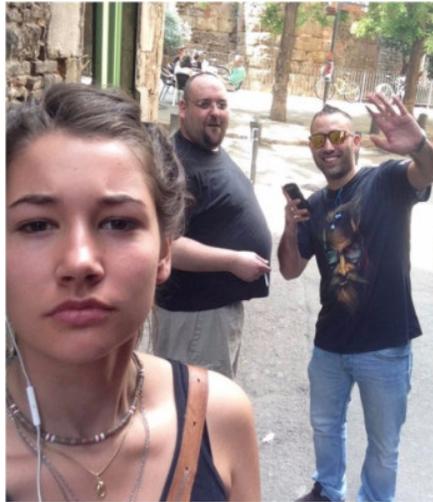


Figure 09: #DearCatCallers  
Noa Jansma, 2018

Thus, cultural normativity is employed by those in power, and to a lesser degree by you, to informally control and regulate through exclusion, domination, marginalization and restriction, to attempt to maintain social, economic or political homogeneity and hegemony on and through your sidewalk, which reduces its inclusivity and produces people unable to negotiate diversity.

Therefore, the width of your sidewalk is its cultural normativity, that is, who is perceived as having the right to legitimately occupy the space and to allow others to do the same, which simultaneously shapes the nature of your interactions with others and is created by them. You can measure it by calculating your privilege and oppression to access and act on your sidewalk.<sup>29</sup>

$$width = \%wi * s.w.$$

s.w. = physical width of the sidewalk

%wi = percentage of the width of your sidewalk

Where the percentage of the width of your sidewalk, generated by the width of your privilege and oppression to access and act on it is,

$$\%wi = (wi + 600) * \frac{100}{1200}$$

wi = width of your privilege and oppression

And the width of your privilege and oppression is,

$$wi = \sum_{i \rightarrow 6}^x (Dx)^2 = meters$$

Wi.max= 600 (100%) Wi.min= -600 (0)

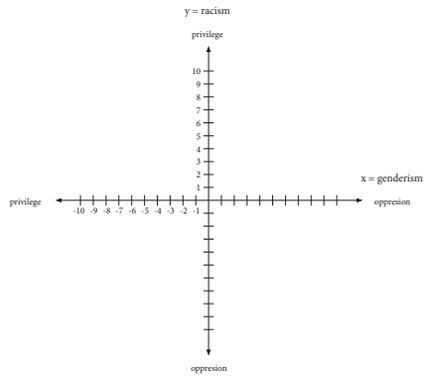
Dx=[-10,10]=10i the value of your positions in each axis (from -10 to 10). Being 0 total oppression and 10 total privilege.

<sup>29</sup> Formulas developed with the help of M.Sc. Physics Rafaella Chiarella Hoyle-Cox

$x = (1, 2, 3, 4, 5, 6) = 6$  dimensional axis of privilege (+) and oppression (-)

1=genderism 2=heterosexism 3=racism  
4=ageism 5=ableism 6=classism

2D representation



2D representation example:

An individual is placed in the 2D axis (x,y)

So, if white woman A is (-3,7)

Width (of 02 dimensional axis) =  
 $3i^2 + 7^2 = -9 + 49 = 40$

However, remember that when you refuse to follow social norms or act in previously unanticipated ways, you can challenge them and transform the width of your sidewalk to include yourself and others



## 5 MATERIALITY OF FEAR

If the material of your sidewalk is fear and not concrete, asphalt or pavement. How does it define your sidewalk and why? And, how do you measure it?

There is a recurring perception of the streets and sidewalks as “dangerous spaces that need defined appropriate behavior and acceptable people” (Loukaitou-Sideris and Ehrenfeucht, 2011), spaces that need legal control and cultural normativity to be safe. Fear on your sidewalk doesn’t begin when you feel anxious, afraid or uneasy while on the space, it begins when governing entities and established institutions allow their conscious or unconscious fear or indifference towards those who are different influence how they create the physicality and infrastructure of the space, and the regulations and norms that control it, which depending on location, context, are shaped by the economic, political and cultural frameworks and dominant ideologies.

*Las Casuarinas, a privatized upper-class residential neighborhood in Lima, is a good example. It was created with large residences, a 10km concrete wall around it, two consecutive manned gates on each of its entrances and without any sidewalks; and it has an extensive rulebook for residents and visitors to adhere to, with some of the rules displayed on the gates, and a complex network of social norms which regulate that everyone behaves like “gente decente”<sup>30</sup> (Pighi, 2015). The example shows how Las Casuarinas Neighborhood Committee’s desire for safety is enough to justify enforcing tight controls on the access of non-residents – influenced by fear, mistrust and racism– whose presence generates uneasiness, by implementing manned gates and displaying classist rules on a plaque next to them. And its lack of sidewalks, due to the fact that the residents’ main mode of transportation are private vehicles and private taxi services, shows indifference, as needs of the army of nannies, maids, gardeners, and other workers, who come daily to do house-work,*

<sup>30</sup> noun **“Gente Decente”** translates to Noble People, it is an expression used to define the behaviors that fit within the boundaries of the religious and ideological social norms of Lima’s elite.

*are not considered. So, it demonstrates how fear reinforces cultural normativity and excuses discriminatory aggression towards others.*



Figure 10: Maid walks a dog in Las Casuarinas Mapio.net, 2016

Thus your sidewalk, or lack of it, reproduces the construction of power and privilege in society, and often is created without you in mind or to actively restrict or exclude you, which may contribute to your feelings of vulnerability, discomfort and fear.

The complex relationship between fear of crime and of the unknown, intersectional social identities and the public space of the city has been broadly explored by authors like Koskela (1997, 1999), Pain (1991, 2001), Valentine (Valentine, 1996) and Rodó de Zarate (2014). Fear has been defined as “the wide range of emotional and practical responses to crime and disorder made by individuals and communities” (Pain, 2001, p. 903), and as “shaped by highly complex products of each individual’s experiences, memories and relations to space” (Koskela, 1997, p. 304), which is “entirely marked by gender and determines one’s experience

of the city and freedom of movement and access" (Rodó de Zárate, 2014). Fear, and a larger sense of discomfort and anxiety in relation to the behavior patterns of other people are produced and shaped by your sidewalk at different scales, separately of the experience of victimization. On a small scale, the design and implementation decisions made on your sidewalk's creation, the current state of it and its surroundings, the conditions of the environment and the specific social power dynamics of the area, combine to contribute to the levels of fear and discomfort you might feel and are in turn affected by it.

*For example, when the sidewalk is poorly maintained and too narrow for Maria (Gracia, 2019) as she pushes a pram, and the traffic light's time to cross the street isn't long enough for anyone not walking at un-encumbered adult strides of 1.4m/s, and there isn't proper signage for her to locate herself in a neighborhood with several blind front walls, and she is walking alone, and she feels threatened by strangers who are different (race, class or culture), and she is verbally sexually harassed<sup>31</sup> by a passing man, the result is that she feels fear and anxiety while walking.*



Figure 11: Woman with stroller  
Jason Miller, The Toronto Star, 2019

As the example shows, all the individual factors add up to a continued experience of discomfort or fear that restrict her ability

<sup>31</sup> **noun Gender Based Street Harassment** "is unwanted comments, gestures and actions forced on a stranger in a public place without their consent, and is directed at them because of their actual or perceived sex, gender, gender expression, or sexual orientation." (Stop-stretharassment.org)

to walk for transportation, to which women are dependent more than men because of their care-giver status and partially because of economic reasons (Criado-Perez, 2019), which reduce her desire to engage in any additional activities in the public space of the city. Hence, the next time that she is on the same area, or maybe even on any street (Koskela, 1999), she will have to be more aware of her surroundings in a way that Luis doesn't have to be, and she will experience the space through the lens of this previous experience. Furthermore, if the woman is non-white, for example, her fear is intensified because of the added danger of racialized violence (Pain, 1991; Criado-Perez, 2019).

On a large scale, the design and implementation of infrastructure that doesn't meet your needs, the lack of proper services provided, the conditions of the environment and the specific social power dynamics of the area, combine to contribute to the levels of fear and discomfort you might feel and are in turn affected by it.

*For example, when Maria (Lopez de Romaña, 2018) is going to an appointment she is only willing to go in the morning when it is light outside. She has to walk a long distance with her cane to take the bus, along which there aren't any public sanitary facilities, ramps, benches for her to use, and then she needs to wait at a bus stop which makes her nervous because many of them are hotspots for sexual harassment and crime and the young men who hang-around there make her nervous, and then she has to take three buses – bus routes are often not designed for female-travel patterns (Womenability, 2017; Criado-Perez, 2019) -, and then has to make the same trip back, she feels fear and anxiety while traveling around the city.*



Figure 12: Sexual harassment on buses  
Kazi Tahsin Agaz Apurbo, The Daily Star, 2019

As the example shows, fear and discomfort limit her ability to access the city and freedom to use public modes of travel, which women depend on more than men for economic reasons (Criado-Perez, 2019). This causes her to either take the same route and expose herself, take a safer route that would take more time, or “choose” not to make the trip at all, an option which in many society's is often seen as obvious or natural (Koskela, 1999). Thus, Maria and others in her position become more isolated and through their isolation more afraid of the city (Koskela, 1999), or restrict their movements to those they deem absolutely necessary, as they see themselves as more vulnerable because of their age and gender.

In both scales, fear and discomfort restrict or not only your right to be feel safe and be present in your sidewalk, but your also your ability to exercise ownership of it, and this increases your fear and discomfort. You can adopt strategies of confrontation (responding to harassment and walking confidently) or of avoidance (avoiding spaces and not engaging with harassment) (Valentine, 2001). However, that doesn't eliminate the need to deal with the fear or discomfort itself, but it is important to remember that the ability to feel comfortable and safe on your sidewalk should be attained by removing the presence of people who cause you discom-

fort because of their difference, discomfort can be lessened by strategies that include diversity (Loukaitou-Sideris and Ehrenfeucht, 2011; Rodó de Zárate, 2014). Moreover, employing public-space controls and fixing the physical issues of your sidewalk, without addressing the systemic problems that cause them (i.e. systemic discriminatory poverty), limits their reach and doesn't give you the space back.

Therefore, fear as the material of your sidewalk doesn't construct the space, it destroys the space by eliminating your ability to move and act freely. Thus it determines how comfortably (without fear or discomfort) you can move. You can measure you sidewalk's materiality by calculating your comfort of mobility on it, which is the percentage of it not destroyed by fear.<sup>32</sup>

$$\text{comfort of mobility} = \widehat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \widehat{Z}_j}{N}$$

n = number of  $Z_j$

Considering the next variables according to an index.<sup>33</sup>

To measure the comfort of mobility, you need to calculate the comfort of mobility of each individual  $\widehat{M}_j$ . First, you need to define the 3D matrix  $M_{Y_i,j}^{Z_i}$  as the matrix containing the comfort of movement affected by each element.

$$M_{Y_i,j}^{Z_i} = X_{i,j} = \begin{bmatrix} X_{1,1} \\ X_{2,1} \\ X_{3,1} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,2} \\ X_{2,2} \\ X_{3,2} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,3} \\ X_{2,3} \\ X_{3,3} \\ \dots \end{bmatrix} \begin{bmatrix} \dots \\ \dots \\ \dots \\ \dots \end{bmatrix}$$

<sup>32</sup> Formulas developed with the help of M.Sc. Physics Raffaella Chiarella Hoyle-Cox

<sup>33</sup> Index varies according to specific location and context.

$Z_j$  is the dimension of source of the discomfort and fear. Being  $j$  the 6 sources:  $Z_1$ = infrastructure  $Z_2$ = services,  $Z_3$ = social power dynamics,  $Z_4$ = environmental conditions,  $Z_5$ = design of the sidewalk  $Z_6$ = current state of the sidewalk and surrounding.

$Y_{ij}$  is the specific element within each source category. For example:  $Y_{3,5}$  = traffic lights,  $Y_{1,2}$ = public sanitary facilities,  $Y_{1,3}$ = sexual harassment.

$X_{ij}$  = a column with the values of the comfort the element brings to your movement (from 0 to 10). Being 0 total discomfort and 10 total comfort.

By using this organization, we know that if  $M_{Y_{3,5}}^4 = 5$  we know that it  $j=5$  is the design of the sidewalk, and that  $i=3$  is traffic lights and that the person is in medium comfort of mobility.

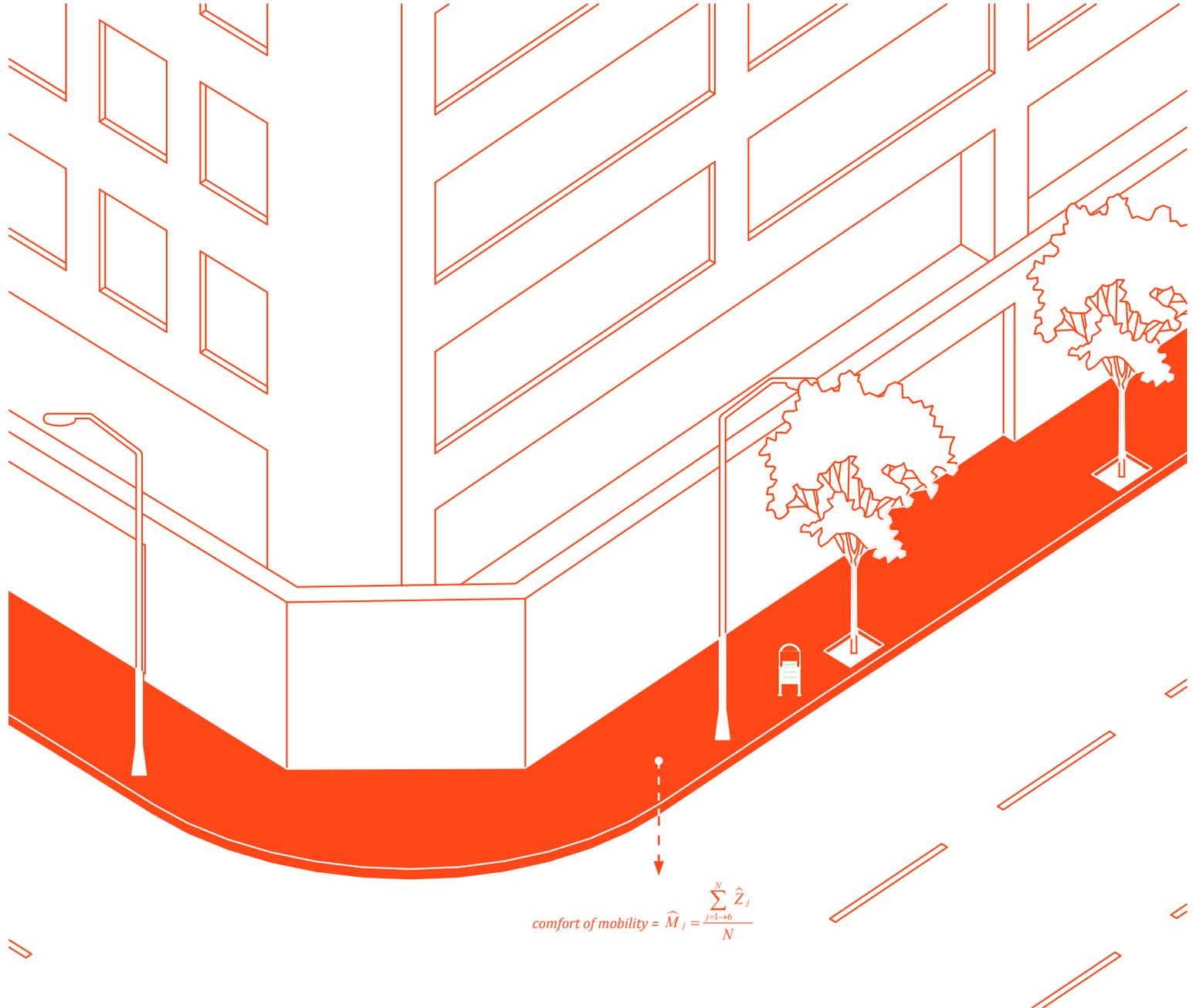
So we have,

$$Z_{Y_{i,j}} = X_{Y_{i,j}} = \begin{bmatrix} X_{1,1} \\ X_{2,1} \\ X_{3,1} \\ \dots \end{bmatrix} \rightarrow \hat{Z}_j = \frac{\sum_{i=1 \rightarrow 6} X_{i,j}}{N}$$

With  $N$  the total number of elements of the source  $j$ , we obtain  $\hat{Z}_j$  the total comfort of mobility from the source  $j$ . We know, with this, how much comfort of mobility each of our 6 sources generates.

Then, your comfort of mobility on your sidewalk is  $\hat{M}_j$ , with  $N$  the total number of sources that apply can be calculated by,

$$\hat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \hat{Z}_j}{N}$$



## 6 OBJECTS OF CONFLICT<sup>34</sup>

If the objects of your sidewalk are conflict and negotiation, and not urban furniture and fixtures, how do they define your sidewalk and why? And, how do you measure them?

Your sidewalk as a space is understood within Sennett's "open system of unstable evolution" (2018) and Berman's "open-minded space" (1986), which perceive the sidewalk as an arena that accommodates encounters between people of different backgrounds, their diverse interests and multiple activities, and is open to change and evolution through time. Thus, access to it is a mechanism by which urbanites assert their right to participate in society and inhabit the public sphere (Loukaitou-Sideris and Ehrenfeucht, 2011). In your sidewalk, your ability to access and use the space is limited because its openness and inclusivity is legally controlled and culturally normalized by governing entities, Luis and established institutions. However, you can try to contest and resist this, and try to reclaim your sidewalk in three ways (Kirby, 1996; Valentine, 2001; Loukaitou-Sideris and Ehrenfeucht, 2011). Firstly, by fighting for the right to enter the sidewalk for its defined uses,

*as African-American individuals did by refusing to step out of the sidewalk to allow white pedestrians to pass in the United States.*

<sup>34</sup> This chapter draws from the following articles, books and interviews: (Butler, 1990; Young and Allen, 1990; Duncan, 1996; Myslik, 1996; Valentine, 1996, 2001, 2001; Loukaitou-Sideris and Ehrenfeucht, 2011; Perez, 2018; Flores, 2019).



Figure 13: Why am I stepping off the sidewalk for white people? The Root Staff, 2014

Secondly, by fighting for the right to define the sidewalk's uses,

*as suffrage movements around the world did by redefining the sidewalk as a space for feminist speech, through protests, marches, public speeches and street propaganda (McCammon, 2003).*



Figure 14: Elsie Hill addresses a crowd in St. Paul, Minnesota Sewall-Belmont House & Museum, 1916

Lastly, fighting for the freedom to perform your identity and behavior in the sidewalk, Lastly, fighting for the freedom to perform your identity and behavior in the sidewalk,

*as the LGBT Pride Parades in Lima Peru do by helping to normalizing non-heterosexual identities on the sidewalk (PERÚ21, 2018).*



Figure 15: Pride Parade in Lima Peru El Comercio, 2018

By striving to reclaim your sidewalk, you position yourself as part of the “legitimate members of the public” (Lees, 1998), which combined with the state, established institutions and dominant subjects’ belief – and to a degree possession of ownership over the same space – generates conflict.

Conflict is an integral function of public space, or rather “[public] urban space is the product of conflict” (Deutsche, 1998, p. 278). Although in some situations conflict can transform into violence, mostly at your expense, as it happens when “anxious straight citizens don’t wait for the police or private security forces to step in and stabilize the heterosexuality of the street, rather they actively regulate it through aggression” (Hersek, 1998; Valentine, 1996, p. 147), it isn’t a negative that should be eliminated. Conflict on your sidewalk is all those moments of disagreement between people charged with tension and friction that render opportunities for change at different scales possible. It is necessary because it provides opportunities for you, as an individual or collective, to interact with others to try to redefine spatial and social boundaries (Sandercock, 2003; Loukaitou-Sideris and Ehrenfeucht, 2011).

*For example, in the summer of 2017 dozens of lower-class, non-white people from the district of Chorrillos – Lima – contested the nature of the ornamental sections of their main avenues by using the water fountains as pools, because the district didn’t provide any public pools (Leon, 2017). Although this angered the municipality and Lima’s dominant population, who tried to publicly shame them in the media and pass ordinances to prohibit their activities, the conflict allowed them to try to redefine the spatial boundaries that designated part of the street as and object to be looked at by drivers from other districts, and the social boundaries that didn’t see them and their needs as legitimate members of the population.*



Figure 16. Citizens use a water mirror as a pool in Chorrillos, Lima La República, 2017

And because they enable different identities to, individually or collectively, question regulations, norms and presumptions of normality of others (Sandercock, 2003; Loukaitou-Sideris and Ehrenfeucht, 2011, pp. 18, 19).

*For example, it enables physically impaired people like Maria (Perez, 2018), who has spondyloarthritis and needs to use a cane or crutches, to try to dispel the pervasive notions that because she is impaired, she is helpless and unable to navigate the street independently, by moving unaided through the sidewalk and engaging with others if needed. Although this may cause friction or discomfort with other people, only through conflicting moments can their notions be changed.*



Figure 17: Maria on the sidewalk Beatriz Peró Giannini, 2019

Thus, although they might be filled with friction, having interactions that create moments of conflict on your sidewalk create the possibility of negotiation, by empowering and enabling you to attempt to reshuffle society’s order into a more balanced and diverse one, which then facilitates the breakdown of existing power dynamics for the construction and evolution of urban life.

Conflict enables you to negotiate, not the boundaries or limits placed on you, but the fragmented spaces where they leave you. You can negotiate the controlled, normalized construct of your sidewalk and its influence over private spaces, by displaying and articulating your individual identity, which departs from the norm, by disrupting or deconstructing spatial practices as a collective, and by articulating economic and survival activities (Young and Allen, 1990; Duncan, 1996; Myslik, 1996; Valentine, 2001; Harvey, 2013). To do this, the sidewalk is an ideal setting, because it is unavoidable and visible, and its diversity and anonymity allows some degree of social flexibility and tolerance to those who deviate from the norm (Sennett, 1970). However, the more homogenized, controlled and segregated a population is, the more fearful and rigid it becomes, and the more possible it is for negotiation to have a violent response.

The display and articulation of your individual identity on your sidewalk destabilizes the naturalized assumption of it as asexual (which actually means heterosexual), non-racial (white), ageless (adult), classless (middle-class) and able-ist, and of the intersectional systems of discrimination that act on it, by transgressing popularly held stereotypes of identities (sex, gender, race, class, age, ability), and it restructures the production of space through actions and behaviors that reflect your identity (Butler, 1990; Young and Allen, 1990; Bell et al., 1994; Myslik, 1996).

*For example, the performance of the “femme/ lipstick lesbian” identity on the sidewalk, destabilizes heterosexism and the asexual understanding of the space by transgressing the stereotype of the “butch lesbian” identity through her ultra-feminine dress code, hairstyle and makeup, and restructures the production of the heterosexual space to also be homosexual through active displays of affection, conversations, gestures or playing music (Duncan, 1996).*



Figure 18: Portia de Rossi  
Ranee St. Nicholas, 2010

Thus, displaying and articulating your identity is to resist and challenge its use as a reason to exclude or illegitimize your presence, the expectation to assimilate or “be normal”, the definition of “normal” itself, and the assumption that those who are different should not be in public life.

Collective disruptive or deconstructive spatial practices are practices of constructing and displaying collective identities, and political dissent, which need “organized action in the public sphere and access to various resources” (Duncan, 1996, p. 138); they include parades, marches, speeches, interventions, demonstrations, etc. Although their ability to effect change can be limited by restrictive regulations and intolerance, they are powerful because of the lingering emotions they produce (Stevens, 2007; Loukaitou-Sideris and Ehrenfeucht, 2011). These practices destabilize the naturalized assumption of your sidewalk and the intersectional systems of discrimination that act on it, by bringing into question the construction of normality by “transgressing what is appropriate or accepted as normative geographies” (Cresswell, 1996); they restructure its production, by reshaping its nature into one of democracy, or by creating spaces of

difference and dissent inside dominant-produced places; and they re-appropriate the sidewalk by disrupting the everyday flow to communicate an alternative or dissenting message and engaging with people who stop, watch or participate.

*For example, Reclaim the Streets is a resistance movement that takes back control of public space by “blocking the road for a party to challenge the dominance of cars in public space and for a moment illuminate alternative possibilities” (Sydney RTS, 2016). It destabilizes the naturalized assumptions of the sidewalk, and appropriates and restructures its production of the space by transgressing the definition of acceptable identity performance and behavior with its disruptive parties and events, which create a temporary space of political dissent and social difference that is accessible and safe (of crime and discrimination) for everyone, in a space meant for mobility.*



Figure 19: Brussels Residents Picnic to Reclaim the Streets  
Laurent Vermeersch, 2012

Hence, these practices challenge naturalized opinions and beliefs of large groups, directly oppose legal and cultural measures, actively resist the marginalization of groups, and force the public to “implement their democratic values”.

Economic and survival activities include street vending, panhandling, street sex work, etc. As some consider them disorderly obstructions but those who execute consider them liberating necessities, they reflect contrasting notions about the function of the space (Valentine, 2001; Loukaitou-Sid-

eris and Ehrenfeucht, 2011; Flores, 2019). They destabilize the naturalized assumption of your sidewalk, by allowing those with marginalized identities to enter sidewalks defined not for them and achieve economic survival, and they restructure and re-appropriate the production of your sidewalk by executing economic and survival actions that inserts economic, cultural and domestic connotations to the space, which also contests the separation of private and public.

*For example, in Union Street – Lima – when informal vendors took over the pedestrian street, they destabilized the non-racial and classless understanding of the space by inhabiting spaces that define them as illegal, and appropriated and restructured its production of the space by inserting economic and diverse cultural meaning through selling their wares (PERÚ21, 2013). So, they challenge being labeled as illegal or deviant, resist having their identities dismissed or equated with criminality because of their differences and challenge economic limits placed on them.*

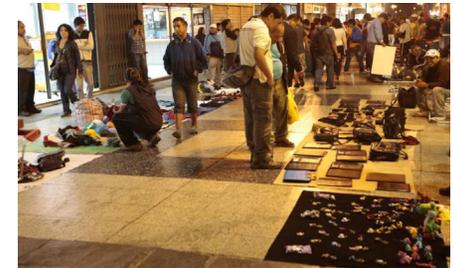


Figure 20: Street Vendors on Union Street  
Redacción Perú21, 2013

Thus, negotiating you fragmented sidewalk enables you to attempt to reshape it and its power dynamics, which will then create a response from the governing entities or Luis, that will enable further negotiating.

Therefore, one could argue that the objects of your sidewalk are moments of conflict determine the flexibility your sidewalk. They are opportunities that enable you to negotiate spatial, political and social definitions and boundaries, which elicit a response from the governing entities and Luis, with the aim to reshape your sidewalk and its power-dynamics. You can measure its flexibility by the average flexibility of all your moments of conflict.<sup>35</sup>

$$\text{flexibility} = \widehat{F}_j = \frac{\sum_{0,\infty} F.C_{i,j}}{N}$$

n = number of f.c.<sub>ij</sub>

f.c.<sub>ij</sub> = flexibility of moments of conflict

% of flexibility of your sidewalk =

$$\% \widehat{F}_j = \frac{\sum_{0,\infty} F.C_{i,j} * 100}{N * 10} = \%$$

n = number of f.c.<sub>ij</sub>

f.c.<sub>ij</sub> = flexibility of moments of conflict

Considering the next variables according to an index.<sup>36</sup>

To measure a moment of conflict you need to define the 3D matrix  $O_{Y_{i,j}}^{Z_i}$ , as the matrix containing the weighted conflicts by the level of questioning or disagreement with the object.

$$O_{Y_{i,j}}^{Z_i} = X_{i,j} = \begin{bmatrix} X_{1,1} \\ X_{2,1} \\ X_{3,1} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,2} \\ X_{2,2} \\ X_{3,2} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,3} \\ X_{2,3} \\ X_{3,3} \\ \dots \end{bmatrix} \begin{bmatrix} \dots \\ \dots \\ \dots \\ \dots \end{bmatrix}$$

<sup>35</sup> Formulas developed with the help of M.Sc. Physics Rafaella Chiarella Hoyle-Cox

<sup>36</sup> Index varies according to specific location and context.

Z<sub>j</sub> is the source of the conflict. Being j the source: Z<sub>1</sub>= social power dynamics Z<sub>2</sub>= laws, Z<sub>3</sub>= design, etc.

Y<sub>ij</sub> is the specific law, norm, belief, etc. within each source category. For example: Y<sub>3,1</sub>= parking zones regulations, Y<sub>1,2</sub>= sexual harassment fines, Y<sub>1,4</sub>= racism.

X<sub>ij</sub> = a column with the values of disagreement or questioning (from 0 to 10) of the object. Being 0 total agreement and 10 total disagreements.

By using this organization, we know that if  $O_{Y_{3,1}}^{Z_3} = 3$  we know that it j=1 is a law, and i=3 is parking zones regulations and the person is in medium disagreement with it.

To measure the Flexibility of your sidewalk, you need to define the 3D matrix  $F.C_{Y_{i,j}}^{Z_i}$  as the matrix containing the flexibility of the moments of conflict.

$$F.C_{Y_{i,j}}^{Z_i} = X_{i,j} / Y_{i,j} =$$

$$\begin{bmatrix} X_{1,1}/Y_{1,1} \\ X_{2,1}/Y_{2,1} \\ X_{3,1}/Y_{3,1} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,2}/Y_{1,2} \\ X_{2,2}/Y_{2,2} \\ X_{3,2}/Y_{3,2} \\ \dots \end{bmatrix} \begin{bmatrix} X_{1,3}/Y_{1,3} \\ X_{2,3}/Y_{2,3} \\ X_{3,3}/Y_{3,3} \\ \dots \end{bmatrix} \begin{bmatrix} \dots \\ \dots \\ \dots \\ \dots \end{bmatrix}$$

Z<sub>j</sub> is the source of the object (conflict). Being j the source: regulations, legal enforcement, cultural, social or religious norms, social power dynamics etc.

Y<sub>ij</sub> is the value of response of "society" to the action of change. Values going from 0 to 10, being 0 no response at all and 10 complete change for a solution.

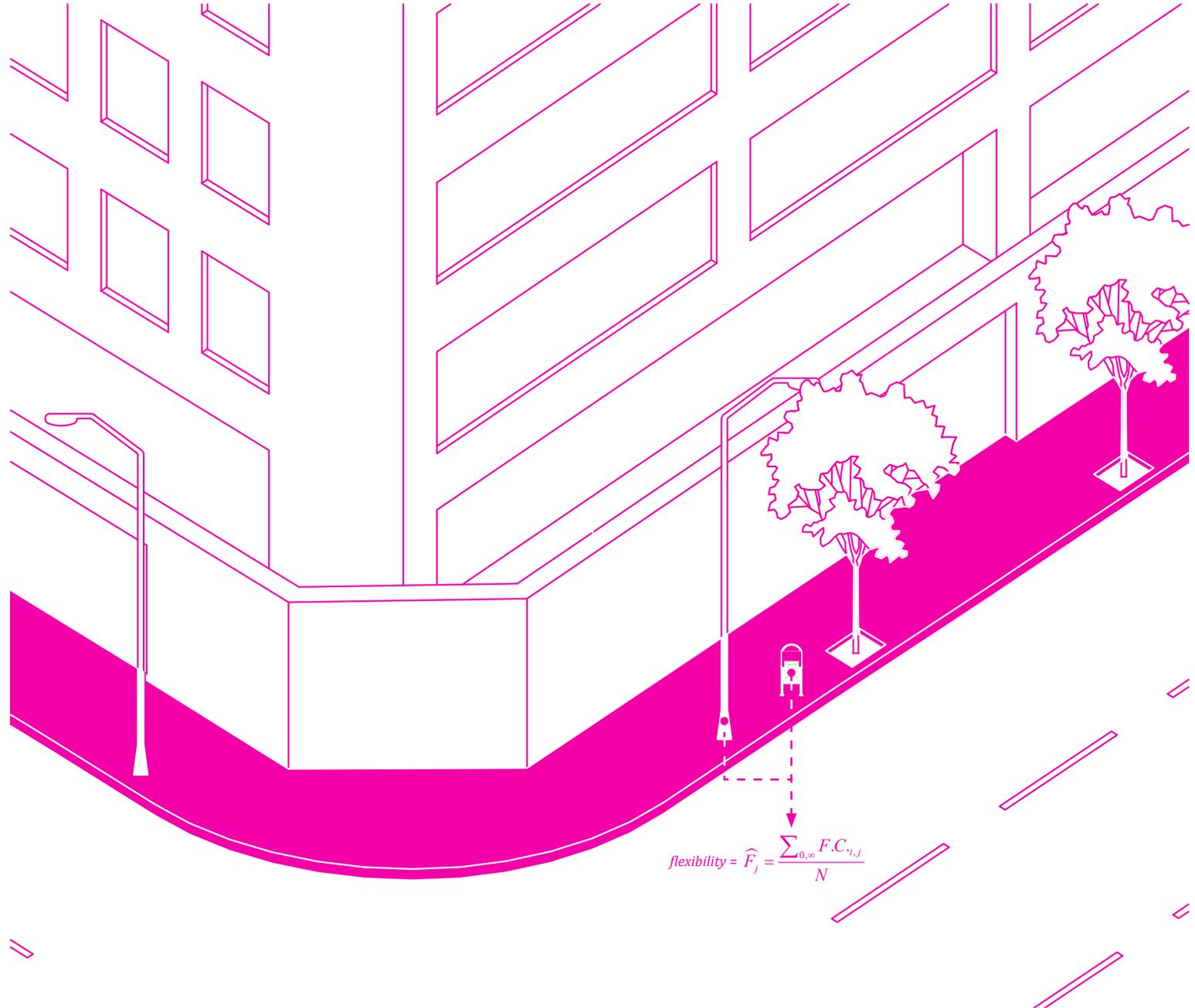
X<sub>ij</sub> is the level of the action of change for that specific source (negotiation). Values going from 0 to 10, being 0 no action, and 10 maximum effort of change.

By using this organization, if  $F.C_{Y_{1,4}}^{Z_4} = 0$  we know that j=4 is a social norm, and i=1 is action against racism. Therefore, the flexibility

is 0, meaning that no matter the amount of action the response will be inexistent.

If  $F.C_{v_i^4}^Z = 1$  we know the level of response is equal to that of the level of action for change.

We will consider  $0/X$  cases where there is no action as indeterminate because no response can be measured.



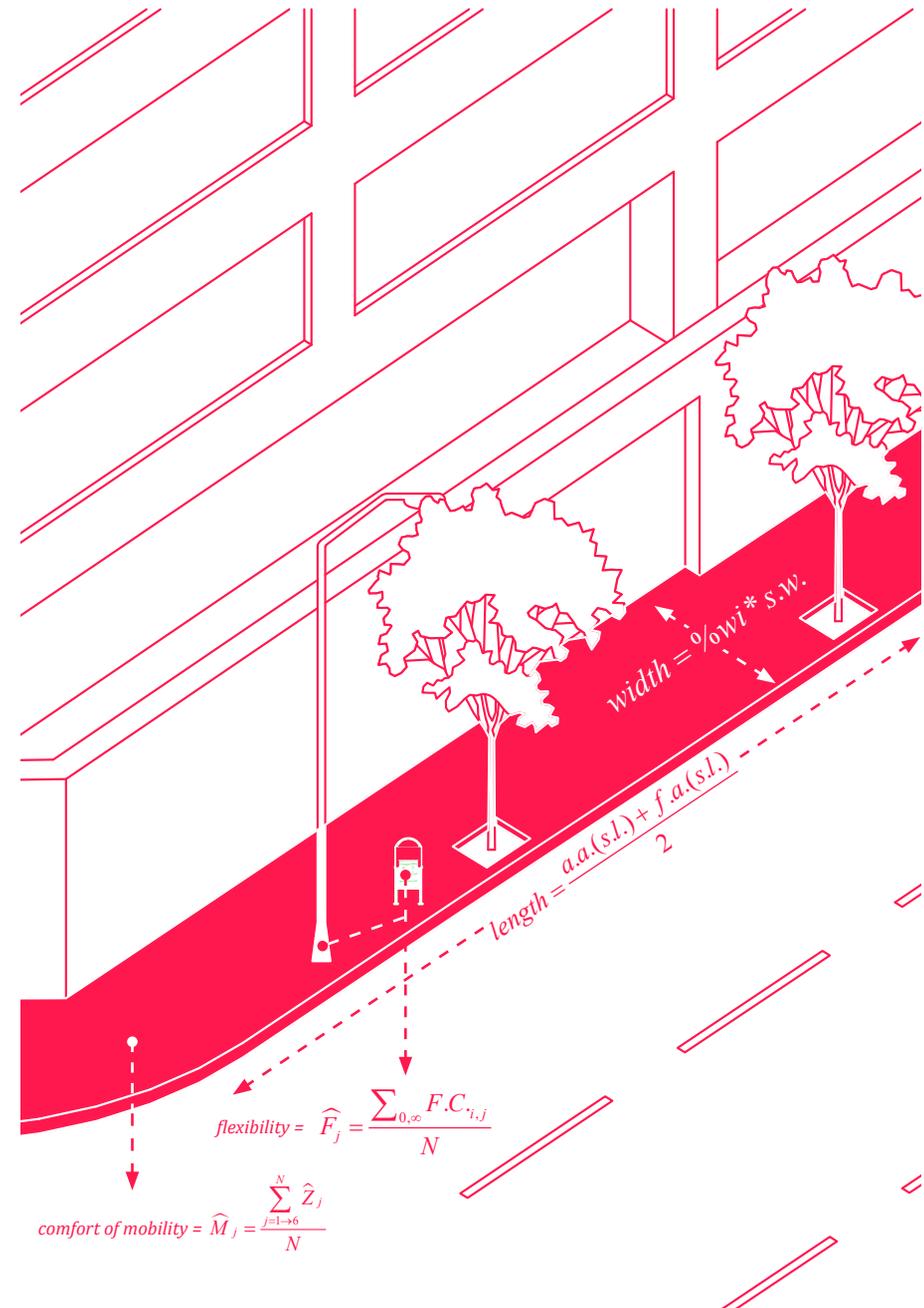
## 7 CONCLUSION

The ability to measure the length of control, width of cultural normativity, materiality of fear and objects of conflict of your sidewalk allows you to understand its spatial DNA. Not only as a physical space, but as a tool of the political, cultural, social and economic structures within which you live, and as a transient space of fear, and opportunity. With it, you can draw a fuller landscape of your sidewalk that is not represented in the sharp lines of the maps. One where your experiences and emotions cannot be denied, as they are translated into modern man's favorite tool, that are quantifiable numeric formulas.

These formulas refuse the notion of mathematics as the very objective, affective science and instead focus on measuring the non-tangible, immeasurable and subjective concepts are explored in the previous chapters. These are valuable, because as the product of your interactions with the physical sidewalk and the people who inhabit it, they are what actually constructs your space. These measurements give you agency in how you inhabit your sidewalk, as in order to use them you need to think critically of the space and your functions in it. Furthermore, as the indexes that feed the formulas change depending on location and context, they enable you to measure your sidewalk no matter where you are.

Once you understand your sidewalk, in other words understand the dynamics of your sidewalk, you gain power. Power to endeavor to improve the reality of your inhabitation of the space in different scales, and to negotiate your role in the larger context of society. That is, you can make your sidewalk larger and wider towards you and others, more comfortable without being oppressive and more flexible towards change.

How, then, can these methods of measuring your sidewalk be applied? And how can your sidewalk be positively altered to improve your inhabitation of it? How can you intelligibly negotiate public spaces as sidewalks?



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$$\Sigma \frac{a.a.(sl.) + f.a.(sl.)}{2} + \%wi * s.w. + \frac{\sum_{j=1 \rightarrow 6}^N \hat{Z}_j}{N} + \frac{\sum_{0, \infty} F.C_{i,j}}{N}$$

= *MATHEMATICS<sup>OF</sup> RESISTANCE*



**Beatriz Peró Giannini**

Graduation Project Chair  
**Alex Suárez**

Design Supervision  
**Ephraim Joris**

Theory & Design  
**Fusun Türetken**

Theory Supervision  
**Max Bruinsma**

**Mathematics of Resistance**

Master Program  
**Master Interior Architecture: Research +  
Design**

Educational Institution  
**Piet Zwart Institute  
Willem de Kooning Academie  
Hogeschool Rotterdam**

Contact  
**beatriz.pero@gmail.com**

Rotterdam, The Netherlands  
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Maria's Sidewalk is a creative nonfictional narrative following Maria as she walks for fifteen minutes through 1.22 km of the sidewalks of Miraflores, Lima, Peru in December of 2018.

Maria is not one person, she is the sum of eight women who represent the multiple identities of what I term the "other-woman", that is women who don't fit any western social construct of what a woman is (see Book 01).

The eight women who represent Maria agreed to participate in interviews regarding their life-long experiences inhabiting the sidewalk of the district of Miraflores in the city of Lima and to be followed as they walked for periods of 15 minutes.

All of Maria's thoughts and the dialogues derive from opinions and feelings expressed by them during the interviews, that were held in 2018, and edited and formatted for this narrative in 2019.

# 1 MARIA'S SIDEWALK

'El cielo está tan gris como la panza de un burro' (The sky is as gray as a donkey's belly), María thinks as she glances into the city from her window.

'Lima la gris', 'Lima la hermosa', 'Lima, Ciudad de Los Reyes', (Lima the gray, Lima the beautiful, Lima the City of Kings) is her city, her difficult city that loves its limeñas but is still figuring out how to accept them into its streets and sidewalks. And Miraflores, 'La Ciudad Heroica' (the heroic city) her neighborhood, where she has lived in for so many years.

# 2 LIMA & MIRAFLORES

## Lima

Once the capital of the Spanish Viceroyalty of Peru, from 1542 to 1821, Lima is a city of "contradictions and contradictory juxtapositions" (Lambright and Guerrero, 2007), ruled by colonial ideologies that it desperately strives to break. A complex hegemonic geography of 2672km<sup>2</sup>, Lima exists in Peruvian's collective imaginary simultaneously as a city of progress, opportunity and liberation, a place where anyone willing to work hard and take risks can succeed; and also a space of discrimination, oppression and rigid social, racial, economic and cultural borders. Lima is a city of many faces, its social reality tells the complex story of diverse people who still struggle to live with each other's' differences. For contemporary limeñas, who are 51.2% of the 9.5 million citizens (Provincia de Lima, Compendio Estadístico, 2017), it is a challenging place, where their mere existence is an act of resistance.

Country: Peru  
 Region: Lima  
 Province: Lima  
 Founded: 200AC as Lima Culture / 900AC as Ichma Culture / 18 January 1535 as the 'City of Kings of Lima'  
 Area: 2672.3 km<sup>2</sup>  
 Elevation: 0 - 1550 m  
 Population: 9 485 405  
 Density: 11000 /km<sup>2</sup>  
 Population by gender: 51.2% women, 48.8% men  
 Population by age: 12.7% elderly (65+ years old), 35% young (0-17 years old), 52.3% adult (18-64 years old)  
 Population by ethnicity: 67.7% mestizo, 16.4% quechua, 7.1% white, 2.8% afro-peruvian, 0.6% aimara, 0.3% other-indigenous tribe, 0.4% asian-peruvian, 1.4% other, 3.3% don't know  
 Population by disability: 11.1% has a disability, 88.9% doesn't have a disability  
 Population (15 + years old) by fear/perception of un-safety: 88.2% feels afraid/vulnerable, 11.8% feels not-afraid/safe

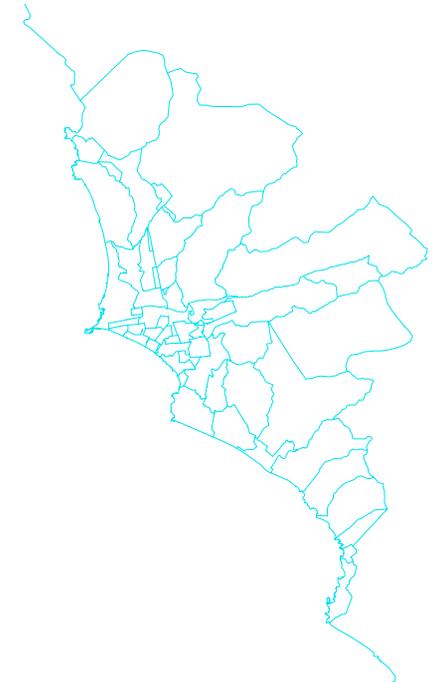




Figure 02: Lima la Gris / Lima the Grey  
Sebastian Eslava Benavides, 2016



Figure 03: Lima la Hermosa / Lima the beautiful  
Sebastian Eslava Benavides, 2016

## Miraflores

Home of Lima's upper-class and their mansions, the self-proclaimed "heart of the city" changed around the 1960's as the elite moved out to new areas of the city and the new, more diverse middle-class moved in. The current Miraflores is 9.62km<sup>2</sup> of the diverse cultural, social and economic realities of people who chose to coexist and their struggle to do so.

### City: Lima

Founded: 200AC as Lima Culture / 16th century as San Miguel de Miraflores / 02 January 1857 as Miraflores District

Area: 9.62 km<sup>2</sup>

Elevation: 0 - 79 m

Population: 99337

Density: 10000 /km

Population by gender: 55.5% women, 44.5% men

Population by age: 21% elderly (65+ years old), 17% young (0-17 years old), 62% adult (18-64 years old)

Population by ethnicity: 60.8% mestizo, 3.2% quechua, 27.6% white, 1.5% afro-peruvian, 0.2% aimara, 0.3% other-indigenous tribe, 4.2% other, 2.2% don't know

Population by disability: 11.0% has a disability, 89.0% doesn't have a disability

Population (15 + years old) by fear/perception of un-safety: 89% feels afraid/vulnerable, 11% feels not-afraid/safe

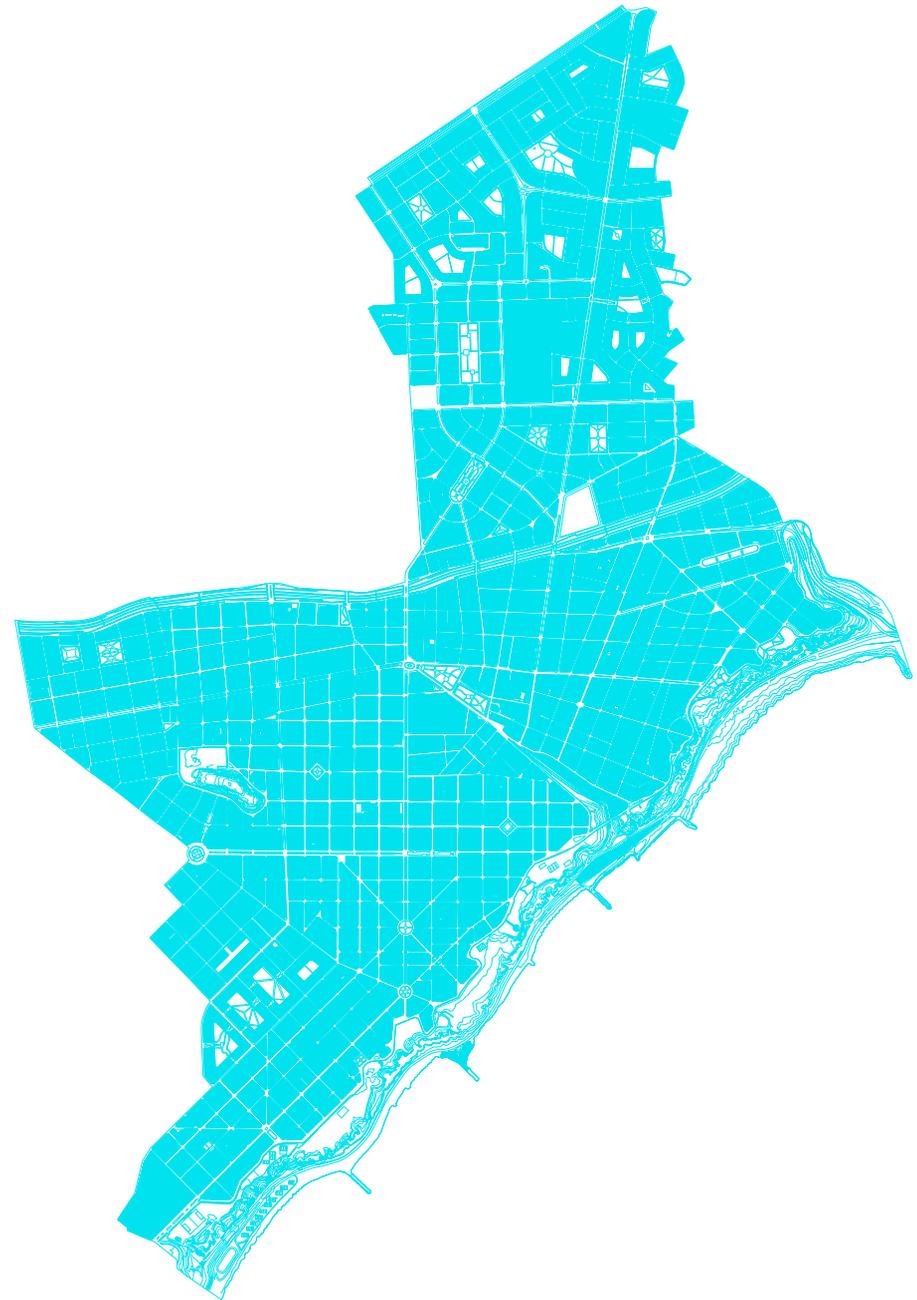
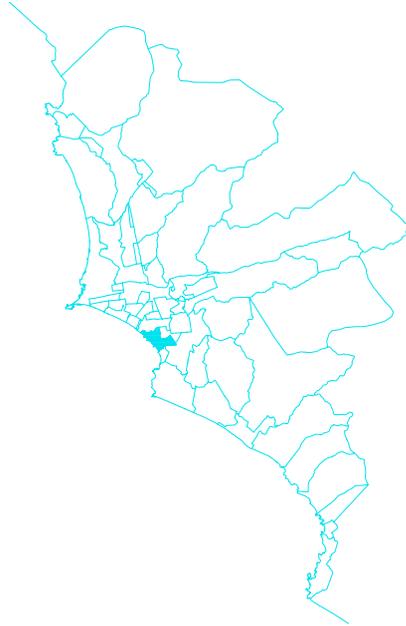
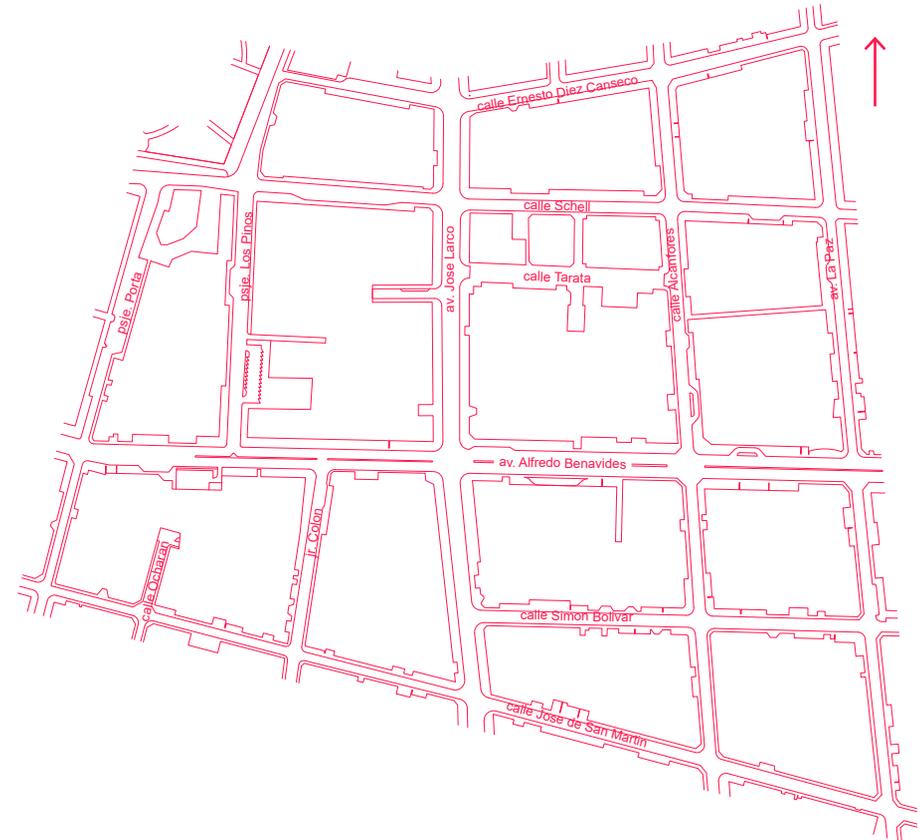




Figure 04: Miraflores/ Parque Kennedy  
Sebastian Eslava Benavides, 2016

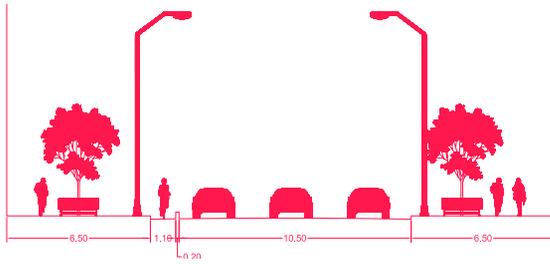
Maria stops in front of the door, and checks herself one last time before entering into the flow of the district. 'Did I forget anything? Are my clothes OK? Is the cane enough or should I take the walker? Is my shirt too revealing? Did I pack the diaper bag properly? Are my pills in my purse? Are these jeans too tight? Do I look feminine enough? When she is done, Maria steps into the sidewalk.

## WHERE DOES MARIA WALK?



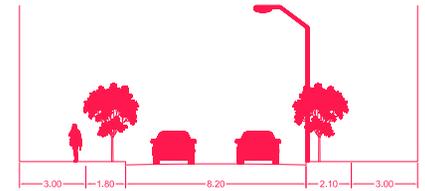
A small area of the district of Miraflores was chosen because of its diversity of environments and of street typologies. It is a micro representation of the district.

Commercial - Arterial Streets

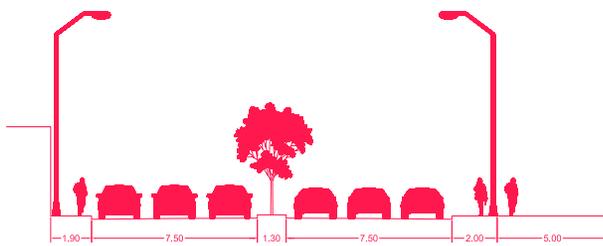


av. Jose Larco

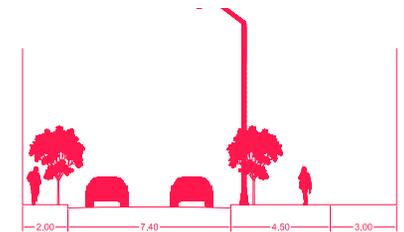
Commercial - Local Streets



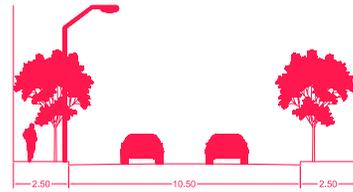
calle Ernesto Diez Canseco



av. Alfredo Benavides

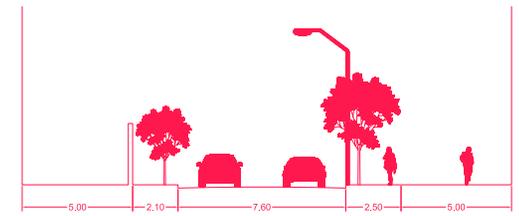


calle Schell

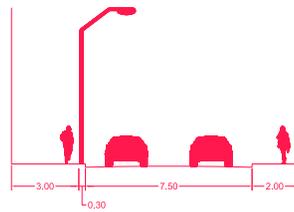


pasaje Los Pinos

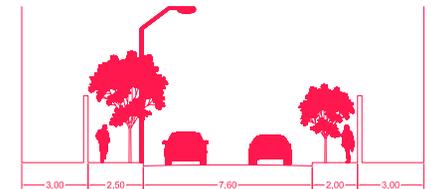
## Residential - Colector Streets



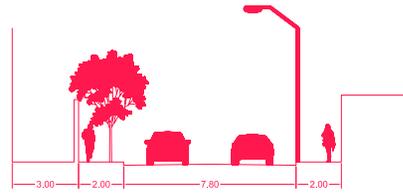
av. La Paz



calle Porta



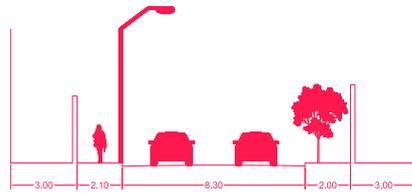
calle Alcanfores



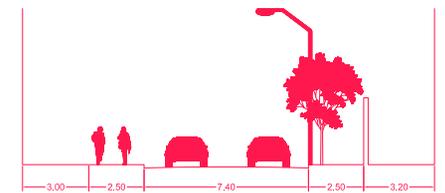
calle Colón



calle Ocharán

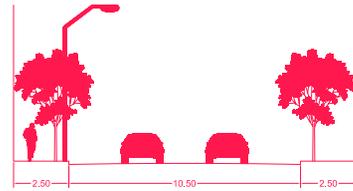


calle Simon Bolivar

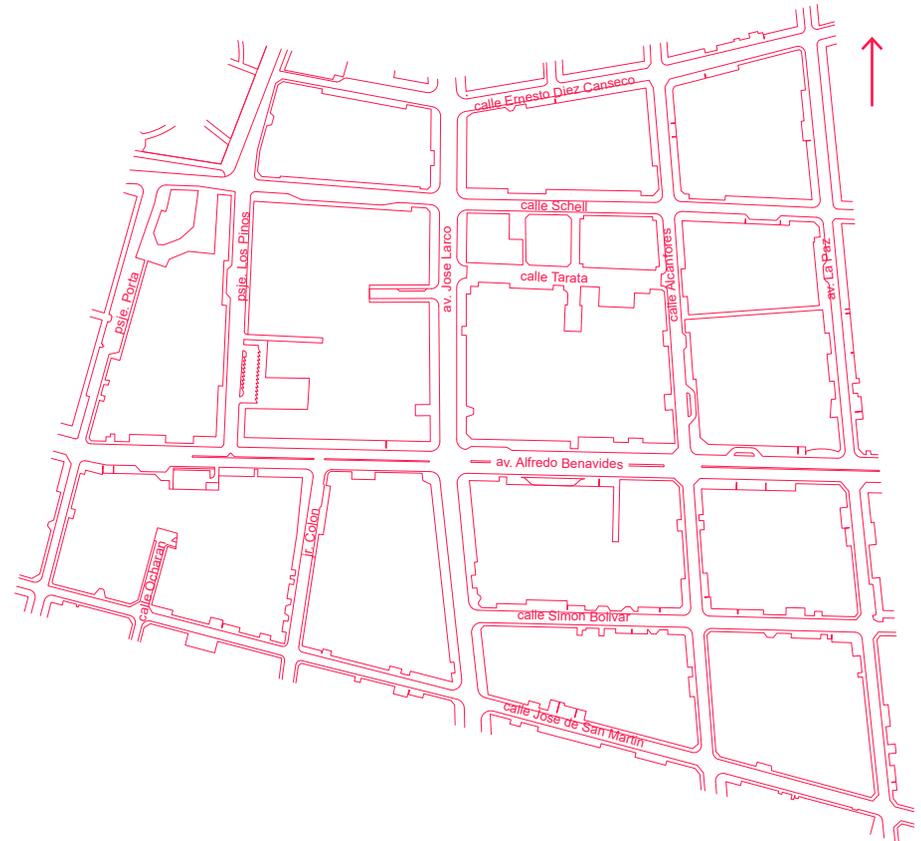


calle José de San Martín

Commercial - Pedestrian Streets



calle Tarata



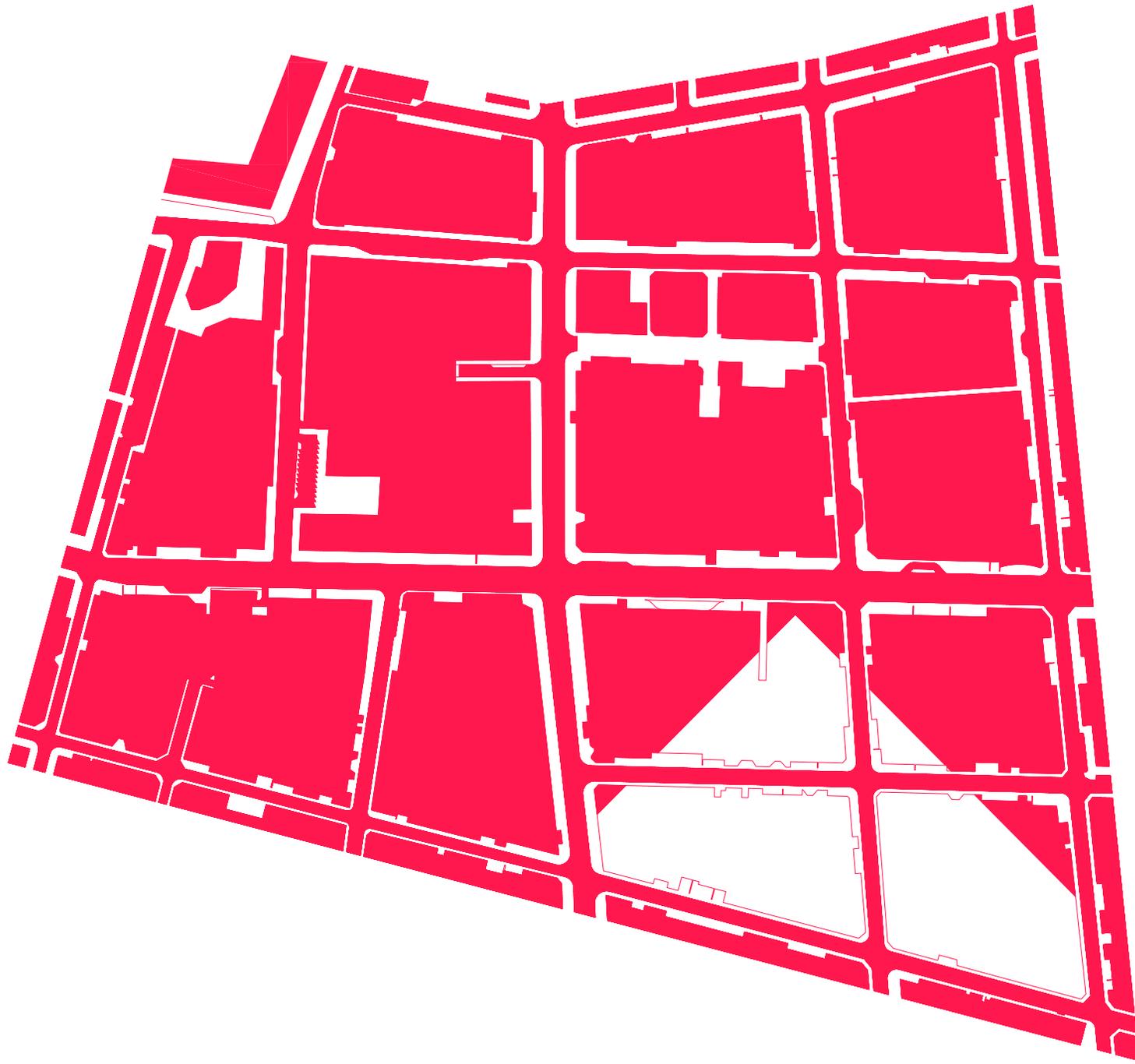


Is Urban Public Space, Public?

How the city is represented in maps shows what is theoretically urban public space and private space. Of the urban public space represented, how much is actually accesible and free for Maria to inhabit?

.254 km<sup>2</sup> of Miraflores

- 63.1% built, private space
- 35.9% urban public space



Urban Public Space

Removing the built, inaccessible, and gated spaces and roads shows the actual urban public space that is physically available to Maria. The result makes-up only 17% of the total area, most of which is the sidewalks. What, then, happens in it? Is it all free, unobstructed public space?

.254 km<sup>2</sup> of Miraflores

- 83.1% built, private space
- 16.9% urban public space

The street appears to be perfectly ordinary, a space Luis would walk through without a second glance, but Maria stops and looks around, she needs to feel safe. One-and-a-half meters of concrete pavement separates her from the vehicles racing each other on the road, it's just wide enough for two people to walk on it simultaneously. The sidewalk is a flowing river of standardized length, approximately one hundred and twenty-five meters adorned by a sequence of elements, street lights every thirty meters, trashcans every fifty meters, street signs in every corner, CCTV attached to traffic lights in the main avenue and the familiar 'wachiman' (security guard) across the street in front of the mandatory 'fachadas de retiro' (perimeter front-walls), behind which the buildings are protected from her eyes. She sees people on both sides of the street walk by in practiced civility, and so she joins the rhythm that dominates the sidewalk.

She walks.

## 3 Obstacles

### Muros de Retiro

Retiro is the distance, of two to five meters, between the front property limit and the building boundary, in parallel to the street. It is part of the free area that is required in the urban and building parameters in Lima. Created by the supreme decree N° 039-70-VI in 1970, the retiro was intended as a transitional space between the public space of the street and private buildings, which could be designed as a group of gardens, pathways or recreational space. Yet, supreme decree N° 011-2006-VIVIENDA of 2006 changed the retiro to be considered part of the private space, allowing muros de retiro (front walls) to be built on the limit between the property and the sidewalk, which effectively separated the spaces.

Where a retiro is mandated, most property owners do build solid or semi-permeable muros de retiro to both make the retiros private and ensure the safety of their property. However, their perceived safety comes at the expense of physically and visually removing themselves from the street, which increases Maria's feelings of discomfort and unsafety while on her sidewalk.



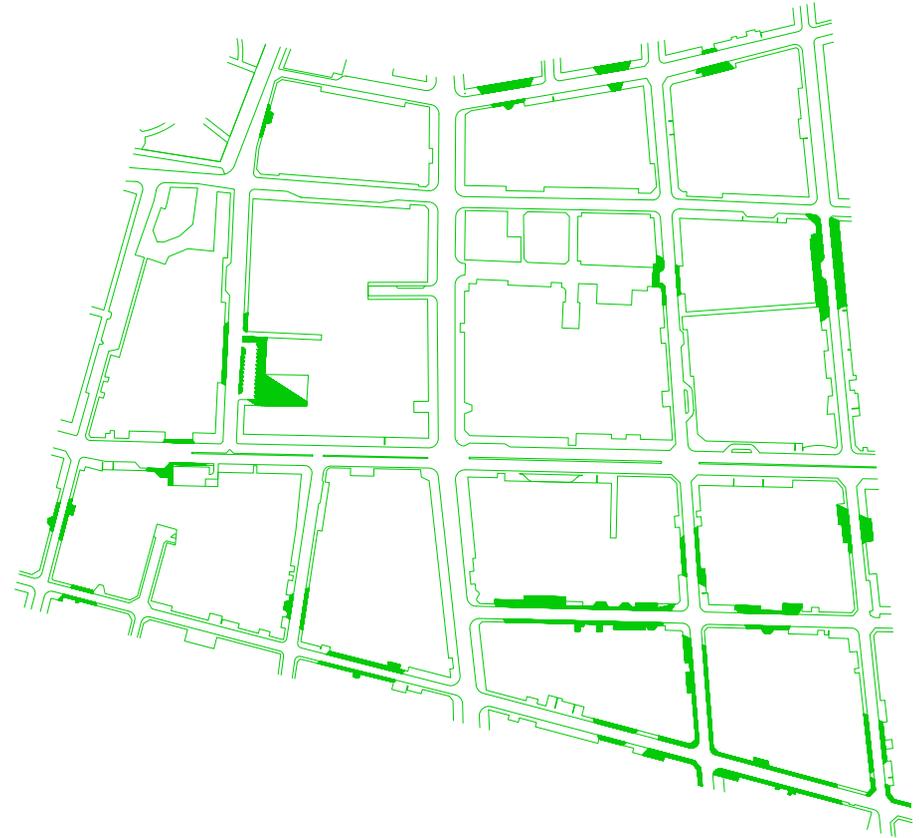
Figure 05: Muro de Retiro La Paz Avenue  
Beatriz Peró Giannini, 2019



Figure 06: Muro de Retiro San Martín Street  
Beatriz Peró Gianni, 2019



Figure 07: Muro de Retiro Alcanfores Street  
Google Maps, 2017



Muros de Retiro in the area  
Range of impact: 60° of the human visual field

### What is its effect on Maria's sidewalk?

Muros de retiro increase Maria's discomfort or fear, so together with other elements they shape the materiality of her sidewalk by affecting her comfort of mobility. This can be measured with the formula of materiality for fear (see Book 01).

In this case, Maria's comfort of movement affected by the muros de retiro is  $M_{Y_{1,4}}^{Z_4} = 4$

$Z_j$  is the dimension of source of the discomfort and fear from  $Z_1$  to  $Z_6$ .  $Z_4$  = environmental conditions,

$Y_{ij}$  is the specific element within each source category.  $Y_{1,4}$  = muros de retiro

$X_{ij}$  = a column with the values of the comfort the element brings to the movement of Maria (from 0 to 10).  $X_{1,4} = 4$

Then, you measure other elements that affect Maria's fear or discomfort on her sidewalk, which are the narrowness of her sidewalk  $M_{Y_{1,5}}^{Z_5} = 6$  and the looks of the wachiman across the street  $M_{Y_{1,3}}^{Z_3} = 3$ .

\* Note: The values for the feelings on  $X_{ij}$  were defined by Maria, as each person needs to use the formulas critically to measure their sidewalk.

Then, as there is only one incident per source, you already know the value generated by each ( $\hat{Z}_j$ ) for the total comfort of mobility from the source  $j$  for Maria. So you can calculate her full comfort of mobility on her sidewalk ( $\hat{M}_j$ ) on a scale up to 10.

$$\hat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \hat{Z}_j}{N} = \frac{4+6+3}{3} = 4.3$$

$Z_1, Z_2$  and  $Z_6$  don't apply in this case

And the percentage of her sidewalk not destroyed by fear,

$$\% \hat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \hat{Z}_j}{N} * \frac{100}{10} = \frac{4+6+3}{3} * \frac{100}{10} = 43.3\%$$

She walks to the corner and she waits for the traffic light to change under a sign that reads "Loitering between 8:00am – 8:00pm is forbidden". She rolls her eyes at it and she waits. Some people also wait around her, while others venture forward into the current of buses, taxis and cars. The pedestrian traffic light turns green. Maria begins to cross the street, but she is barely three feet in, when she hears a loud \*HOOOONK\*.

Her feet stop.

Her breath stops.

Her heart stops.

A taxi flies past where she would have been, the driver honking and rudely gesturing at her and then stopping in front of a passenger not even twenty meters further down the street. Maria gestures back, angry, she wants to scream but she doesn't. She wants to kick the taxi, but she doesn't. She keeps walking.

'These people don't know how to behave! Every year they get worse', she thinks angrily. 'Gracias a Dios it didn't hit me. I should have been paying attention. So foolish, I am too old to be so foolish.' She is a little embarrassed, people are looking at her, maybe judging her, maybe concerned for her.

She crosses the remaining ten meters and reaches the other side. The CCTV camera watched over the incident uninterested – they are placed along the main avenues of Miraflores, labeled “crime-safe spaces” – a municipal security office beneath it. Maria frowns at them, the blind pair.

‘Señor, didn’t you see what happened?’ she asks, aggravated.

He blinks at her slowly, once, twice.

‘What is that... that thing for if everyone can do whatever they want?’ She points at the camera, annoyed.

‘Señora, nothing happened.’ His tone is conciliatory, dismissive.

‘What? That taxi almost ran me over. He ran past that red light. Dios!’ She fights to keep her voice calm; she doesn’t want to make a scene, not in the middle of the street.

But he didn’t. ‘Anyways, what do you want me to do?’ he remarks. ‘I can’t give him a ticket, I am not a policeman. Maybe the camera caught the plate numbers’ he smiles and shrugs.

Maria shakes her head incredulously and smiles at him. ‘Señor, you were of no help whatsoever’, she tells him. She moves on, as his eyes follow her down the street.

### CCTV & Municipal Police Officers

Mistrust in CCTV and municipal police-officers is widespread, exemplified by INEI’s report that 89% of the district’s population feel insecure within the district, by news of municipal police officers abusing their power or being ineffective, and CCTV’s purpose in preventing crime is questioned. As municipal police-officers are not police-officers nor private security their role as law enforcement is not clear and their functions and power to regulate and enforce sanctions depends on the municipality. Also, CCTV control rooms often are sites of discrimination that define who belongs when and where and target all other types of people as needing to be controlled and disciplined.

Furthermore, the law doesn’t prosecute crimes lower than the minimum living wage of 930.00 soles (approximately 232 euros). In such cases the perpetrator receives a sentence of maximum community services according to the Penal Code’s article 444 of minor theft and damage, even if CCTV records them.



Figure 08: CCTV in Miraflores  
Beatriz Peró Giannini, 2019



Figure 09: Miraflores' Municipal Police Officers Municipalidad de Miraflores, 2014

La Opinión, Opinión, Opinión, Política, Economía, Deportes, Mundo, Deportes, Deportes, Deportes

SEGURIDAD

### Máxima vigilancia en Gamarra: así funcionan las cámaras con reconocimiento facial

El alcalde del distrito, George Foresti, inauguró un centro de monitoreo y control que cuenta, solo dentro del damero de Gamarra, con 41 cámaras de seguridad

**INFORMACIÓN**

**Las cámaras que vigilan Gamarra**

- Cámaras IP de 2MP PTZ
- Nueve cuentan con sistema de reconocimiento facial
- Alcance de 90 metros
- Funcionan de día y de noche
- Rotación de 360 grados
- Zoom óptico de 30X con infrarrojo
- Algunas están equipadas con alarmas comunitarias, pulsadores y puntos de periferoneo.
- Interconectadas a centro de monitoreo y control

Figure 10: El Comercio News Article El Comercio, 2019

La República

Compartir en Facebook Compartir en Twitter

SOCIEDAD

### Miraflores: denuncian a fiscalizadores por agredir a joven vendedor de panes [VIDEO]

En Facebook se difundió un video donde se muestra al joven con una herida en la rodilla y con la mochila rota. Testigos aseguran que hubo abuso en la intervención.

Foto: Captura de pantalla

Esta mañana un joven vendedor ambulante denunció haber sido víctima de agresión por parte de agentes de Fiscalización de la Municipalidad de Miraflores. El joven vendedor de panes identificado como Juan Cruz Morales terminó con una herida en la pierna, la

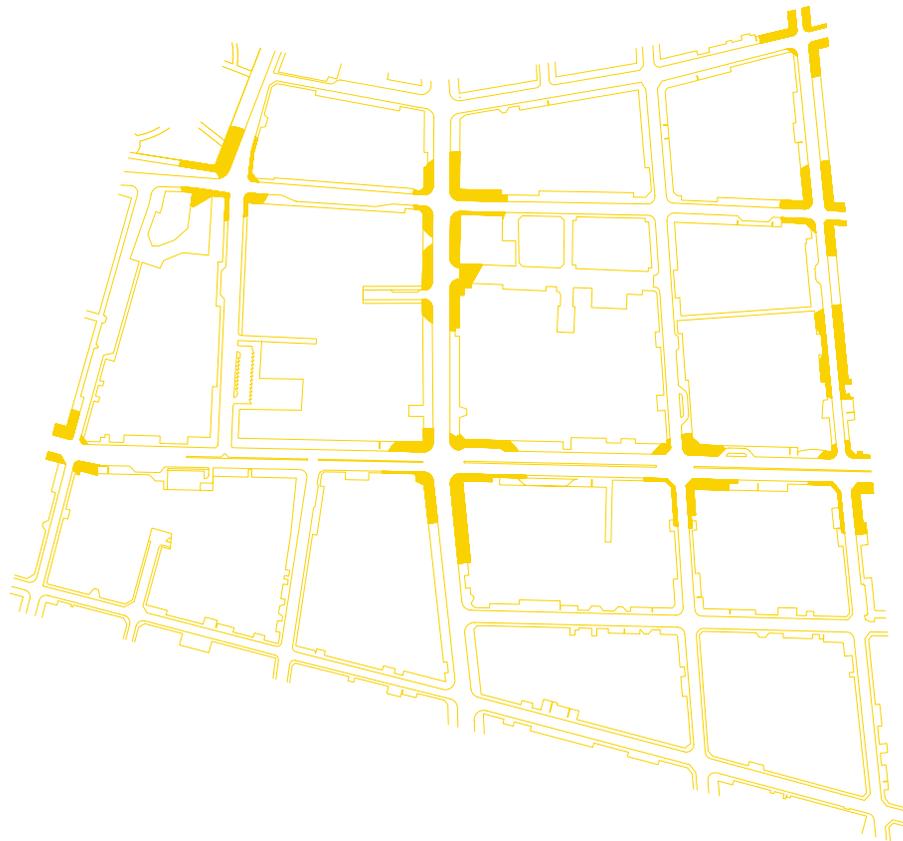
Figure 11: La República News Article La República, 2018

LAMULA.PE

El plan de Seguridad Ciudadana de Jorge Muñoz tendría una pata coja, la de la violencia de género

Accidentes que en febrero pasado, un hombre de Miraflores se salvó el pedaleo de gravel de una mujer que intentaban impedir que un ciudadano tirado en la vía se fuera a un hotel

Figure 12: La Mula News Article Leonor Pérez-Durand, La Mula, 2018



CCTV & Municipal Police Officers in the area  
 CCTV radius of impact: 32 meters  
 Municipal police-officers distance of impact: Walking circuit

### What is their effect on Maria's sidewalk?

Municipal police-officers and CCTV are both elements of the hard arm of command, so they affect the length of her sidewalk by affecting her ability to access it and freedom of action on it. You can measure it with the formula for length of control (see Book 01).

In this case, Maria's ability to access is

$$a.a = \frac{h.a.a. - l.a.a.}{h.a.a.} = \frac{18 - 4}{18} = 77.7\%$$

**h.a.a.**= hypothetical ability to access, here the total being an index of 18 possible elements

**l.a.a.**= limitations to your hypothetical ability to access, which are 04 elements (the municipal police-officer's vague role, lack of enforcement of vehicular laws, cctv recording controlled by the municipality, the municipal police-officer's subtle harassment)

And her freedom of action is

$$f.a = \frac{h.f.a. - l.f.a.}{h.a.a.} = \frac{8 - 1}{10} = 87.5\%$$

**h.f.a.**= hypothetical freedom of action, here the total being an index of 10 possible elements

**l.f.a.**= limitations to your hypothetical freedom of action, which is 01 elements (freedom to cross the street safely)

Thus, you can calculate the length of her sidewalk by using her ability to access it (77.7%) and freedom of action on it (87.5%) in relation to the physical length of her sidewalk.

$$l = \frac{a.a.(s.l.) + f.a.(s.l.)}{2} = \frac{77.7\%(120) + 87.5\%(120)}{2} = 99.12m$$

**s.l.**= physical length of the sidewalk, 120m.

**a.a.**= ability to access

**f.a.**= freedom of action

\* Note: The amount and types of hypothetical actions and access, and their limitations were defined with Maria, as each person needs to use the formulas critically to measure their sidewalk.

She walks towards José Larco Avenue, the sounds of the city envelop her. Voices of people surround her, music plays from shops, bus collectors recite the streets of their routes, car engines purr, and cuculíes chirp in the trees that line the street with their green. Larco Avenue has become a very different place over the last twenty years. High-end shops and cafés line the street, their light and life spills out into the sidewalk, which is wider now. Six-and-a-half meters of pavement have replaced two meters and a parking lane, concrete was replaced by cheerful pedestrian tiles with corner ramps and paths for the visually impaired to follow. "The most inclusive district!", the mayor proudly announced in 2012. The municipality installed new urban furniture, which included smart traffic and pedestrian lights with sound, stylish benches, special recycling containers in every block, solar street lights, digital tourist panels and 370m<sup>2</sup> of trees and greenery. 'It is so beautiful now', Maria thinks. But so many were pushed out of the sidewalk during the renovations. The man on the wheelchair who used to play the flute under her building is gone, the children have been contained to Kennedy Park, car cleaners left when the parking spaces were removed, and jugglers, beggars and informal vendors were invited to leave or be fined; even the volunteers asking for signatures are gone. 'Maybe them leaving was for the best, the sidewalk feels quieter and safer now.'

She walks to the corner of Simon Bolivar Street and José de San Martín Street – named after heroes from the Peruvian war of independence – whose names are displayed in white letters over the green background of street signs. She looks at the signs while she waits to cross another corner, for a break in the rush of cars, as this corner doesn't have a traffic light.

'Are there any streets named after women in Miraflores?' Maria runs through the names of the streets she knows in her mind –it's almost impossible for her to remember any; only 3% of streets in Lima and 2% in Miraflores are named after women-. It is exasperating. 'Why can't I think of any female street names? It can't possibly be that there aren't any important women in history, so why are their names so absent from the streets? This feels wrong.'

## Street Name Signs

How are streets named? Lima has 13,545 streets, of which 3,731 are named after men and only 447 are named after women, as RPP reported.

Through history women did not have the same opportunities as men to hold important political, economic or institutional positions or to explore the arts and sciences on a professional level. Even when women have met the subjective standards of who is an important historic figure, their contributions have often not been commemorated in the names of streets, with the only exception of female religious figures. Furthermore, if you intersect gender with class and race, the non-white or lower-class women represented don't even reach 0.8% of the streets.

This reflects gender inequality and colonial ideologies regarding race and class, it perpetuates the misconception that the urban public space is solely produced by and for men, and it reinforces the notion that women's role in building the history of the country is minimal.

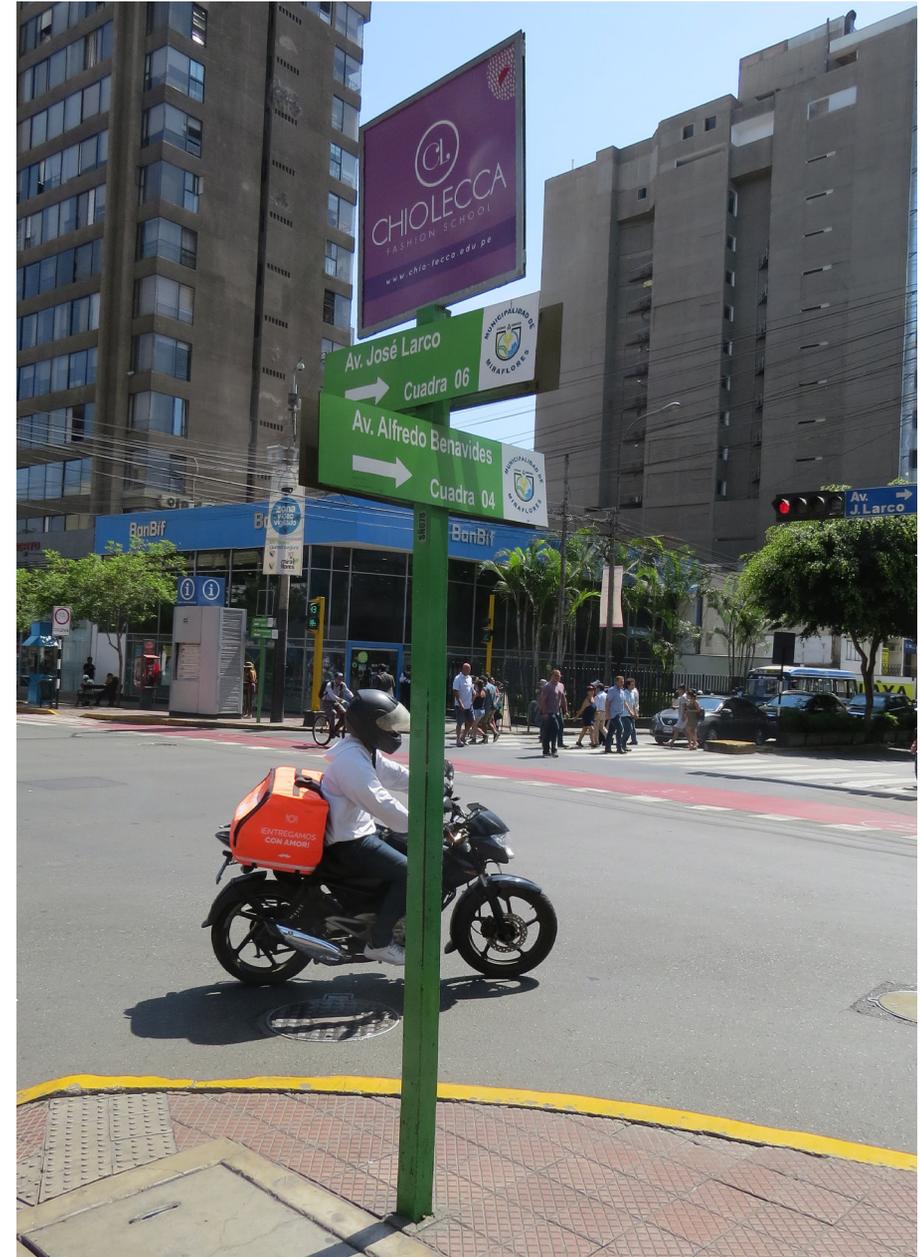
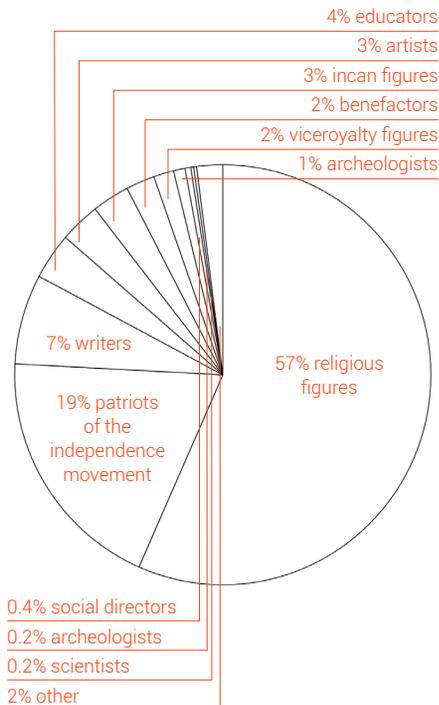
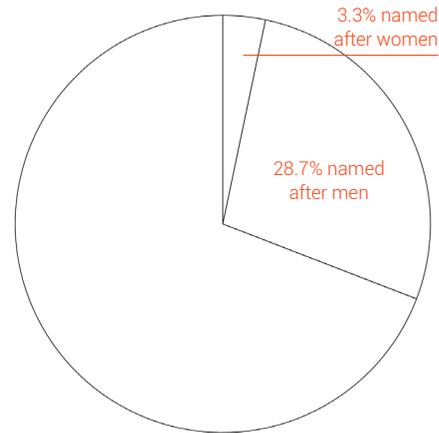
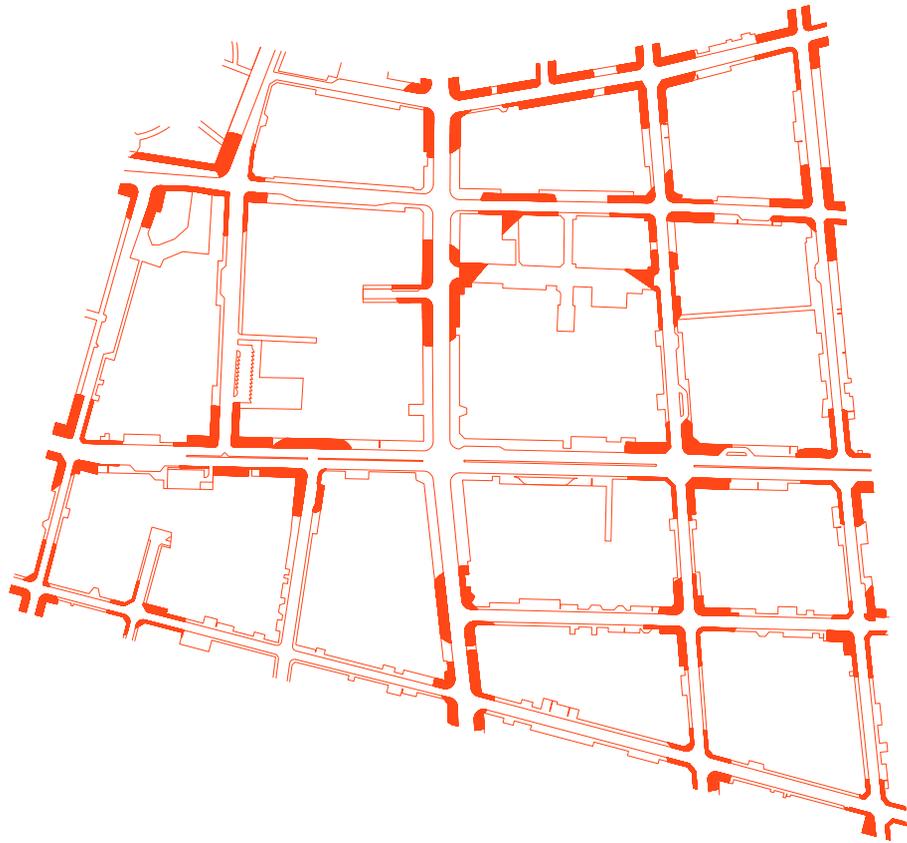


Figure 13: Street Name Sign in Miraflores  
Beatriz Peró Giannini, 2019



Street Name Signs in the area  
Radius of impact: 27 meters, how far a person can read 10cm tall text

She crosses to road, back on the sidewalk the ads and window displays flash, are alluring and she wants to see. Countless models and mannequins display new trends and products, she sees the promise of new versions of herself, better versions. She is younger, thinner, paler, richer, she is happy. Next to them her reflection gazes back at her from the cold glass pane. 'I need to lose some weight', she thinks in front of a display. The more windows she sees, the louder and louder her thoughts grow.

'My skin is too wrinkled. I would give anything to be that young. My shoulders are too broad, I look like a man. I need to wear more sun screen, I am too dark. I am too ugly. My legs are too frail, they will never be that toned. I look tired.'

They drown everything around her as she walks, and walks.

The first chords of lambada cut through the city and startle her. It's a food vendor that has arrived to set up for the day. Maria moves to avoid walking into the kiosk. 'Why does she have to be right in the middle of the sidewalk?' She shakes her head. 'They are everywhere', she thinks, 'blocking my way.' – There are 373 000 street vendors in Lima, 684 of which are in Miraflores - People around her move too, they all part like the sea to avoid the cart. She looks at them as they do, their faces, their clothes. No one looks like the models in the advertisements. Parents holding their children's hands as they walk to keep them close, men walking confidently, their body language comfortable, uniformed maids pushing strollers, straight couples walking arm in arm, women with one hand always on their purses and the elderly sometimes helped by caretakers.

'Normal people', Maria thinks, 'performing their normal lives.'

'But what is normal?', Maria wonders, 'Am I normal? What does being normal even mean? Does it mean that nothing about me can be different? Different from whom? Different how?' Her legs hurt from walking, she needs to rest for moment. There is a bench nearby and she sits down with her crutches next to her. Breaths in and breaths out.

A woman stops next to her and looks her up and down. 'Ay hijita, what happened to you?' she asks, curious.

'I have juvenile spondyloarthritis', Maria answers, friendly.

'What is that?' the woman asks.

'It's an inflammatory disease', Maria replies. 'It means that my joints hurt, especially in my legs. So I need crutches to walk sometimes, or a cane.'

'Oh...ok.' The woman turns around and leaves, uncomfortable or no longer interested.

'Esta señora!' Maria thinks, 'all she wanted was to satiate her morbid curiosity. For me to justify myself, to explain why I am. She can go al carajo!' Maria walks away too.

## Street Advertisements

The publicity you see on advertisements as you walk down the street, either in billboards, posters or window displays, affect how you feel about yourself and how you position yourself and others. In Lima, although advertisements are slowly showing more intersectional diversity, the majority of brands and chains tend to present "inspirational advertisements" or to sexualize the female body. They portray the kind of people that Lima's society believes everyone should aspire to be, although it doesn't represent the majority of the population. "Inspirational" is able-bodied, thin and fit (there is more leniency towards men), young adult (unless the product specifically targets another age group) and more importantly white and middle-class, because these characteristics are closely associated by most with the western world, success, wealth, modernity and privilege, known as "victor's ideology" (Ardito, 2017 as cited in Xicotá, 2014). The advertisements Maria sees communicate to her that she is not good enough yet, but that by buying their merchandise she can be closer to becoming younger, whiter, thinner, etc, or they show her a portrayal of "woman" through the male gaze.

What began as methods of colonial control are now methods to promote and enforce capitalist consumerism (Xicotá, 2014). Thus, a vicious circle is repeated, where advertisements present the discriminatory preferences of the general public to capture their attention, and their production then influences society, promoting and legitimizing those preferences.



Figure 14: Lark Brick Company's Publicity Perú21, 2015



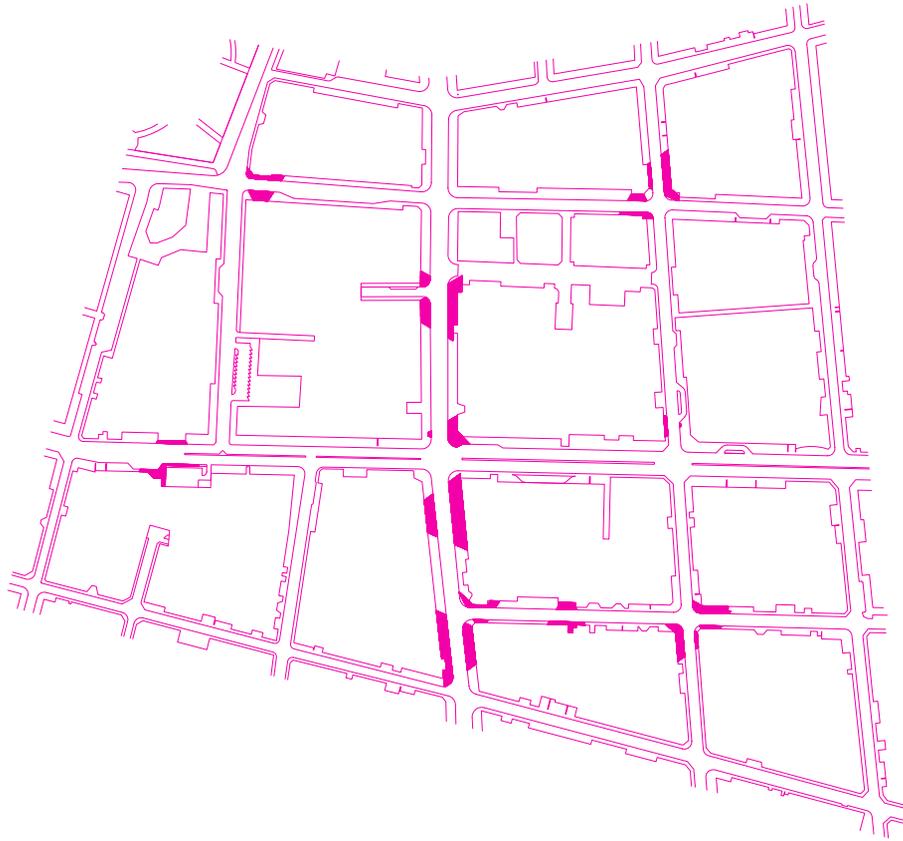
Figure 15: Lark Brick Company's Publicity Perú21, 2015



Figure 16: Printed Publicity Saga Falabella, 2014



Figure 17: Claro Publicity Claro, 2014



Street Advertisements in the area  
Range of impact: 60° of human visual field

### Street Vendors

There are 373 000 street vendors in Lima (69% are women), 684 of which are in Miraflores and 108 in the chosen area (Castellanos, 2014; Lopez Zumaeta, 2019). They sell candy, newspapers and clothes and exchange currencies among other products. They play a historically important role in the city's economy as they allow people (particularly women) from the poorest socioeconomic classes a level of independence and live-up the streets (Martin, 1986).

However, the general public's feelings regarding street vendors are mixed, for some they are just another element in the urban fabric, while for many others they are intruders invading and blocking their mid-

dle-class sidewalk. This last perception is the result of large and small factors, such as the attitude of the municipality itself in not treating them as legitimate members of the public space but small inconveniences (ordinance N° 272-MM), the wrong association of the vendor's low socioeconomic class and indigenous race to dirtiness, laziness and criminality, the placement of the carts often not considering the flow of the sidewalk or the overflowing of the carts with merchandize.

Hence, Maria is simultaneously annoyed by the presence of the vendor and immediately



Figure 18: Fruit and Street Vendor in Miraflores  
Beatriz Peró Giannini, 2019



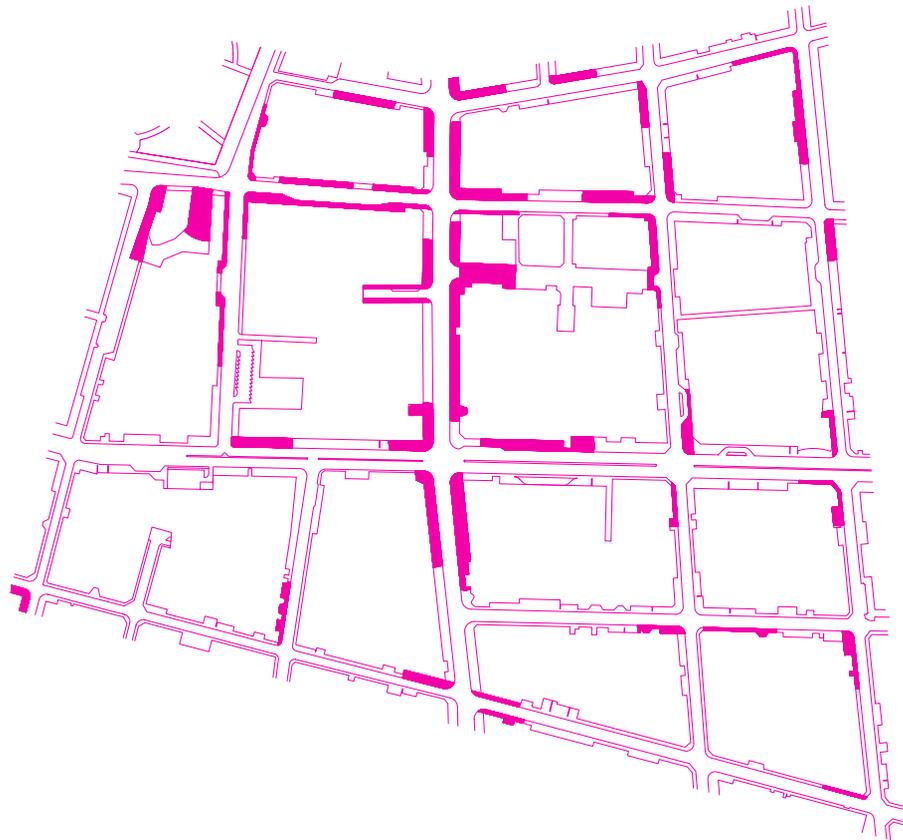
Figure 19: Candy Vendor in Miraflores  
Beatriz Peró Giannini, 2019



Figure 20: News Paper Vendor in Miraflores  
Beatriz Peró Giannini, 2019



Figure 21: Fruit and Street Vendor in Miraflores  
Beatriz Peró Giannini, 2019



Street Vendors in the area  
Range of impact: 25m radius on each side of the sidewalk according to ordinance N° 272-MM

### What is their effect on Maria's sidewalk?

Street signs, street advertisements and street vendors are elements that affect the inclusivity and normality of her sidewalk, by affecting her privilege and oppression to access and act on it. So, they affect its width. You can measure it with the formula for width of normativity (see Book 01).

In this case, first you need to define how they influence Maria's six dimensional axis of privilege and oppression, on her sidewalk.

Street signs: her sense of self worth and belonging on the public space as a woman.

1=genderism ↓

Street advertisements: affect her perception of herself and her worth. 1=genderism ↓ 3=racism ↓ 4=ageism ↓ 5=ableism ↓ 6=classism ↑

Street vendors: how she sees herself in relation to the vendor and vice versa. 3=racism ↑ 6=classism ↑

You also need to add the effect of the interaction with the woman who questions Maria's disability on her sidewalk. 5=ableism ↓

So in each axis the values are,

axis 01 genderism= -6

axis 02 heterosexism= 0

axis 03 racism= 6

axis 04 ageism= -2

axis 05 ableism= -4

axis 06 classism= 5

\* Note: The values for the placement of the six dimensional axis were defined with Maria, as each person needs to use the formulas critically to measure their sidewalk.

With them, you can calculate the width of your privilege and oppression (w),

$$wi = \sum_{i=6}^x (Dx)^2 = (6i)^2 + (0)^2 + (6)^2 + (2i)^2 \quad (4)$$

$$(2i)^2 + (4i)^2 + 5^2 =$$

$$-36 + 0 + 36 - 4 - 16 + 25 = 5$$

Then, the percentage of the width of her sidewalk generated by the privilege and oppression (%w) is,

$$\%wi = (wi + 600) * \frac{100}{1200} = (5 + 600) * \frac{100}{1200}$$

$$(5 + 600) * \frac{100}{1200} = 50.4\%$$

Thus, you can calculate the width of her sidewalk by,

$$w = \%wi * (s.w.) = 50.4 * 3.00 = 1.51m$$

s.w.= physical width of the sidewalk, 3.00m.

She walks purposefully, she walks fast. Her headphones come out of her backpack and into her ears, she is eager to tune out her city.

*"Una luz reflejaba  
la modelo mirando a la nada"*

*"A light reflected  
the model looking at nothing"*

She walks.

*"hoy es viernes sangriento  
aquí pronto habrá movimiento"*

*"today is bloody friday  
there will be movement soon"*

And walks.

*"Cazadores vienen y van  
buscando sus presas por la ciudad"*

*"Hunters come and go  
searching the city for prey"*

And walks.

*"motores rugientes en pleno están  
llegan a Larco a manifestar"*

*"engines roaring, full power  
arrive to Larco to protest"*

A crowd blocks most of the first half of the next block. It almost looks like they are protesting for something, bodies pressed together have deliberately taken over most of the sidewalk, only eighty centimeters remain between the buildings and them.

*"Pues es viernes sangriento,  
pues sus casas dejaron"*

*"Because it is bloody Friday,  
because they let their homes"*

But Maria knows this isn't a protest, the crowd is actively waiting for the bus, shifting, breathing and moving, restless.

*"buscan unas muchachas  
están embalados en tragos"*

*"they look for women  
they are powered by alcohol"*

She has a choice to make: either go on straight ahead through the crowd or turn right and walk through Colón Street.

'Pucha, with so many abandoned buildings with blind walls Colón is super dead', Maria thinks, 'and the sidewalk is so narrow, it looks like someone could jump from behind anything. If someone follows me what would I do? Play dead?'

## Abandoned Buildings with Blind Walls

Similar to muros de retiro, abandoned buildings with blind walls on a street increase your feelings of discomfort and unsafety, however in this case it is the complete removal, not the separation, of the private from the public that creates a stronger sense of fear. Abandoned buildings, particularly when there are many in an area, are connected to vandalism and criminal activity, as they are associated with the deterioration of the area (Valentine, 1996; Koskela, 1999). The predominant fears are not knowing who can be hiding in the abandoned buildings with malicious intent, and that if something were to happen, no one would be on the sidewalk or in the surrounding buildings to help (Koskela, 1999; Perez, 2018).



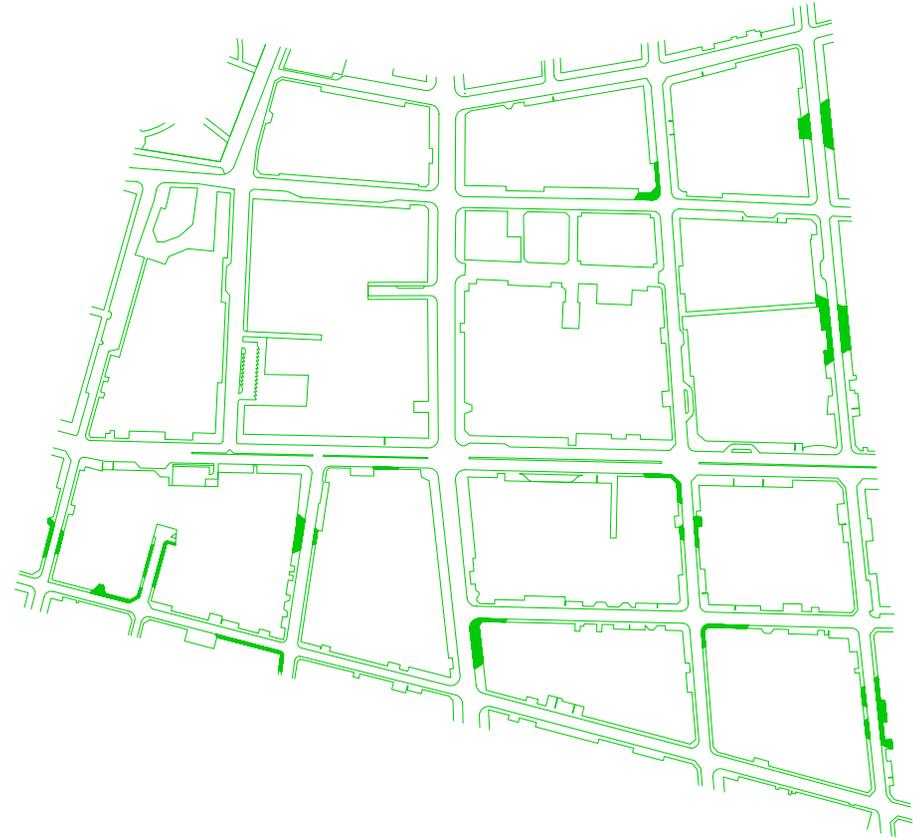
Figure 22: Abandoned Building in Miraflores  
Beatriz Peró Giannini, 2019



Figure 23: Abandoned Lot in Miraflores  
Beatriz Peró Giannini, 2019



Figure 24: Abandoned Building in Miraflores  
Beatriz Peró Giannini, 2019



Abandoned Buildings with Blind Walls in the area  
Range of impact: 60° of the human visual field

### What is their effect on Maria's sidewalk?

Abandoned buildings with blind walls increase her discomfort or fear because of the feelings of isolation and perception of deterioration of the environment they produce. So they shape the materiality of her sidewalk by affecting her comfort of mobility. You can measure it with the formula for materiality of fear (see Book 01).

In this case, Maria's comfort of mobility is affected by the blind walls is  $M_{Y_{1,4}}^{Z_4} = 4$ , by the abandoned building is  $M_{Y_{2,6}}^{Z_6} = 4$ , by the lack of people is  $M_{Y_{2,4}}^{Z_4} = 2$ , and the narrowness of her sidewalk  $M_{Y_{1,5}}^{Z_3} = 7$ .

$Z_j$  is the dimension of source of the discomfort and fear from  $Z_1$  to  $Z_6$ .  $Z_4$  = environmental conditions,  $Z_5$  = design of the sidewalk  $Z_6$  = current state of the sidewalk and surrounding.

$Y_{ij}$  is the specific element within each source category.  $Y_{1,4}$  = blind walls,  $Y_{1,4}$  = blind walls,  $Y_{2,6}$  = abandoned buildings,  $Y_{2,4}$  = lack of people and  $Y_{1,5}$  = narrowness of her sidewalk

$X_{ij}$  = a column with the values of the comfort the element brings to the movement of Maria (from 0 to 10). Being 0 total discomfort and 10 total comfort.  $X_{1,4} = 4$ ,  $X_{2,6} = 4$ ,  $X_{2,4} = 2$ ,  $X_{1,5} = 7$

\* Note: The values for the feelings on  $X_{ij}$  were defined by Maria, as each person needs to use the formulas critically to measure their sidewalk.

Then, as there are two incidents for source  $Z_4$ , you need to calculate  $(\widehat{Z}_j)$  for the total comfort of mobility from the source  $j$  for Maria. But for  $Z_5$  and  $Z_6$  you already know the value generated by each  $(\widehat{Z}_j)$  since there is only one value each.

$$Z_{Y_{1,4}} = X_{Y_{1,4}} \rightarrow \widehat{Z}_4 = \frac{\sum_{i=1}^N X_{i,4}}{N} = \frac{4+2}{2} = 3$$

$$(\widehat{Z}_5) = 7 \quad (\widehat{Z}_6) = 4$$

\*  $Z_1$ ,  $Z_2$  and  $Z_3$  don't apply in this case

So you can calculate her full comfort of mobility on her sidewalk  $(\widehat{M}_j)$  on a scale up to 10.

$$\widehat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \widehat{Z}_j}{N} = \frac{3+7+4}{3} = 4.6$$

And the percentage of her sidewalk not destroyed by fear,

$$\% \widehat{M}_j = \frac{\sum_{j=1 \rightarrow 6} \widehat{Z}_j}{N} * \frac{100}{10} = \frac{6+3+6}{3} * \frac{100}{10} = 46.7\%$$

"Y las que son presas vienen también" "And the prey come as well  
saben lo que tienen que exponer" they know what they have to show"

'But if I walk by this crowd... it's too narrow. What if someone grabs me? My phone can be stolen again, I didn't even notice last time and then it was gone. What do I do if something happens again? Punch them?... Ha! Maybe' she thinks.

"faldita a la moda el jean apretado" "fashion skirt, tight jeans"

She keeps moving, takes a breath, grabs her purse firmly with one hand, raises the other one in front of her chest and strides forward. She clenches her jaw and tries to make her face look hard. Frágil singing loudly in her ears.

llegan de todos lados..." they arrived from everywhere"

Halfway through she has to step to the side to let a person go the other way. She feels the cold wall pressed on her back. Her hand remains raised in front of her and her eyes dance through the crowd. Everything is fine.

"Ellas entran en la noche,  
ellas marcan los tonos" "they enter the night,  
they set the tones"

She passes the last members of the crowd and the sidewalk opens up before her. She releases her grip on her bag and lowers her other hand. She walks.

## Bus Stops

In Lima, bus stops are the only network of public transportation available, so those who do not own a private vehicle or can't afford a taxi are extremely dependent on it. As the majority of the bus lines are run by private companies, designing and maintaining the routes has been problematic for the city's municipality, and has proven to be as much a political as a logistical problem (Secada, 2017). Even forcing the buses to stop only at the designated bus-stops and stopping discrimination towards passengers that don't pay full price (students, elderly, children and mothers with children) is still difficult, although it has improved in recent years.

Furthermore, because the demand for public transportation isn't met by the amount of buses and the routes provided (Lara, 2018), waiting in line at most bus stops during rush hours takes at least 30 minutes. In this large crowds and lines, the proximity between people, long waiting times and constant shuffle are propitious for verbal and physical sexual harassment, and minor crime to occur. On the other hand, waiting in bus stops also makes many women feel vulnerable as they feel like "sitting ducks" (Perez, 2018), particularly at night.



Figure 25: Bus Stop in Lima  
Corredor Azul, 2016



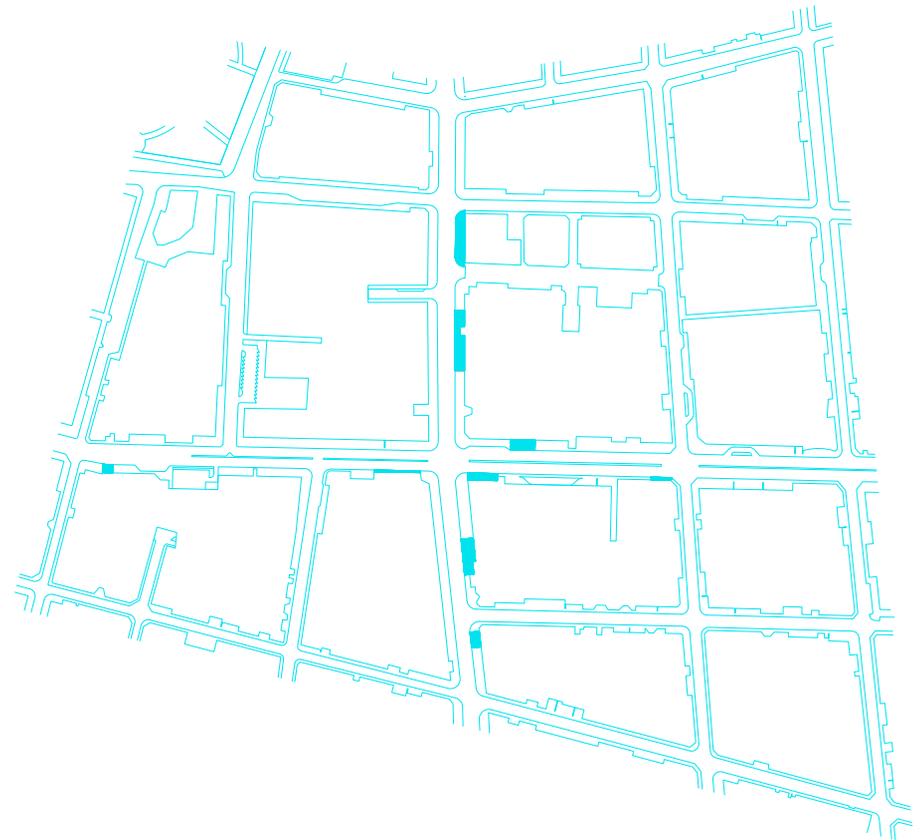
Figure 26: Bus Stop in Lima  
Andina, 2015



Figure 27: RPP News Article RPP News, 2017



Figure 28: America News Article América TV, 2013



Bus Stops in the area  
Range of impact: the area of the waiting crowd

What is their effect on Maria's sidewalk?

Bus stops increase her discomfort or fear, because of the threat of minor crime, and sexual harassment. So they shape the materiality of her sidewalk by affecting her comfort of mobility. You can measure it with the formula for materiality of fear (see Book 01).

In this case, Maria's comfort of mobility is affected by fear minor crime  $M_{2,3}^{Z_3} = 6$ , by fear of verbal sexual harassment  $M_{3,3}^{Z_3} = 4.5$ , and by fear of physical sexual harassment  $M_{4,3}^{Z_3} = 9$ .

$Z_j$  is the dimension of source of the discomfort and fear from  $Z_1$  to  $Z_6$ .  $Z_3$  = social power dynamics.

$Y_{ij}$  is the specific element within each source category.  $Y_{2,3}$  = minor crime,  $Y_{3,3}$  = verbal sexual harassment,  $Y_{4,3}$  = physical sexual harassment

$X_{ij}$  = a column with the values of the comfort the element brings to the movement of Maria (from 0 to 10). Being 0 total discomfort and 10 total comfort.  $X_{2,3} = 4$ ,  $X_{3,3} = 6.5$ ,  $X_{4,3} = 1$

\* Note: The values for the feelings on  $X_{ij}$  were defined by Maria, as each person needs to use the formulas critically to measure their sidewalk.

Then, as there are three incidents for source  $Z_3$ , you need to calculate ( $\hat{Z}_j$ ) for the total comfort of mobility from the source  $j$ .

$$Z_{Y_{1,3}} = X_{Y_{1,3}} \rightarrow \hat{Z}_3 = \frac{\sum_{j=1}^N X_{1,3}}{N} = \frac{4+6.5+1}{3} = 3.8\hat{3}$$

\*  $Z_1, Z_2, Z_4, Z_5$  and  $Z_6$  don't apply in this case

So you can calculate her full comfort of mobility on her sidewalk ( $\hat{M}_j$ ) out of 10.

$$\hat{M}_j = \frac{\sum_{j=1 \rightarrow 6}^N \hat{Z}_j}{N} = \frac{3.8\hat{3}}{1} = 3.8\hat{3}$$

And the percentage of her sidewalk not destroyed by fear,

$$\% \hat{M}_j = \frac{\sum_{j=1 \rightarrow 6}^N \hat{Z}_j}{N} * \frac{100}{10} = \frac{3.8\hat{3}}{1} * \frac{100}{10} = 38.3\%$$

"ellas suben al coche"

"they get in the car"

And walks.

"están preparadas a

"they are prepared for

'¡¡Mamacita!! ¡Como quisiera ser falda para estar sobre ese culo!'

(Mami!! How I would like to be a skirt on that ass!)



## Moments of Harassment

Moments of sexual harassment like Maria's are a constant in the urban public life of 41% of Peruvian women in the last year, according to Datum, which include verbal and physical sexual harassment, flashing and following a person. They produce a range of conflicting emotions, i.e. shame, anger, sadness, outrage, and often restrict women's future participation not only on the sidewalk, but in the public realm. Also, there are moments of harassment that aren't sexual in nature, such as the previous encounter between the woman who questioned Maria's presence on the sidewalk because of her disability, or the several cases of women like Maria Cecilia Moreno (Redacción Multimedia, 2018). who demand non-white teenagers leave "their district" because they are not welcome, due to their race and social class.

These encounters are difficult to map, as they are fleeting and can happen anywhere, although programs like Free to Be are trying to do so. Questions like 'why can men publicly sexually harass women with little consequence?', 'how to prevent or stop different kinds of harassment?' and 'how to be safe in the streets?' are questions that continue to be explored, as there are no easy solutions and as the larger systemic issue that creates them still needs to be properly addressed. Yet, in Lima there are laws that have begun to address harassment such as Law 30364 that recognized different forms of harassment, and initiatives like #NiUnaMenos, Womenability and Paremos el Acoso Callejero are actively tackling harassment on the streets.



Figure 29: Ni Una Menos Protest in Lima  
Francoise Cavalie Apac, 2018



Figure 30: Street Sexual Harassment in Lima  
Perú21, 2018

### What is their effect on Maria's sidewalk?

The instances of sexual harassment by the man, ableist harassment by the woman and her negative exchange with the municipal police-officer on her sidewalk that can lead to negotiation. So, they affect the flexibility of her sidewalk. You can measure it with the formula for objects of conflict (see Book 01).

In this case, her sidewalk's flexibility is affected by the moments of conflict of, sexual harassment  $O_{Y_{1,1}}^{Z_1} = 6$ , ableist harassment  $O_{Y_{2,1}}^{Z_1} = 4$  and her exchange with the municipal police-officer  $O_{Y_{1,2}}^{Z_2} = 3.5$ .

$Z_j$  is the source of the conflict. Being  $j$  the source:  $Z_1 =$  social power dynamics and  $Z_2 =$  law enforcement.

$Y_{ij}$  is the specific  $Z_j$ .  $Y_{1,1} =$  sexual harassment,  $Y_{2,1} =$  ableism and  $Y_{1,2} =$  municipal police-officer

$X_{ij}$  is a column with the values of disagreement or questioning (from 0 to 10) of the object. Being 0 total agreement and 10 total disagreements.

\* Note: The values for the agreement on  $X_{ij}$  were defined with Maria, as each person needs to use the formulas critically to measure their sidewalk.

Then, you need to calculate the flexibility of the moments of conflict,

$$\text{sexual harassment} = F.C_{Y_{1,1}}^{Z_1} = \frac{Y_{1,1}}{X_{1,1}} = \frac{7}{5} = 1.4$$

$$\text{ableist harassment} = F.C_{Y_{2,1}}^{Z_1} = \frac{Y_{2,1}}{X_{2,1}} = \frac{0}{2} = 0$$

exchange with the municipal police-officer

$$= F.C_{Y_{1,2}}^{Z_2} = \frac{Y_{1,2}}{X_{1,2}} = \frac{1}{6} = 0.1\widehat{6}$$

$Z_j$  is the source of the object (conflict). Being  $j$  the source:  $Z_1 =$  social power dynamics and  $Z_2 =$  law enforcement.

$Y_{ij}$  is the value of response of "society" to the action of change. Values going from 0 to 10, being 0 no response at all and 10 complete change for a solution.

$X_{ij}$  is the level of the action of change for that specific source (negotiation). Values going from 0 to 10, being 0 no action, and 10 maximum effort of change.

\* Note: The values for the action and response on  $X_{ij}$  and  $Y_{ij}$  were defined with Maria, as each person needs to use the formulas critically to measure their sidewalk.

\*\* Note: If there is no reaction, the flexibility can't be measured.

With them, you can calculate the flexibility of her sidewalk ( $\widehat{F}_j$ ) out of 10.

$$\widehat{F}_j = \frac{\sum_{0,\infty} F.C_{i,j}}{N} = \frac{1.4 + 0.17}{2} = 0.785$$

And the percentage of total of her sidewalk's flexibility.

$$\% \widehat{F}_j = \frac{\sum_{0,\infty} F.C_{i,j}}{N} * \frac{100}{10} = * 7.85\%$$

$$\frac{1.4 + 0.17}{2} * \frac{100}{10} = 7.85\%$$

Maria stares at him and doesn't say anything, she thinks 'Was this my fault?' Maria screams at him, 'Qué carajo did you say to me?! Do you kiss you mother with that mouth?!' Maria didn't turn around, she kept walking. Maria glares at him. Maria stares at him, 'what did you just say to me?'

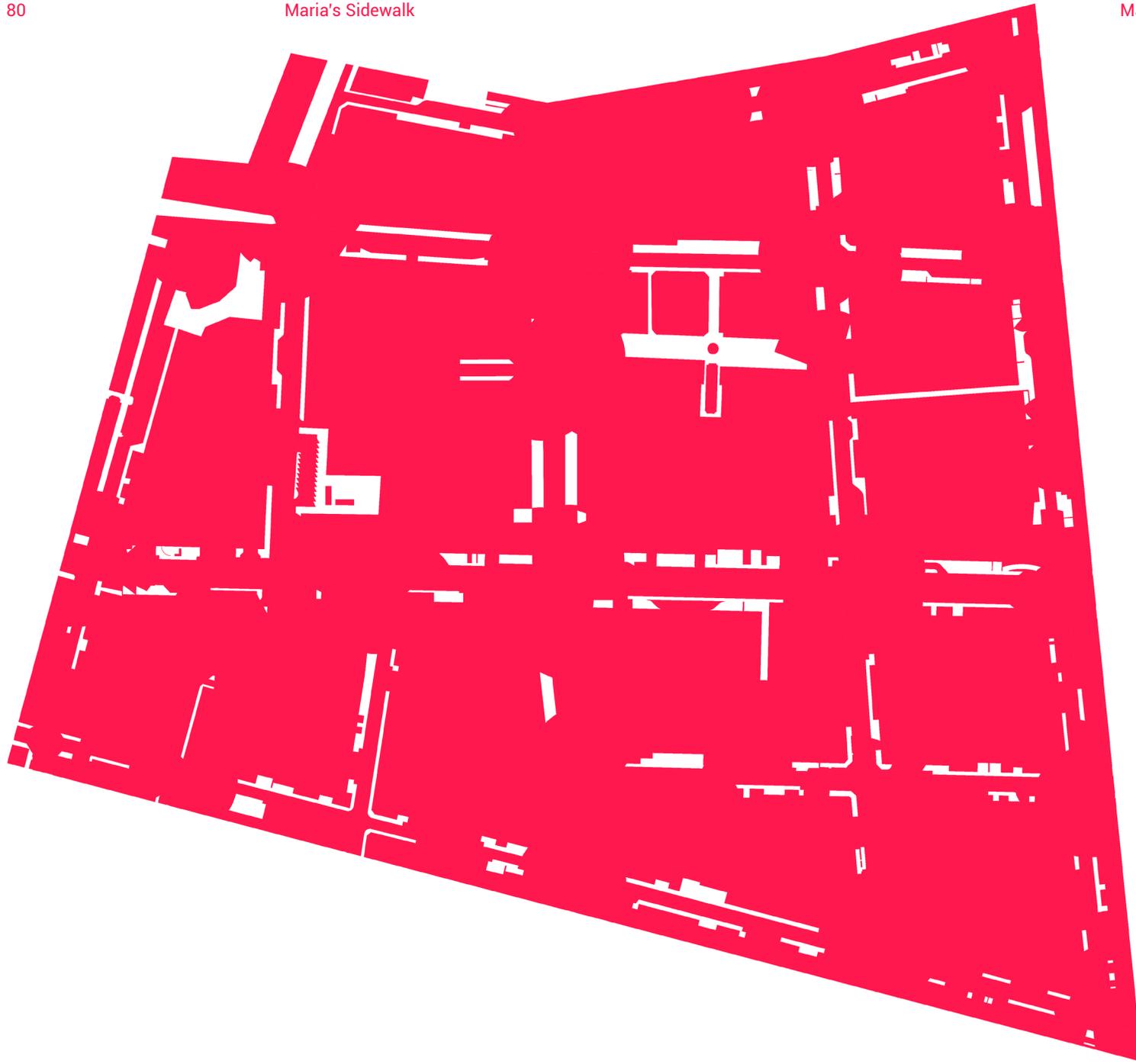
He stands up from the building, his mouth opens to show teeth.

'Oh no', she thinks. 'Oh no, what if he hits me? 'No, he can't do whatever he wants!' She squares her shoulders.

She stands her ground.

'Joven, what is the matter with you?' someone asks. 'Aren't you ashamed? Apologize to the señorita.'

A street vendor is scowling at him from her gray and blue kiosk. She is not amused by the situation.

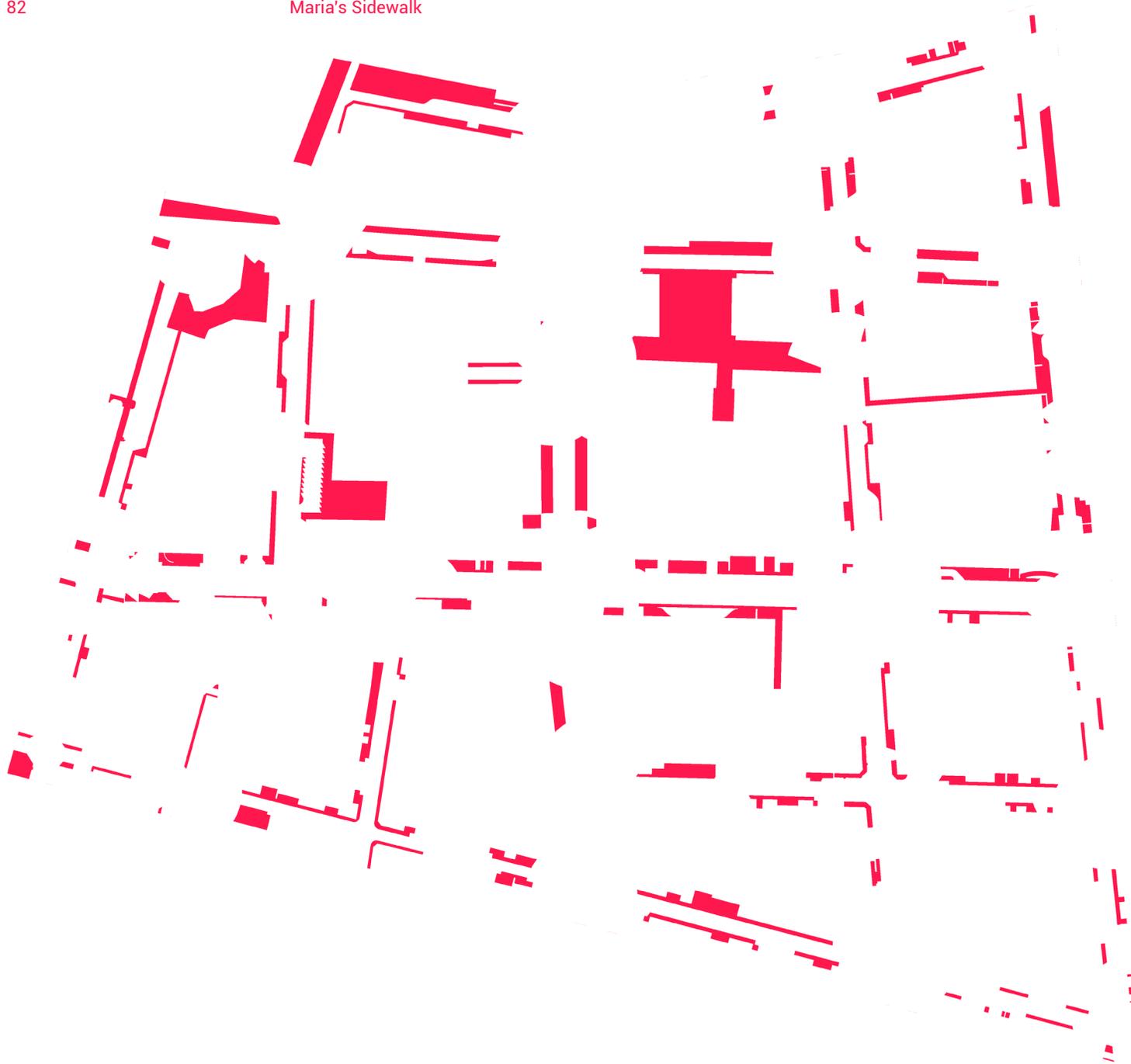


.254 km<sup>2</sup> of Obstructed Space

Adding all the obstacles to the built, inaccessible and gated spaces, and the roads reveals all the obstructed space of the area where Maria walks.

.254 km<sup>2</sup> of Miraflores

- 91.8% obstructed space
- 8.2% free space

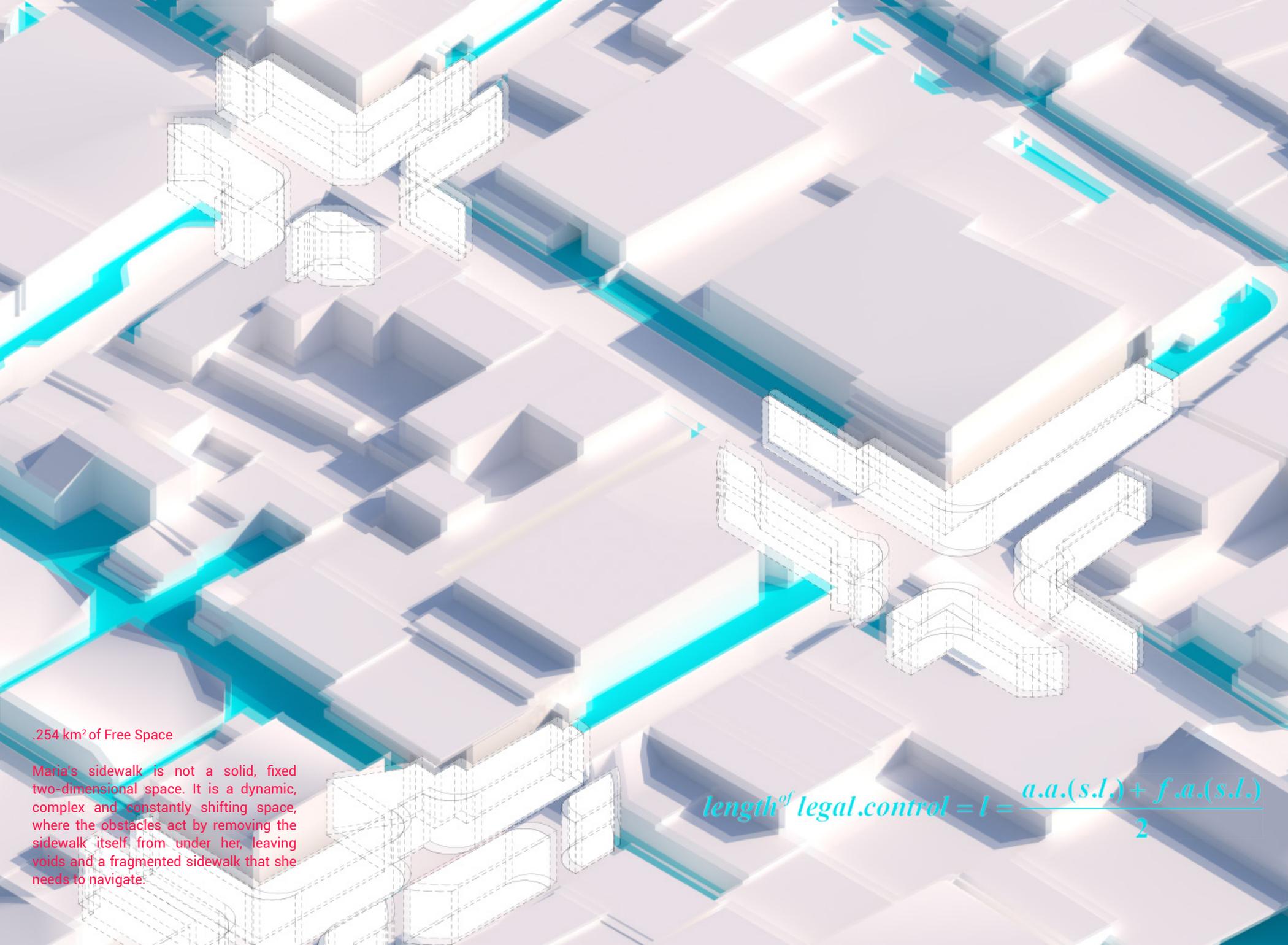


.254 km<sup>2</sup> of Free Space

Removing the obstacles, built, inaccessible, and gated spaces and roads reveals the free space of the area where Maria walks.

.254 km<sup>2</sup> of Miraflores

- 91.8% obstructed space
- 8.2% free space



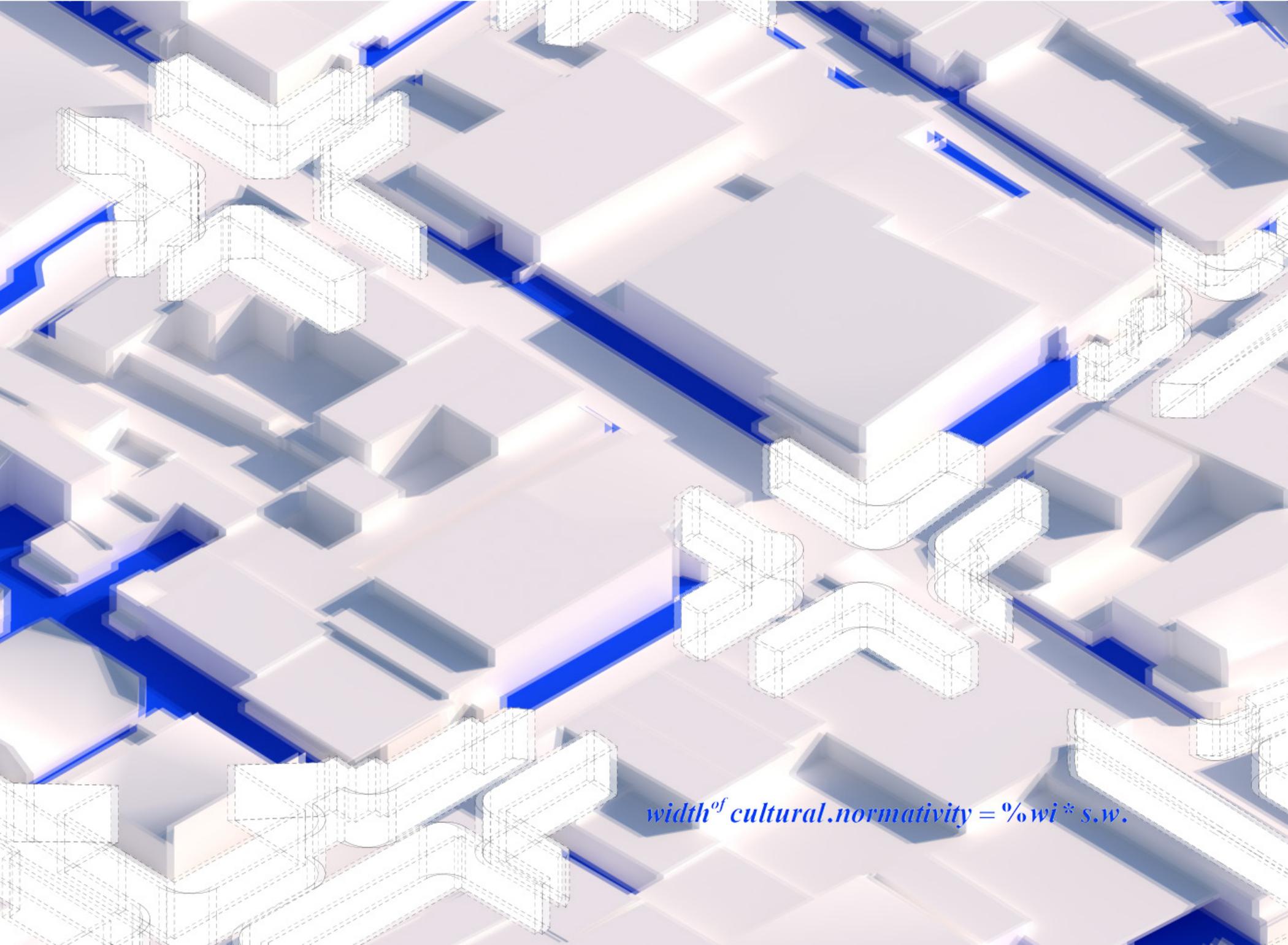
.254 km<sup>2</sup> of Free Space

Maria's sidewalk is not a solid, fixed two-dimensional space. It is a dynamic, complex and constantly shifting space, where the obstacles act by removing the sidewalk itself from under her, leaving voids and a fragmented sidewalk that she needs to navigate.

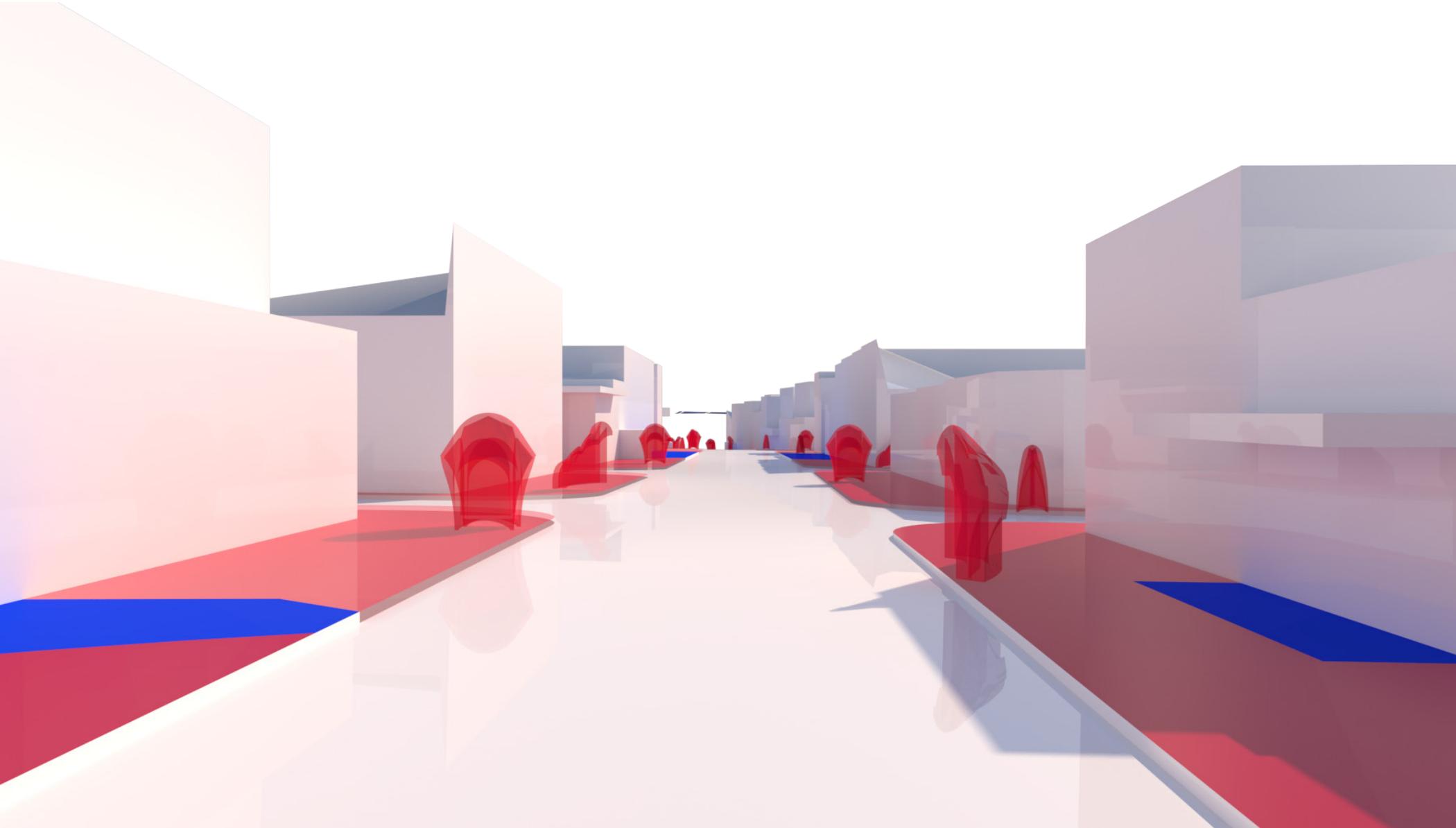
$$\text{length}^{\text{of}} \text{ legal control} = l = \frac{a.a.(s.l.) + f.a.(s.l.)}{2}$$

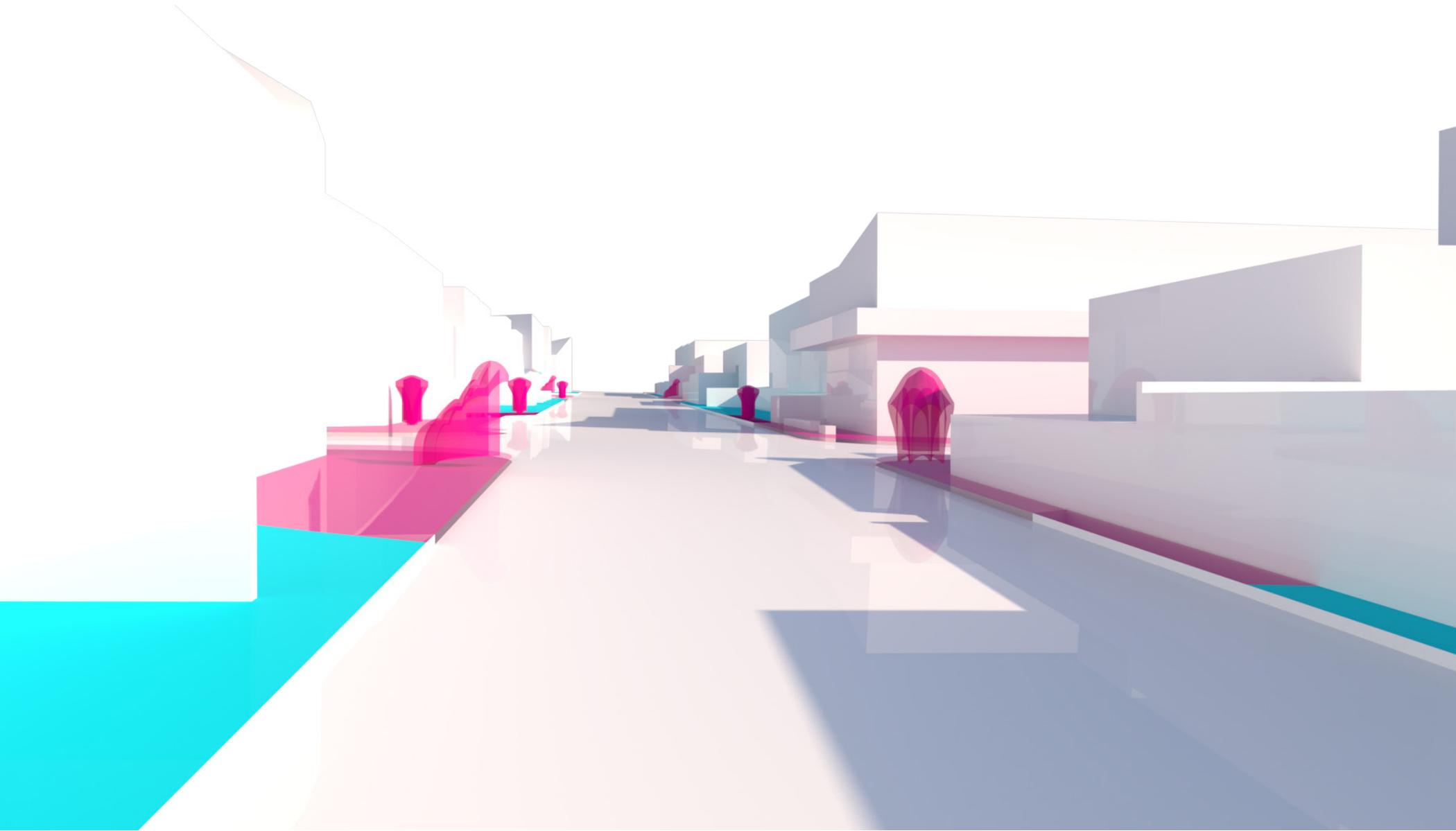


*materiality<sup>of</sup> fear* =  $\widehat{M}_j = \frac{\sum_{j=1 \rightarrow 6}^N \widehat{Z}_j}{N}$



*width<sup>of</sup> cultural.normativity = %wi \* s.w.*





'Apologize to me', Maria says, she glances at the vendor, surprised, 'apologize.'

He whistles at her, belittling.

'Apologize. To. Me.' Maria repeats, not moving.

He looks from one of them to the other, his smirk still in his face. Hands in his pockets, he begins to walk away.

Maria turns to her, 'gracias', she says. The vendor has already returned her attention to her work, busy. She waves Maria away, her gesture says it was no trouble.

'What if', she thinks, 'what if the street vendors were not just an obstacle in her way, what if they could be more?'

Maria keeps walking.

## 4 WHAT IF?

What if your sidewalk felt safer? If moving on it was comfortable for you without being oppressive towards others? What if your sidewalk's flexibility could be increased to accept more challenges to the norm?

What if elements that are perceived as obstacles could go beyond that role and help improve your experienced sidewalk? If street vendors were no longer perceived and as intruders, but as legitimate elements of the urban landscape?

What if street vendors functioned as a network instead of individual elements? A network of solidarity to support you, that was already inherent to the urban public space. So that when you find yourself in situations of conflict you are not alone.

What if this network of solidarity was also one of social control, exercised by street vendors who currently are a permanent fixture of the streets but have little agency themselves, to augment not only your safety but also the agency and the ownership you feel over your sidewalk, by promoting diversity, inclusion, and openness?

What if they were a live network that could react to the dynamic obstacles on your sidewalk, with the same flexibility and possibility of change?

What if the street vendors could help reshape your sidewalk by providing functions that you need and are currently missing; and by breaking the rigidity of the urban grid? What if they could provide allowances for new possibilities?

# 5 REFERENCES

## Image List

Figure 01: Beatriz Peró Giannini, *Maria on her Side-walk* (2019)

Figure 02: Sebastian Eslava Benavides, *Lima la Gris / Lima the Grey* (2016)

Figure 03: Sebastian Eslava Benavides, *Lima la Hermosa / Lima the beautiful* (2016)

Figure 04: Sebastian Eslava Benavides, *Miraflores/ Parque Kennedy* (2016)

Figure 05: Beatriz Peró Giannini, *Muro de Retiro La Paz Avenue* (2019)

Figure 06: Beatriz Peró Giannini, *Muro de Retiro San Martín Street* (2019)

Figure 07: Google Maps, *Muro de Retiro Alcanfores Street* (2017)

Figure 08: Beatriz Peró Giannini, *CCTV in Miraflores* (2019)

Figure 09: Municipalidad de Miraflores, *Miraflores' Municipal Police Officers* (2014) [image online] Available at: <https://www.miraflores.gob.pe/serenazgo/>

Figure 10: El Comercio, *El Comercio News Article* (2019) [image online] Available at: <https://elcomercio.pe/lima/seguridad/gamarra-vigilancia-extrema-funcionan-cameras-reconocimiento-facial-george-forstyh-victoria-noticia-ecpm-625744>

Figure 11: La República, *La República News Article* (2018) [image online] Available at: <https://larepublica.pe/sociedad/1211581>

Figure 12: Leonor Pérez-Durand, *La Mula, La Mula News Article* (2018) [image online] Available at: <https://teleoleo.lamula.pe/2018/10/07/el-plan-de-seguridad-ciudadana-de-jorge-munoz-tendria-una-pata-coja-la-de-la-violencia-de-genero/leopezdurand/>

Figure 13: Beatriz Peró Giannini, *Street Name Sign in Miraflores* (2019)

Figure 14: Perú21, *Lark Brick Company's Publicity* (2015) [image online] Available at: <https://peru21.pe/espectaculos/vania-bludau-campana-publicitaria-protagoniza-genera-polemica-160862>

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