



Analog flows in digital worlds: ‘Migration multiples’ and digital heterotopias in Greek territory

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ABSTRACT

Migrants’ engagement with Information and Communications Technologies (ICTs) reveals a wide spectrum of resistance practices that enact “heterotopias” (Foucault, 1967) that extend from the human body to transnational landscapes (Gillespie et al., 2016). This paper enhances the theoretical debate on migration with new ways of understanding borders and space as fluid, autonomous, and provisional linkages between humans and nonhumans. Based on findings from field research conducted in Greece, it aims to discuss how migrants’ digital practices generate new spaces and materialities. Attending to the making of migrants’-ICTs intertwining it examines the emergence of unbordering practices, the creation of crucial solidarity networks and the risks and limitations that emerge when using ICTs. Finally, the paper highlights the recent migratory influx not simply as a result of neoliberal doctrines, but (also) as an act of disobedience to fortress Europe through the creation of digital-urban heterotopias through the lenses of Migration Studies, Science and Technology Studies and Critical spatial theory.

1. Introduction

Intensifying securitization of border controls in the Mediterranean region and the Balkans, restrictive migration policies and the consequent racialization of space have been producing an ongoing nexus of deathscapes in Greek territory (Gillespie, 2018; Broeders, 2011). Nevertheless, migratory populations, apart from being in a ‘state of exception’ (Agamben, 2005), act as deregulators of physical borders and vividly question institutionalized limits and power mechanisms (Casas-Cortes et al., 2015; Mezzadra, 2010). While being in a state of “subversive mobility” (Cohen et al., 2017), migrants develop multiple strategies and practices of survival, resistance, and counter-mobility. In this context, migrants’ engagement with Information and Communications Technologies (ICTs) reveals a wide spectrum of practices that create ruptures in the ‘sovereignty scapes’ and borderlands as well as generating new spaces of autonomy. Indeed, migrants follow routes enriched by user-generated, networked, and real-time updates from fellow migrants, safety advice and GPS coordinates for family and friends, and smuggler boats. Digital platforms help migrants circumvent the securitized EU borderland when people fleeing warn others following behind that a border has been closed (Stierl, 2015). At the same time, in solidarity, people make information available about

asylum procedures and where to find access to water, food, and Wi-Fi coverage (cf. Sánchez-Querubín & Rogers, 2018).

This paper aims to: 1. examine how migrants’ digital practices reconfigure migration as migrants navigate through unknown and – for them – unsafe areas; 2. theorize on (digital) heterotopias that unfold in between digital and physical spaces and examine the role of ICTs and new technologies in the formation of spaces. Though there has been increasingly thorough research on migrants’ digital practices from the point of view of media studies, existing research into spatial practices lacks analytical focus. In an attempt to rectify this, we have situated this paper at the intersection of Migration Studies, Science and Technology Studies, and Critical Spatial Theory.

We investigate whether social media, smartphones with multiple apps, computers, and other digital technologies help to “national and international mobility regimes” (Cohen et al., 2017, p. 115) and enact patterns of use in terms of navigation, information, contact and care, among others. In this respect, we review the different phases of migrants’ journeys to trace hybrid spatialities (spaces at the intersection of the digital and the physical realms) and view their characteristics, their limits, and potentialities. Further exploring this idea, this article asks: How do migrants integrate multiple forms of digital resources into their migration practices? How does access/non-access to digital platforms

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and infrastructures configure navigation, for spreading information and other purposes? What are the spatial dimensions of migrants' digital practices? What are the characteristics of the digital spaces formed during the migration process, and how do these digital spaces question dominant hegemonic regimes?

The paper is organized as follows. First, we provide the theoretical context of our study where we introduce recent analytical frameworks on digital space and migration. We engage with the notion of '*migration multiples*' to illustrate how migratory subjects are enacted by spatial practices. Moreover, we present our understanding of the notion of digital space based on the 'relational approach of space' and we elaborate on the Foucauldian notion of heterotopias to introduce the idea of '*digital heterotopias*' formed by migrants' interactions with ICTs. We then describe our methodology and source material before providing an empirical account of the multiple uses of the ICTs in relation to the different emancipatory practices and specialities that arise in Greek territory. We present an analytical description of migrants' practices to unfold the various characteristics of the digital heterotopias and subsequently unfold the multiple uses of technologies to highlight the contradictory and yet empowering character of such spaces. The paper concludes with a discussion on the role of ICTs in the reconfiguration of digital space, urban space, and the migration experience.

1.1. The '*migration multiples*' and digital space

Migratory spatial practices under investigation in this paper emerge prompted by what we call the '*migration multiples*'. With a focus on migrants' use of digital technologies, we argue that something more is at stake in migratory space-making than the politics of space and technology. Inspired by Mol's Body Multiple and following [Aradau and Tazzioli \(2019\)](#), we avoid binary oppositions such as digital/material, inclusion/exclusion, making live/letting die that have undergirded much work on migration and migration technologies. In our case, the migratory populations are affected by individuals' digital navigations and yet also how top-down uses of technology (for example, for migratory populations' management) affect the individual. We are theoretically and empirically interested in the intertwining of migrants and digital media that redraw the material conditions at stake in a way that forces the constituted space to 'rearrange itself' and enable mobility (cf. [Papadopoulos, 2011](#), p. 194). These are the migration multiples that simultaneously (and temporarily) undo the border and challenge sovereignty structures, dialectically formed in semiotic processes, and often extend to physical space.

By developing an understanding of migration beyond digital/material, this article contributes to the critical literature on migration while also taking migration as terrain for rethinking contemporary resistance and solidarity movements along with the introduction of digital applications and space-making. In this context, our focus lies on different, multiple, and yet related objects, entanglements, interactions, and spaces that simultaneously constitute migration. Moreover, we argue that different enactments of movement in (digital and material) space and technology entail different ontologies. We are particularly interested in specific versions of migration, versions through which emancipated spaces occur and help to enact mobility. The migration multiples occur precisely from such enactments. They are the condition of possibility or mobility, if you like, of 'humans' and 'non-humans', not just as ideational concepts, but also in their materiality ([Barad, 2003](#)). We also argue that the migration multiples refer to an interrelation between scales. In other words, an interrelation between the mobile populations and the individual. As [Mol \(2001, p. 163\)](#) suggests:

"The population includes the individual—but the individual, in turn, also includes the population. (...) Mutual inclusion does not imply that there are no frictions left (...) And yet no population makes progress on any scale if no individuals' situations have been altered.

(...) The events that happen to individuals depend on and vary with 'the population' that they, in their turn, include."

To better understand the migration multiples, we follow migrants in space asking how they intervene. The ontology of the migration multiple is bound to a specific site and situation. We are interested in the migration multiple that performs heterotopias, facilitates emancipating processes, and triggers migratory praxes and imagination (semiotic) processes. Therefore, to engage with the migration multiple, we depart from its spaces and places.

Though many studies have considered the important role of space and focused on specific characteristics, few studies focus on the various spaces that emerge from migrant-ICT interaction (see for instance [Georgiou, 2013, 2019](#), who embraces the notion of space and space-making by exploring media and city synergies in relation to migration and identity issues). The study of migrants' engagement with ICTs is discussed mainly in the fields of migration studies, media studies, critical border studies, anthropology and science and technology studies (for an overview see [Drueke, 2016](#); [Leurs, 2017](#) as well as [Smets et al., 2019](#)). Many of them address the issue of space. [Latonero and Kift \(2018\)](#) use the notion of 'digital passages' to embrace both the temporal condition and the architectural constraints of the movement. Similarly, [Gillespie \(2018\)](#) draws on [Smets \(2018\)](#) to discuss the concepts of 'digital passages' and 'distant proximities' while [Leurs \(2015\)](#) also builds on the concept of 'passage' to address issues of navigation in digital space. Also, [Smets \(2018\)](#) discusses the idea of 'mobile homes' to expand the field of research beyond media studies. [Smets et al. \(2019\)](#) edited a series of relevant papers on issues of space and migrants' digital connectivity. [Alevizou \(2019\)](#) takes the discussion one step further by linking the social contexts within which civic imagination and creativity develop to fit the cultural protocols and place-making that grow around the use of IT. Yet there is little engagement with the digital realm and its emancipating dimension during migration processes in the fields of geography and critical urban theory. Whereas these fields contain rich material on bordering practices and spaces of violence, exclusion, and discrimination (see for instance [Martin & Prokkola, 2017](#); [Dempsey, 2020](#)) there is less focus on emancipatory spaces (see, for instance, the work of [Fischer & BakJørgensen, 2021](#)) and even fewer studies that examine new technologies, resistance, and space (see for example [Alencar, 2019](#)). Building on this literature, this paper contributes with a broader understanding of the digital migrant space that enacts migration multiples and emancipatory practices.

All these perspectives and theoretical concepts reassemble the creative process of an autonomous, beyond-state-control, emancipated hybrid space that often extends to physical space, while ICTs play a vital role. ICTs, as part of the migration multiple, operate as thresholds to a range of heterotopian spaces while they territorialize digital space in temporary or more permanent zones. In this process, migration multiples establish passages between semiotic space and materialities. Migration multiples constitute mediators between imagination and reality. Through this temporary but multiple constitution of hybrid spaces, realities emerge that antagonize power structures, such as border practices, and facilitate migratory mobility.

In the following paragraph we attempt to conceptualize the (emancipatory) spatialities enacted by the migration multiples in the spectrum of physical/digital sphere.

1.2. ICTs and emancipatory specialities: from physical-digital space to emancipating passages

As our ambition is to understand migrants' digital spatial practices and to reassemble the ways digital space and ICTs contribute to the configuration of heterotopias and emancipatory spaces, we depart from critical space theory. Interpreting digital space via these theoretical tools allows us not only to locate and reassemble the intertwining of migrants and ICTs but also to explore emancipatory possibilities in the

use of ICTs. This is not to say that we perceive the role of ICTs in migration as manna sent from the heaven to simultaneously emancipate migrants and/or to undo the border. We do not disregard human agency in the hybrid of digital-physical space, and we do not adopt a technological determinist approach to understanding migration. Neither do we surrender to a techno-pessimist position that perceives digitality solely as an Orwellian threat (Trimikliniotis et al., 2014).

In the framework of this paper, we perceive space as a derivative of sociomaterial relations (Harvey, 2000; Lefebvre, 1991; Soja, 1989), which enables us to focus not only on the material essence of space but also on spaces of imagination and semiotics. To conceive of and describe urban space, Lefebvre (1991) suggested that it is socially produced, and he proposed a trialectic schema whereby (urban) space is not a container, but an aggregation of the physical space (geometric space), of spaces of representations (images of space like maps) and of perceived spaces (spaces deriving from semiotic processes such as those of imagination). In this respect, controlling (or surveilling) space does not derive only from controlling the materialities of space but engages (in this process) a wide spectrum of power relations and emancipatory practices. In this paper, we detect such spaces that extend from the materialities of the war zones in Syria, the Greek-Turkish borderland and urban territories of Greece and Turkey and constitute heterotopias that spread from the analog to the digital spectrum. We analyze migrants' use of digital representations of space such as navigation maps and signs as well as semiotic spaces that they create in their devices. Most significantly, spaces of resistance and autonomy flourish in material and non-material spatialities, and ruptures, cracks and practices of resistance are important both at material and non-material levels.

By extending the above to digital space, we elaborate on the parallel importance of the material (smartphone devices, servers, screens, cables, chargers, power banks) and non-material elements (representations, conceptions, information, digital applications, software) of ICTs' space. Viewing the multiple dimensions of digital space from the material-physical space (such as devices, servers) to the spaces of representations (such as digital mapping, navigation, information and so on) and the perceived spaces (software, social media, applications, videos) reveals a massive space/terrain and multiple ontology.

To add another level of complexity, we attend to the different spatial scales evoked by the migrant-ICTs intertwining. Various scholars (Lefebvre, 1991; De Certeau, 1984; Soja, 1989), including many feminist geographers (Bondi, 2005; Rose, 1993), base the production of space on the social relations of everyday life and practices. This perception addresses the construction of scales – including the body, the household, the region, the national and supranational formations (Silvey, 2004, p. 3) and underscore the importance of the multiple scales from the everyday micro scales to hyper local trajectories. Regarding digital space, the simultaneity of (digital) actions invites further investigation into the perspectives and nature of spaces formed by the migrant-ICTs interaction. ICTs allow communication in various geolocations, while migrants' acts when using their devices at a specific location may have an impact on different cities and national territories. Overall, opening the perspectives of space from an enclosed absolute figure to a wider perception suggests that space is never complete or total but in a permanent process of becoming, always under construction, infinite and never ending, thus there is always the possibility of a change (Massey, 2005, p. 10). In this regard, migrants' sociomaterial spaces that derive from “digital passages” (Latonero & Kift, 2018) may extend from the body to the borderland and the vast terrains of wandering, and most importantly may imply emancipatory mobilities. Thus, we explore if and how the migrants' interaction with ICTs breaks the normality of the nation state at a molecular level creating a new everyday life.

Furthermore, understanding space through the lens of critical theory presupposes highlighting the various contradictions that emerge when shedding light on the spaces under investigation. Digital space becomes an infinitely open space where we can trace both control and discipline as well as possibilities of resistance and emancipation

(Sánchez-Querubín & Rogers, 2018; Galis & Summerton, 2018). As we suggest in the next paragraph, emancipatory spaces and ‘digital heterotopias’ are grounded in social relations and physical space, thrive on various scales, are open to infinite possibilities and are generated from multiple contradictions.

1.3. Reassembling the digital heterotopias

Following the parallel evolvement of imaginaries (spaces of imagination, perceived and conceived) and sociomaterialities, we investigate spaces that perform resistance and emancipatory practices. In the case of migrants, spaces that contest death and persecution have an ambivalent, perilous, and simultaneously emancipating ‘nature’. We draw from thinkers such as Foucault ([1967, 1984,] 1978, [1976] 1986), who has not only described affordances, limits and potentials of those spaces but has also conceptualized raptures, cracks and discontinuities in power relations that generate groundbreaking spatialities. More precisely, we are inspired by the concept of *heterotopias*, and we build on the idea of ‘digital heterotopias’ to unfold migrants' digital emancipatory spaces.

Heterotopias refer to a version of space that functions in non-hegemonic conditions and reshuffles power relations that are either depicted or inscribed in space. Foucault sets heterotopias against a static or whole ‘society’. They are spaces of otherness that challenge sovereignty. They reverse normal relations and refer to non-normal spaces. As Foucault ([1967, 1984,] 1986, p. 24) notes:

“But among all these sites, I am interested in certain ones that have the curious property of being in relation with all the other sites, but in such a way as to suspect, neutralize, or invent the set of relations that they happen to designate, mirror, or reflect.”

Heterotopias, whether digital or analog, become places where relations between ‘others’ emerge. We are interested in spaces of othering that are formed when migrants interact with ICTs, and we note how the migration multiple is enacted. Migrants' heterotopias inhibit nation state mechanisms such as borders and institutions and inverse concepts such as those of ‘citizenship’ or ‘legality’ and sites such as detention camps or racialized spaces. Heterotopias go against the taxonomy of borders. Scholars such as Hetherington (1997) and Genocchio (1995) understand them as spaces that shuffle order, spaces where an ‘anti-order’ emerges (Stavrides, 2010, p. 219). Likewise, digital heterotopias go against such ordering mechanisms, they reshuffle order without necessarily marking a new digital order. Digital heterotopias embrace the ‘art of becoming another, which is an act of survival’ (De Certeau, 1984, p. 40) and are based on resistance. Migrants' digital heterotopias enclose and embrace the ‘others’ who do not fit in the analog realm, therefore they respond and challenge the limits set by the analog space. Though Foucault's work on heterotopias occupied little space in his writings,¹ it had a significant impact on various thinkers. Soja (1996), developed Foucault's work on ‘thirdspace’, highlighting that the work on heterotopias is meaningful not only in terms of a new object under investigation but rather as a new method of study as it is another way of thinking spatially (p. 163).

Regarding their technical characteristics, unlike utopias, heterotopias are ‘actually localisable’ (Foucault, 1986, p. 24). They are non-islands, meaning that they are not cut off or isolated but stay connected to the world. They are limitless and simultaneously physical and perceived. Foucault's (1986) perception of heterotopias unfolds in the following principles: 1. They derive from a state of crisis and deviation,

¹ As Johnson (2016) notes, Foucault's most explicit account of heterotopias was given to a group of architects when he was invited to lecture at the Cercle D'études Architecturales (Circle of Architectural Studies) in Paris in 1967. In 1984, the text ‘Des espaces autres’, was published by the French journal *Architecture, Mouvement, Continuité* based on that lecture and in 1986 was translated into English as ‘Of other spaces’ in *Diacritics*.

2. They have a precise and determined function within a society, 3. They are capable of juxtaposing several spaces in a single real place, several sites that are in themselves incompatible, 4. They begin to function at full capacity when people arrive at a sort of absolute break with their traditional time. 5. They always presuppose a system of opening and closing that both isolates them and makes them penetrable 6. They create spaces of illusion and compensation. Likewise, migrants' digital heterotopias blossom in borderlines, in the urban core and primarily in migrants' imagination. They blossom in sites of crisis such as war zones and camps (Olivius, 2017), they have a clear and concrete function to disrupt restrictions of movement, they thrive as incompatible spaces (cf. Foucault, 1986, p. 6) whilst they follow a temporal rupture of the traditional time as they oscillate between enclosures and openings. Digital heterotopias are not marginalized, they are connected to the web. But most importantly, migrants' heterotopias hold a compensatory and consolidating role against the traumatic experiences of the migratory trip. In parallel, they often constitute a mechanism of re-humanization (Papastergiadis, 2009) as through technology, migrants reclaim their human existence.

The relational approach to space that we embed in this paper aligns with the Foucauldian perception of heterotopias, as well as digital heterotopias. Such spaces do not simply contain fixed and enclosed identities, but are where 'exposed otherings' thrive (Stavrides, 2010, p. 9). Foucault's conceptualization of heterotopias is an effort towards, and a departure point for discussing space (like time) as a dynamic parameter rather than a static entity (Crampton & Elden, 2007, p. 3). Moreover, Stavrides (2010, p. 223) suggests that we can consider heterotopias not as places but as passages towards othering, as passages are not determined by one space but by their relation with more than one space. Shifting to digital heterotopias, we see the digital devices not as spaces per se but as portals to migrants' spaces of othering. All in all, heterotopias can be traced in a variety of material and non-material spaces. They thrive in the analog and digital realms; they are materialized via devices, cables and antennas and have an impact on physical space (whether in the urban space that is altered by migrants' presence or in the borderline landscapes that are surpassed by the mobile populations). In the digital sphere, they are represented via software of various kinds and encodings and are often perceived as escapes from the normalization and taxinomialization processes of the post-modern nation state formulations.

Our empirical material shows several ways that migrants used digital resources to enable, facilitate or sustain migrants' individual or collective agency in configuring their journeys. This is another case of how media technology can be adapted or shaped by e.g., migrants or activists in solidarity to serve purposes other than those intended by its designers. Appropriating media technologies to organize protest and solidarity, to enable information sharing, to communicate a cause, to deconstruct racist rhetoric and to enable flows and movements is not a new phenomenon (Galis & Neumayer, 2016). In this context, digital media become counter spaces that operate against disciplinary mechanisms even though they develop in digital platforms owned by highly corporate, data extractive companies (such as Facebook). After all, *the heterotopia is capable of juxtaposing several spaces in a single real place, several sites that are in themselves incompatible* (Foucault, 1986, p. 27), therefore they are an outcome of antinomies and contradictions. Again, following Foucault (1978, p. 119), 'where there is power there is resistance'. Digital heterotopias act as forms of resistance that "ensure the maintenance of a space of collective interaction, of coming together, of creating recognition and solidarity and thus enabling all sorts of other forms of multiple communication and collective action" (Hands, 2010, p. 97). In that sense, digital heterotopias have multiple, but often diverse functions and are formed by highly heterogeneous entities that are enrolled for various purposes or in response to specific circumstances. As such, these spaces can be viewed as digital-material hybrids of humans and non-humans that are typically fluid, temporary, and continually evolving.

1.4. Methodology and two epistemological notes

The paper is based on a qualitative interview study which was a preliminary study that led to the formulation of the research project DIGNAUTS (2018–2020).² During this study, we conducted fifteen semi-structured interviews with migrants who had made the trip to Greece through the borderland with Turkey. The interviews took place in Athens and Thessaloniki during the summer of 2016 in public spaces to guarantee anonymity. We asked the 15 migrants of different genders and sexual orientations interviewed to participate in both configuring the issues and reflecting on their experiences. Specifically, we interviewed: ten people who had fled from the Syrian war zone, (among them were Abbas aged 21, Leila aged 23 and 8 months pregnant, Zia aged 19 from Syria, Faizah aged 25, and two heterosexual couples with their children (children were not included in the interview) residing in camps, Maysun 30 and Yasir 37, and Adnan 38 and Malika 30), two people from the LGBTQ community, (Salma a trans woman from Egypt who had fled due to sexual discrimination and Bahir, a gay person from Syria, both residing in an NGO apartment), Muhammad aged 32 from Iraq, Adil aged 34, who had just landed from Iran and was residing in a camp, and Ali aged 35 and Mashaal aged 28, who had migrated a few years ago from Afghanistan.

There are significant ethical and practical difficulties when conducting research within an ongoing crisis. Given that many of the interviewees have been in distress as they had recently traveled and that some were still persecuted by state authorities, we carefully selected our questions to avoid: a. drawing out any type of information that could ultimately endanger them and b. exacerbating traumas. We recruited most of our informants either by meeting them randomly in public spaces or based on personal acquaintances. Both sources led to other informants (snowball effect). It was not difficult to find interviewees at the Greek site, as during the time of the research, most of them were using the Greek public space as a place of leisure and as an escape from their residencies (NGO apartments and camps). Due to ethical concerns, we did not interview any people residing in public spaces and we did not conduct any research with people who were detained. We did not, on any occasion, push our informants to provide information that might endanger them, although, interestingly, in several cases, the interviewees were more than willing to share information on their practices in the belief that these practices were just.

During these interviews, the migrants informed us about their use of digital media during flight and identified specific digital platforms with which they interacted. We scrutinized migrants' narratives about these platforms through continuously identifying, classifying, and coding relevant data. We focused on migrants' practices in 1. configuring digital spaces caused by ruptures in the war zone, 2. configuring spaces of navigation, 3. configuring spaces of counter-information, 4. configuring spaces of navigation in the urban Greek territories, 5. configuring the mobile body and 6. configuring spaces of imagination.

This paper is also based on two epistemological assumptions concerning contemporary transnational migration. First, we consider that moving populations are not a homogenous group, but are differentiated by class, gender, sexuality, age, physical ability and many other characteristics and relations (Bürkner, 2012; Yuval-Davis, 2006). Therefore, we followed an intersectional approach (Crenshaw, 1990), trying to engage with a wide range of subjectivities of various ages, ethnicities, genders, and sexual orientations. This approach also adds up to understanding digital heterotopias as spaces emerging from the presence of the 'other'. Second, we point out that those migrants are not only victims of a war treaty but also active agents that question border limits and power mechanisms (Casas-Cortes et al., 2015). Various scholars (Mezadra, 2010; Trimikliniotis et al., 2014) stress the importance of the

² For further details see <https://www.en.culture.aau.dk/research/projects/dignauts/>.

autonomy of migration approach in understanding migration also as a creative force.

To remain consistent with this approach, we go one step further and argue that this sensible gaze must perceive migration as performative agency, that is, a simultaneous experience of semiotic and material, digital and analog practices. Viewing moving populations through the metaphor of performative agency not only paves the way for simultaneously tracing emancipatory practices, actors and hybrid spaces in the infected neoliberal terrain, it also allows us, whatever the sociomaterial context of the migrant subject is, to realize that it is never independent from a web of performative and heterogeneous interactions that constitute the very idea of being citizen, human, mobile (Galis et al., 2016). Given the above assumptions, migration/mobility is not only enacted via institutionalized spaces and practices of control and bordering but also from temporary digital-material spaces of resistance and emancipation.

2. Configuring socio-digital spaces

Throughout the migration trip, from the point of departure to the various stations and multiple destinations, ICTs are intertwined in the configuration of heterotopian spaces. In this sense, such spaces emerge during every step of the trip and include (among others) un-bordering practices, spaces of communing and spaces where counter-information blossoms. Based on interviews, we trace such multiple spaces and discuss their characteristics. The presentation of the empirical material here follows a thematic pattern as the migration journey develops from the country of origin towards Europe.

2.1. Configuring digital spaces of ruptures in the war zone: between survival and death

The use of ICTs at the beginning of the migration trip generates ruptures and creates heterotopias in the war terrain. Such temporary heterotopias resist web restrictions and surveillance, deal with demolished infrastructures, open passages for information and communication, and exacerbate perilous everyday life during war. Temporary is the key word here. More concretely, through ICT devices, the users keep up everyday practices that have been interrupted by the war, maintaining imaginary (e)scapes. Abbas described how he and his friends managed to play and compose music using his smartphone during the Syrian war:

“When I really got into the music, the war had already begun and ... no electricity, so we had to struggle. There was one time when we wanted actually to write a song and what we had to do was to borrow a generator and to buy one liter of gas and we had like 45 minutes of recording on the phone just to do it ...”

The mobile phone, even before the migratory trip begins, creates an escape plan, a portal towards a different time zone that is a pre-war space for the potential migrant. In his effort to maintain everyday creative activities, Abbas anticipated a space of consolidation where the brutality of war is temporarily interrupted. In that sense, such heterotopias deviate from the normality of war and restore a previous everyday life for the users by creating ruptures in the continuity of war. They are spaces that compensate for/exacerbate ‘infrastructural violence’, which is a manifestation of marginalization, abjection and disconnection triggered by civic infrastructures (see Rodgers & O’Neill, 2012).

Devices such as smartphones serve as compensatory technologies that often fill the gaps caused by damaged or destroyed infrastructures. Abbas also explained how people use the “Line”³ application in order to

communicate as “it is cheap, and it does not require a strong signal because in Syria in some regions, the signal now during war is very bad (...) because the Telecom antennas fell on the ground, and we were stealing the batteries from inside”. The infrastructural alternative enacted by the digital application not only enables communication but also facilitates preparations for a migratory trip, as we will show in the following. Similarly, Maysun and Yasir described one of the multiple uses of smartphones as a light source: “We used the torch in Syria more than we have ever used it during the entire trip. There is no light because we are bombed.” Here, the ICT device acted as an illuminator of space, translating dark, war-torn landscapes into livable heterotopias.

At the same time, multiple risks and limitations are associated with the use of ICTs. The enablement of migration with ICTs is not a linear, uncomplicated, or safe process. Apart from affordances of assistance and preparation, digital applications are a space exposed to state surveillance. Several informants described web restrictions applied to their countries of origin. Adil noted: “Yes, I like Facebook. Facebook is forbidden in Iran, for using it as a political thing is very dangerous. We have to use some proxy programs (...)” Political and sexual orientation expressed digitally may pose a significant threat to a moving subject. Salma 35, a trans woman from Egypt, explained the difficulties and dangers that the LGBTQ community faces when using social media in Egypt: “The Police used to go to these dating websites. They found us and arrested us (...) I mean I go to date, and I get arrested. Many of my friends were arrested like this” In these cases, anonymity, the use of proxies or other digital safety measures can create and/or activate temporary free zones within the heterotopias exposed to hazards. In that sense, the actual migratory trip might conceal a few background digital babushkas that aim to protect moving populations. These practices of overcoming such obstacles often by becoming ‘an anonymous other’ are constitutive for the emergence of the migration multiple. The outcome of this constant tug of war regarding transformations is either successful mobility or imprisonment/a death sentence.

Similarly, the use of social media entails crossing borders but not always in an emancipatory way. Risks and limitations in the war zone can be carried outside the physical land barriers through the digital space, and while migrants seem to have escaped the war zones, their digital traces (their digital space-heterotopias) may prove lethal for other people. As the use of ICTs creates a link with the war zone, the users inscribe the war zone in their devices. When asked if they or their children post information in social media Maysun and Yasir replied categorically: “No. We still have family in Syria. They could get harmed, even if they are in Syria.” In this case, social media can become another risk for users in the war zone acting as sources of bullying and persecution. These examples demonstrate the multifarious forms of “infrastructural violence” (Rodgers & O’Neill, 2012), which range from depriving migrants of their devices and debilitating their connectivity, to killing them for their online activities. Thus, being part of the social media community entails both benefits and risks that are often connected with issues of online visibility and invisibility. In some cases, there is a desire for traceability that often contrasts with the imperative importance of hiding (Gillespie, 2018, p. 7).

Through the above descriptions, the use of ICTs by migrants creates an oscillating space that moves between visibility and invisibility, safety, and danger, like a pendulum moving between freedom and detainment. On the one hand, these heterotopias serve as survival kits by providing a desirable distance from the militarized space, and a safe space against sexism and patriarchy. On the other hand, they leave tracks of radical acts or forbidden sexuality (through the IP address). But most importantly, these digital heterotopias constitute bypasses to the dipoles of legality-illegality, they challenge the totalitarian control of materialities and infrastructures, and serve as portals towards consolidation simply by remaining connected to the web.

³ The Line is a freeware app for instant communication on electronic devices such as smartphones, tablet computers, and personal computers. Line users exchange texts, images, videos and audio, and conduct free VoIP conversations and video conferences.

2.2. Configuring spaces of navigation during the trip

Our interview material, along with many other research papers (Stierl, 2015; Gillespie, 2018; Scheel et al., 2019), shows that one of the most notable uses of digital applications and ICT devices is that they serve as navigation tools in the sea and deserted landscapes and even in urban landscapes. Most of the informants referred to the importance of GPS navigation tools for crossing national borders. When we asked Maysyn and Yasir which was the most useful application during their trip they answered: “The GPS app because when we crossed the border, a car needs to come and pick you up, and they are in the middle of nowhere, so the only way was to send the location”. Rubber boats and smartphone devices constitute a lifeline to Europe when crossing the Aegean Sea. The use of GPS in such circumstances has “a precise and determined function” (Foucault, 1986, p. 26): to cross borders and succeed at accomplishing unimpeded movement across the borders of transnational territories. Such uses constitute digital heterotopias formed by relations of solidarity. Several passengers from these small boats described the trip as a collective process of sharing information to cross the sea. In Abbas’ words:

“People living all over Europe are dedicated to helping the refugees when they are in the boat. So, one person on the boat will keep contacting this rescue group by sending our location every five minutes. They had me on a group. They were five people and they were telling me ‘send your location’, ‘tell the driver to go a bit to the left’, ‘no don’t go that way the waves are going against you’, ‘okay now you just keep going on half an hour more and we will call the Coast Guard’, ‘now we can’t because you’re still on the Turkish side’. We didn’t know these people. Only as profiles on Facebook that you get in contact with them, they give you a number, you have the number on [digital application] and they open a group for you and they keep contact with you until you arrive. Once you arrive, they ask you ‘did you arrive?’, ‘are you safe? and then they block you and you never hear from them again.”

This vivid description shows that devices and platforms facilitate border crossings in multiple ways. Not only by providing migrants with access to valuable navigating technologies such as GPS, or weather forecasting, but also by facilitating anonymity. Again, the art of becoming ‘another’ here is an act of resistance against the persecution of solidarity. Moreover, digital heterotopias in this paradigm result in collective actions and it is precisely these collective actions that form the migration multiple.

One of the most common ways in which migrants used digital resources was to create spaces for accessing and exchanging information on routes and destinations, identifying, mapping, and navigating safe/unsafe passages, and circumventing border controls. The migration multiple continuously changes in the ontological register when migrants are on the move: information exchange about routes and destinations on digital spaces translates into mobility through specific terrains, which is guided in real-time through navigation emanating from online spaces. The digital material hybrid in action performs mobility and migration.

The same devices, however, simultaneously constitute a source of risk since the authorities can trace smartphones. In some cases, crossing borders involved turning off phones. Again, issues of visibility and invisibility arise. We argue that a vicious sociotechnical war between high-tech and low-tech takes place at the border, which evokes a strong will for free mobility against a powerful institutional apparatus: the western nation state. That said, we must stress that the nation state is not a monolithic formation but a porous and, in cases, fluid mechanism. Digital and analog heterotopias are formed to circumvent the complexity of the nation-state. Crossing borders includes avoiding thermal cameras, hiding in the dark or navigating through deserted landscapes and seas. Heterotopias here refer to a route, (resulting from) a hybrid of humans and digital/physical spaces that breach restrictive

borderlines and provide protection and navigation tools.

The same devices that constitute life companions may also turn into dangerous snitches when used as flashlights (the same technologies that, in other contexts, as we saw above, were an assistive technology). Maysyn and Yusin noted: “No we did not use the light or the phone at all while crossing the borders, because the Turkish police would see the light. We also had it in black bags not just for the water but in order not to be seen.” Adil from Iran aged 34 explained that: “One time, I got lost through walking from Iran to Turkey and I used my compass on my cell phone. It can be dangerous.”

Migrants often take advantage of the various gaps in bordering practices. The physical space of the border that determines a nation state’s territory is different from the borderlines set for signal reception and capital flows. In this case, such borderlines appear more porous and blurred. Adil said: “I used my SIM card from Iran, it was also working in Turkey and even here, it depends on Cosmote [Greek telecom provider] service, so it was easy for me” and Abbas noted “when I arrived in Lesbos I had the Turkish reception, the SIM card was working but I sometimes lost the signal”. Maysun and Yusin described the various alterations and restrictions they encountered in navigation systems throughout the border crossing:

“We used it mainly to communicate within the group that we left with ... we had this roaming service on, and then there was no GPS until we reached Turkey because it was banned by the Syrian government and then everything”.

From informants’ descriptions, it seems that digital heterotopias seem to operate in a parallel space with different border zones, the space of digital communication. Adil described how easy it was to transfer his personal stuff from Iran while he himself had to walk for days under perilous conditions to leave the country:

“I kept my documents in Iran, I didn’t carry them through the borders because it would be dangerous. I kept them in the care of one of my friends and I requested them [he mentions a popular post private company], post. It’s a little more expensive than the normal one, but it is very guaranteed, and it was very fast. It just took 2 days to get my documents.”

In this effort to circumvent limitations of mobility, undoing borders seems an easier task when it concerns capital flows, as there is a clear distinction between the circulation of people and goods (Balibar, 2009). Migrants take advantage of this inconsistency between physical, mobile reception and capital flow borders to enhance mobility. However porous borders may be, access to technology often defines porosity. As many interviewees highlighted, borderline areas in Greece have issues of access to technology either because of their geographical position (e.g., a poor signal at the Greek border with Northern Macedonia) or economic/class restrictions (high telecommunication tariffs) or due to lack of infrastructures for internet access and communication (plug sockets etc.) as in most of refugees’ the camps. Such (non) access also creates and defines vulnerable subjects and therefore signifies the vulnerability of the migration multiple. Nonetheless, the migration multiple through material semiotics navigates migrants to heterotopias, that is, accessible routes formed by relations of solidarity and the use of ICTs. Crossing perilous and precarious borders entails heterotopias made of solidarity knots throughout the route.

2.3. Configuring spaces of counterinformation

ICTs are of vital importance when preparing migratory trips as they are strongly linked to the decision to depart and facilitate aspects of organization. Maysun and Yusin mentioned that they could not imagine how life would have been without digital technology: “We would never have made the decision to leave if we did not have it.” ICTs act as zones of exchange of counterinformation regarding legal advice, alternative

pathways and geographical restrictions that affect and/or change the itineraries and trip process. Salma described how ICTs were the only way for her to obtain information to organize her trip. As a trans woman, she stressed that without access to Facebook and social media, it would be impossible for her to make such contacts and obtain legal advice:

“Through Facebook I was able to join a group for the LGBTQ ... It helped me to decide where to go [...] I read in general and found someone to guide me who told me that I could apply for asylum in Turkey ...”

Both Salma and Bahir stressed the importance of the web in obtaining information about their legal rights as asylum seekers due to their sexual identity. Nevertheless, obtaining information on the web is not a solely individual process as it also involves joining collective groups in the digital space. Moreover, various platforms that act as spaces of solidarity have been created by net communities that provide information and help moving populations consisting either of people who have already migrated or of citizens in solidarity from the destination countries. The growing number of self-organized digital collectives (e.g., WatchTheMed Alarm Phone, 2EU, Techfugees) used by migrants and volunteers to provide counterinformation in terms of navigation, networking and solidarity are simultaneously active along migrants' passageways from the European South to the North.⁴ As Adnan disclosed:

“When the war in Syria started, and people started to spread all over the world, significant networks were created on the internet. On Facebook, for example, there is a big group of 200,000 Syrian refugees...”

Such digital spaces that allow counter information to thrive constitute spaces that shuffle institutional order. They are digital heterotopias where a counter order emerges. Leila from Syria stated:

“Now, after we are here, it (smartphone) helps us to know what is happening back in Syria and, in addition to contacting our family and friends, it is the only way to know about news.”

ICTs are a mediator of information that link the war zone and the migratory routes through a digital passage. Devices, the web, and social media act to form a digital-material collectivity, the migration multiple, against the vulnerability created by lack of information or misinformation. Thus, the migration multiple enacts free zones of information exchange and legal advice that are important and affect the materiality of the journey. In some interviews, migrants noted the ways in which social media such as Facebook, WhatsApp, and Viber created spaces for accessing information beyond institutional surveillance. As Salma described:

“Every morning, I spend two hours online reading about our future in Greece. Reading about another country that we need to go to other than Greece, which is Sweden. I am reading about the situation in Sweden and how to apply for Asylum.”

In other words, the migration multiple expands to several spaces independently of the geographical routes and destinations of moving populations and the materiality of the trip. The migration multiple inhabits spaces at the intersection of digitality, the physical terrain and human bodies. It is inscribed in all material and digital semiotic exchanges of information about routes, rights, and other identity-related issues. Most of the informants describe their use of the web as an ongoing procedure of shaping routes of a never-ending trip. The migration multiple is not restricted to preparing for trips, the heterotopias of navigation or (final) destinations. Such spaces/heterotopias

challenge the vulnerability caused by non-access to information and they contribute to the autonomous movement of migrants across the unexplored/new/unknown for them transnational landscapes.

2.4. *Configuring spaces of navigation in the urban Greek territory*

Unbordering practices are vitally linked to migrants' familiarizing themselves with the urban cores that are new to them. These spaces include several restrictive areas and borders for migrants to overcome and many more places to explore, wander around and shelter in. In our case, migrants navigate via cell phones by using them as a translation tool (Greek language dominated) to orientate in the urban space or by maintaining contact with people in solidarity as well as established migrant communities. GPS is a helpful navigation tool both in deserted areas and in urban landscapes. Mashaal explained how useful the GPS was for his trip through Europe to Sweden:

“Now I can understand everything (...) when the train will come, when it leaves, which bus I should take ... The GPS shows where we are, where we can go, and no internet is needed.”

Navigation technologies offer an opening to urban space enclosures, and they extend migrants' city access by surpassing the analog borders of language and culture. This space of extension is a digital heterotopia where the migration multiple thrives. Salma said:

“I read a lot about it through this technology on my smartphone, to locate the UNHCR Offices in Ankara and Istanbul, the NGOs in Istanbul, as well as getting the maps, saving the directions to be able to visit the places I wanted to go ...”.

In Salma's case, we see that these digital heterotopias abolish not only urban space enclosures but also nation state enclosures as they simultaneously operate on multiple space scales. Apart from navigation applications, social media act as a valuable companion in the new terrains. Abbas described how he managed to find his way in Turkey: “When I lived in Turkey, I joined all the groups on Facebook because there are some groups selling electronic stuff, selling furniture only for Syrians. It's like a Syrian cyber community”. Survival practices in the urban public space involve decoding space and trespassing limitations and enclosures either in strictly well-ordered areas or in metropolitan chaos. Again, there is a constant exchange of registers between semiotic, material, digital and corporal capacities. For example, the interaction of migrants with ICTs undo semiotic language barriers and open material passages in squares, streets, and houses. Adil said:

“Without a phone for a stranger like me, for a person who came from another country, it looks like all the streets are the same. Especially due to the style they use for making the houses in Athens, they make all of the houses look the same, I don't know why ... But now everything is different even in Greece. Here we are given the addresses and I have to go to the iOS map to find the streets and the building number and search for it to find directions and save directions ...”

Decoding and translating urban space is an act that surpasses urban enclosures. Such (digital in our case) acts are inscribed both in the migration multiple and in the digital heterotopias that this multiple forms. Moreover, restrictions posed by racialized and sexualized spaces are surpassed. Salma described her relation to her devices/social media as the umbilical cord between her and the safe space of the LGBTQ community. The search engine appears to be one of her closest relations; she even referred to Google as “a person”:

“This is not something you can find on a street sign that says ‘The LGBTQ group is in this direction’ you can't ask someone on the street ‘Please, I need to go to an NGO for the LGBTQ’ so, I can't ask anyone

⁴ These media are beyond the scope of this paper. We focus here solely on commercial digital media such as WhatsApp, Facebook, Twitter and so on.

this question but Google. This is the only, what can I say, person, this the only place where I can get the answers.”

Newcomers experience the city through a hybrid of sensory impressions and digital navigation. Urban space is not purely material, and digital maps are not purely semiotic. By analyzing migrants’ trajectories and practices, we contest binary thinking (material/semiotic, analog/digital) and we understand the migration terrain, and urban space in general, as an outcome of a trialectic approach (Lefebvre, 1991), as an intersectional terrain and a hybrid scheme. In this context, migration does not reside solely in maps or in physical mobility. The migration multiples are effects that come into being when temporary spatial reconfigurations are irreducibly caught up in a web of constitutive interactions that disturb the very idea of citizenship, bordering practices, (il)legality and space. Thus, such heterotopias that flourish on the verge of urban terrains and digital space act as translation tools/decoders that open passages to a parallel ‘digital city’ formed by different tools, orders, and restrictions. That is a digital encounter between people and public and personal sites filled with linguistic and navigational information that resembles an augmented reality situation. While in the vast digital web, these digital cities/heterotopias remain well hidden from the analog public eye as migrants try to (autonomously) navigate on their own in the urban core.

Still, such digital heterotopias from spaces of autonomy may turn into pseudo spaces due to the lack of physical presence of subjects. In this respect, Abbas appeared to be skeptical as to the mediation of personal relations and contacts through his smartphone and social media, even though his phone and the voices of the unknown persons in solidarity with migrants from Europe were his compass while crossing to Greece:

“My best friend in Germany, and I used to spend a lot of time together and now it feels weird just to talk on WhatsApp. it’s like we are replacing our real emotions with electronical emotions, and we’re satisfied with that”

The migration multiple allows for specific sorts of communication and exchange that often enable a digitalized emotionality, openness, and immediacy due to lack of time or for safety reasons. In this sense, the lack of an (analog) presence in physical space intensifies a deep loneliness. Urban space is replaced by its virtual construction, and technology then operates as a Pandora’s box that dissolves social relations.

2.5. Configuring the mobile body

Personal space configured using ICTs also extends to the body, as it challenges mental, corporal, gender, and sexual restrictions. As mentioned above, urban space is a minefield not only for those of a different ethnicity or race but for those of gender or sexuality. As Salma described:

“If I am sick, I can Google because I was not able to go to the hospital, to Turkey. Because they deported me to a city other than Istanbul, (...) they sent me to an Islamic religion village and it was a disaster for me as a trans. So I cannot go to the hospital. I cannot use anything other than the private sector and of course I do not have so much money to go to private hospitals ... so sometimes I got cold and cough and I Google it ‘What should I take?’ and I go to the pharmacy and say ‘Please give me this’. You know, I have a rash or something and I see photos to see what this is. I have my hospital in my smartphone.”

Again, a parallel virtual space, a ‘digital hospital’ is formed for those who have no access due to sociospatial enclosures that come from racist, sexist and class restrictions. In Salma’s notes, we witness a digital recreation of space that spreads beyond disciplinary and taxonomy mechanisms. The migration multiple is inscribed on the bodies of those on the move. Their access (or not) to information regarding corporal and health issues significantly affects the course of the journey. Leila noted: “I use

Google to acquire information about my pregnancy.” Maysun 30 & Yasir 37 used ICTs in Eidomeni [the Greek-Northern Macedonian borderland]:

“We used it in the camp, we had to reach a doctor because Maysun had a problem, and I contacted an online doctor and they told me that they charge but I did not have a credit card to do this process online ... Like, if you want a consultancy to pay online. It is online in English. On Google. And we had to send it in Arabic in Google Translate.”

Contacting a doctor online might look like quite a common activity among less vulnerable subjects. In the context of the migration multiple though, it seems to allow a break in sociospatial power relations of accessibility and restore a temporary human condition. It is a moment when digital practices detonate re-humanification processes in dehumanized analog terrains. Perhaps one of the most intriguing and moving uses of technology in our material was described by Salma when we asked what other technologies she would like to have access to. She said:

“I hope I can get Google glasses; You have everything in your eyes you know you don’t have to carry anything in your hand ... I have a problem with my hand [she explained that it is because she was tortured at a police station] ... and sometimes it hurts a lot so if I just wear my technology I don’t have it in my hand ”

Salma sees the ICTs as an extension of her body. Technology, here, may potentially act as a consolidating and compensative terrain for a body traumatized by state mechanisms. Heterotopias disrupt the continuity of such mechanisms and reverse a racialized and homophobic normality. Still, in some cases, corporal affordances disrupt technology. As Adil noted:

“When the weather is normal, the cameras at the borders recognize you through the temperature of your body. But when it is very cold these kinds of cameras are very sensitive, and they do not work. That is why in the winter the borders are more fragile, more vulnerable.”

The somatechnical battle that takes place at the border also implies that the body becomes malleable matter, adaptable to whatever conditions allow it to remain invisible, healthy, and mobile (Galis et al., 2016). The migration multiple as a practice of contesting and crossing borders entails the pursuit of mobility using alternative configurations of the standard spatial and corporal order.

2.6. Configuring spaces of imagination

One of the primal characteristics of the Foucauldian heterotopias is that they constitute spaces of illusion and compensation (Foucault, 1978, p. 8). The use of ICTs triggers digital spaces of memory and imagination. Imagination expressed through digital devices generates ruptures in the mental and physical continuity of space as it questions established restrictions. Smartphones are often used by all those in peril and under persecution to transfer even mentally to liberated spaces. However temporarily, they offer escapes, as spaces of detainment temporarily disappear, and zones of temporary freedom are created. Moreover, devices constitute containers of memory as migrants store photos and relevant information about their previous lives. ICTs create links/imaginary passages between the ground zero/war zone and the desired destination spaces, and between the route and destination spaces and the homeland. According to Abbas: “It is [the smartphone] my only portal to my family.” Smartphones are a tank of memories full of family photos. During the fieldwork, most of the interviewees shared with us photos of their previous lives. By showing us their photos, they were not only expressing nostalgia about their previous lives, but these data also acted as re-humanification devices. That digital information constituted proof, links, and reminders of their previous ‘human

condition' and identities. Maysun and Yasir described how they tried to gain time for communicating with home when they were in Turkey:

"There was an embedded game within this can [a Coca Cola can], that you gained like credit ... if you buy it, you get something like a code and when you use it, it gives you access to this application ... So we paid for one can that gave us ten minutes to call Syria ... because you have nothing to do, and the only thing they are asking you to do is to pay a small amount of money to win some minutes to call home."

Consuming the products of a famous corporation, with the intervention of digital practices creates a passage of communication with home. This is a contradictory space, introduced as a migrants' survival tactic against home nostalgia and the anxiety of waiting to cross the border.

At the same time as facilitating imagination procedures, ICTs allow migrants to 'escape' as they disrupt the continuity of spaces of detainment. First, they act as entertainment spaces for children throughout the migratory procedure: "In the camp, Raja (aged 7) plays Candy Crush. She uses the laptop for 12 h, she sits all the time but she only goes to the washroom or eats, and then gets back to the laptop," said Malika, who also described how her daughter Raja was learning to draw via the smartphone: "Now that the laptop is gone she uses a phone and she opens YouTube for tutorials for drawing, and she gets the paper and she draws even better than the ones she has seen ..." Maysun and Yasir noted: "He [their son] is only 2 years old and he is already a YouTube fan. He watches video clips, he does not sleep unless you turn on YouTube, if you want to feed him you also have to turn on YouTube." ICTs produce spaces – shelters of creative imagination for adults as well. Leila noted: "[We use our phones] all the time every day ... It's the only entertainment and means of connection (...) because we don't have so many things to do in the camp ... we are usually very bored." The temporal structure of the camp is disrupted using technology while new digital spaces emerge in migrants' imagination. Adil mentioned: "There were three days that I had nothing to do and I started to design for myself. I was like using my laptop to design some imaginary place."

Our informants referred to temporal digital heterotopias of compensation, healing spaces and escape. These heterotopias are reaffirming identities, providing much-needed stimulation, and creating sociocultural connections in often dehumanized contexts. Moreover, in parts of the migratory trip that often entail long periods of waiting or long periods in camps, digital resources provide an important source of entertainment. Smartphones are often used by those being detained or with deportation status to intellectually escape to liberated spaces. The devices enable the creation of alternative spaces away from the detention camp while they blur frontiers between the outside and the inside. This is when and where zones of temporary freedom are created.

Digital devices as a single real space juxtapose the imaginary escapes of the digital realm with the crisis-scapes of borders and camps. Devices themselves act as sacred spaces, as heterotopias where different worlds are mirrored on their screens. Migrants become part of digital platforms/communities as they try not only to escape from everyday detention but also to become visible and present in a public sphere. In fact, often it is the only visibility they can perform and is a process of re-humanification since invisibility is also essential. It is widely respected that social media often function as antidepressants. Migrants escape into an imaginary digital space trying to incorporate themselves in a virtual world of inclusion, acceptance, and compensation.

3. Conclusions

This paper makes three (theoretical) contributions in the study of migration and space. The migratory space is multiple and pluralistic. It is a space of contradictions and reshuffling of power relations. To conceptualize these contradictions/relations, we employed the notion of

heterotopias as spaces of othering that are formed when migrants interact with ICTs. We followed migrants' digital practices among multiple terrains and scales to better understand the ways migratory processes form relational and emancipatory spaces. To do that we introduced the analytical framework of the migration multiples and we deployed critical theoretical perspectives of space to conceptualize the digital heterotopias that emerge from such human and ICTs interactions.

Moreover, following a relational approach of space we highlighted the parallel importance of material and non-material elements of digital heterotopias. Even when migrants cannot escape the physical constraints of space, as in the case of camps and detention centers, they manage to flee using imagination. In the same line, migration multiples form personal portals even in the most privatized and enclosed digital terrains. The intertwining of migrants and digital media generates passages to ontologies that challenge state surveillance, enable movement, and imply emancipatory mobilities. The use of ICTs also implies different experiences of urban space and establishes passages between semiotic space and materialities, while they act as mediators/hybrid spaces/digital passages between imagination and reality. Viewing the several performances of the migration multiple (from the material-physical space to spaces of representations and perceived spaces) reveals a massive terrain of heterotopias. In this respect, we have shown how digital heterotopias extend to different ontologies, from the migrants' bodies to the borderline areas and the vast terrains of wandering and settlement.

Moreover, they swing between restoring continuity and creating ruptures in spacetime. Sometimes they are outcomes of collective processes and sometimes outcomes of individuals' acts. In this sense, the migration multiple offers a continuous ontology that counters the war ruptures of everyday life, thus providing a heterotopia of everydayness and a normality that counteracts the state of emergency resulting from war and displacement. In a state of homophobia, war and fear, heterotopias formed by relations of solidarity function as digital asylums where migrants build their escape routes. Based on our observations, we suggest that heterotopias respond to migrants' vulnerability in several ways. In terms of access to technology, information precarity and/or misinformation and surveillance, spaces of counterinformation emerge. While in urban territories, they often constitute digital sites filled with language and navigation information that resemble an augmented reality situation. These digital heterotopias remain well hidden from the public eye, while their users intend to circulate as 'undercover' strangers. This fieldwork shows that digital space (just like urban space) is never complete or total but in a permanent process of becoming. In the case of migrants, it constantly implies the creation of conditions of possibility for making the journey. Digital heterotopias constitute passages to emancipatory spatialities, creating the conditions of mobility and border crossing.

Viewing the multiple uses of ICTs throughout the migratory routes, we encountered a multidimensional role of digital technologies in relation to space. On the one hand, digital border technologies often act as persecutors, facilitating bordering practices and entailing severe threats and risks. In this sense, the users balance between safety and danger, between freedom and detention. The migration multiple entails a sociotechnical battle at the border (wherever that is), a hybrid for producing mobility or detainment, a future, or death. Nevertheless, even in such hazardous conditions, they make use of shields of protection like anonymity, the use of proxies or other digital babushkas that ultimately protect them to a great extent. On the other hand, ICTs may act as facilitators of migratory practices, as detonators of emancipating praxes and as capacitors of imaginary processes. In this framework, several dehumanized contexts such as bordering practices, detainment and various power structures are challenged while the human condition is reassessed through ICTs and space is reconfigured. In these newly formed digital heterotopias, the migration multiple is reassembled. In the hands of migrants, ICTs disturb the very idea of citizenship and othering, by deconstructing bordering practices, questioning (il)legality,

often providing a distance from the militarized space, and acting as a shield to sexism. Moreover, digital devices used both in terms of their material substance (such as torches) or as portals to the digital sphere, serve as survival kits. On the other hand, their use may revert to the initial emancipating purpose by creating pseudo situations of friendship community and liberty.

By presenting the migration corpus as a multiple, we raise doubts about any final and infinite conclusions concerning restrictions on human mobility, and we stress the importance of further research on interaction between humans and ICTs. By following migrants' spatial practices (also to better understand this multiple), we have shown that digitality constitutes a thriving and dynamic parameter that reassembles and expands the urban and peripheral space, to reveal, we believe, a wide field of research. Moreover, we claim that assessments and values related both to the role of digital technologies and to the nature of digital and analog space are rooted in the facts presented in this paper (cf. Mol, 2002). It could also make sense to look for new ways/methods of mapping these territories. With regards to technology, we have shown the multiple ways it can be channeled by migrants' creativeness and imagination towards empowerment and emancipation. In this respect, we argue that engaging with aspects of digital technology blazes a trail for scientists interested in the concept of space to begin asking different questions.

Finally, migration multiples consist of various subjectivities differentiated by age, gender sexual orientation, ethnicity and so many other characteristics. Such characteristics entail different uses of ICTs. Young children used ICTs as an escape from a dark reality, women managed to access medical care through digital platforms, teenagers created ruptures in the vicious war zone everydayness by using their devices to compose music, trans people formed and made use of online groups and social media to escape sexism and transphobia. Digital heterotopias are spaces that derive from the intersectional nature of migration multiples.

Foucault (1986, p. 30) concludes: "The ship is the heterotopia par excellence. In civilizations without boats, dreams dry up, espionage takes the place of adventure, and the police take the place of pirates". Migrants' ships of death and freedom in the Mediterranean Sea still encourage people to travel. Their heterotopias travel in spacetime while reshuffling the traditional binary of time and space. Sometimes devices expand spacetime as memory capacitors. In other moments, they perform temporality creating/offering instant electric moments and spaces of joy. All in all, digital heterotopias constitute migrants' electric dreams.

Declaration of competing interest

We hereby declare that there is no conflict of interest and that the manuscript "Analog flows in digital worlds: 'migration multiples' and digital heterotopias in Greek territory" has not been submitted to any other journal.

References

- Agamben, G. (2005). *State of exception*. Chicago: University of Chicago Press.
- Alencar, A. (2019). Digital place-making practices and daily struggles of Venezuelan (forced) migrants in Brazil. In K. Smets, K. Leurs, M. Georgiou, et al. (Eds.), *The SAGE handbook of media and migration* (pp. 503–514). London: Sage.
- Alevizou, G. (2019). Civic media and placemaking: (Re)claiming urban and migrant rights across digital and physical spaces. In K. Smets, K. Leurs, M. Georgiou, et al. (Eds.), *The SAGE handbook of media and migration* (pp. 489–502). London: Sage.
- Aradau, C., & Tazzioli, M. (2020). Biopolitics multiple: Migration, extraction, subtraction. *Millennium*, 48(2), 198–220.
- Balibar, E. (2009). Europe as borderland. *Environment and Planning D: Society and Space*, 27(2), 190–215.
- Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of women in culture and society*, 28(3), 801–831.
- Bondi, L. (2005). *Gender and the reality of cities: Embodied identities, social relations and performativities*.
- Broeders, D. (2011). A European 'border' surveillance system under construction. In H. Dijstelbloem, & A. Meijer (Eds.), *Migration and the new technological Borders of Europe* (pp. 40–67). London: Palgrave Macmillan.
- Bürkner, H. J. (2012). Intersectionality: How gender studies might inspire the analysis of social inequality among migrants: Intersectionality and the analysis of social inequality among migrants. *Population, Space and Place*, 18(2), 181–195.
- Casas-Cortes, M., Cobarrubias, S., De Genova, N., Garelli, G., Grappi, G., Heller, C., & Hess, S.I. (2015). New keywords: Migration and borders. *Cultural Studies*, 29(1), 55–87.
- Certeau, M.de (1984) [Repr.]. *The Practice of Everyday Life*. 1. paperback pr, 8. Berkeley, Calif.: Univ. of California Press.
- Cohen, E., Cohen, S. A., & Li, X. (R) (2017). Subversive mobilities. *Applied Mobilities*, 2 (2), 115–133.
- Crampton, J., & Elden, S. (Eds.). (2007). *Space, knowledge and power: Foucault and geography*. Routledge.
- Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241.
- Dempsey, K. E. (2020). Spaces of violence: A typology of the political geography of violence against migrants seeking asylum in the EU. *Political Geography*.
- Fischer, L., & Bak Jørgensen, M. (2021). 'We are here to stay' vs. 'Europe's best Hotel': Hamburg and Athens as geographies of solidarity. *Antipode*, 53, 4.
- Foucault, M. (1986). Jay miskiewicz (translation). "Of other spaces". *Diacritics*, 16(1), 22–27 [1967].
- Foucault, M. (1978). *Ιστορία Της Σεξουαλικότητας I (the history of sexuality)* [1976]. Athens: Ράππος, 1978.
- Galis, V., & Neumayer, C. (2016). Laying claim to social media by activists: A cyber-material détournement. *Social Media Society*, 2(3).
- Galis, V., & Summerton, J. (2018). We are all foreigners in an analogue world: Cyber-material alliances in contesting immigration control in stockholm's metro system. *Social Movement Studies*, 17(3), 299–317.
- Galis, V., Tzokas, S., & Timpas, A. (2016). Bodies folded in migrant crypts: Dis/ability and the material culture of border-crossing. *Societies*, 6(2), 1–10.
- Genocchio, B. (1995). Discourse, discontinuity, difference: The question of other spaces. In W. Sophie, & G. Katherine (Eds.), *Postmodern cities and spaces*. Oxford, UK; Cambridge, Mass: Blackwell.
- Gillespie, M. (2018). Refugee waste: Death, survival and solidarity in Lesbos. In D. Francis, & W. Antonia (Eds.), *A world laid waste?* "In A world laid waste?: Responding to the social, cultural and political consequences of globalisation. Routledge.
- Hands, J. (2010). *@ is for activism: Dissent, resistance and rebellion in a digital culture*. Pluto Press.
- Harvey, D. (2000). *Spaces of hope*. Edinburgh: Edinburgh University Press.
- Hetherington, K. (1997). *The badlands of modernity: Heterotopia and social ordering*. London and New York: Routledge.
- Johnson, P. (2016). 'Brief history of the concept of heterotopia' (revised) *heterotopian studies*. available at <http://www.heterotopiasudies.com>.
- Latoner, M., & Kift, P. (2018). On digital passages and borders: Refugees and the new infrastructure for movement and control. *Social Media+ Society*, 4(1).
- Lefebvre, H. (1991). *The production of space*. Oxford, OX, UK; Cambridge, Mass., USA: Blackwell.
- Leurs, K. (2015). *Digital passages: Migrant youth 2.0. Diaspora, gender and youth cultural intersections*. Amsterdam University Press.
- Martin, L., & Prokkola, E. K. (2017). Making labour mobile: Borders, precarity, and the competitive state in Finnish migration politics. *Political Geography*, 60, 143–153.
- Massey, D. (2005). *For space*. London: SAGE.
- Mezzadra, S. (2010). The gaze of autonomy. Capitalism, migration and social struggles. In V. Squire (Ed.), *The contested politics of mobility* (pp. 141–162). Routledge.
- Mol, A. (2002). *The body multiple*. Duke University Press.
- Olivius, E. (2017). Sites of repression and resistance: Political space in refugee camps in Thailand. *Critical Asian Studies*, 49(3), 289–307.
- Papadopoulos, D. (2011). Alter-ontologies: Towards a constituent politics in technoscience. *Social Studies of Science*, 41(2), 177–201.
- Papastergiadis, N. (2009). Wog Zombie: The De- and Re-Humanisation of migrants, from mad dogs to cyborgs. *Cultural Studies Review*, 15(2), 147–178.
- Rodgers, D., & O'Neill, B. (2012). Infrastructural violence: Introduction to the special issue. *Ethnography*, 13(4), 401–412.
- Rose, G. (1993). *Feminism and geography: The limits of geographical knowledge*. Minneapolis: University of Minnesota Press.
- Sánchez-Querubín, N., & Rogers, R. (2018). Connected routes: Migration studies with digital devices and platforms. *Social Media+ Society*, 4(1).
- Scheel, S., Ruppert, E., & Ustek, F. (2019). Enacting migration through data practices. *Environment and Planning D: Society and Space*, 37(4), 263–7758.
- Silvey, R. (2004). Power, difference and mobility: Feminist advances in migration studies. *Progress in Human Geography*, 28, 1–17.
- Smets, (2018). The way Syrian refugees in Turkey use media: Understanding "connected refugees" through a non-media-centric and local approach. *Communications*, 43(1), 113–123.
- Smets, K., Leurs, K., Georgiou, M., Witteborn, S., & Gajjala, R. (2019). *The Sage handbook of media and migration*. Sage.
- Soja, E. (1989). *Postmodern geographies: The reassertion of space in critical social theory*. London: Verso Press.
- Soja, E. (1996). *Thirdspace: Journeys to Los Angeles and other real-and-imagined places*. Cambridge, Mass: Blackwell.
- Stavrides, S. (2010). *Μετεόροι Χόροι Τēs Heterotētas* (1st ed.) (Chōros Kai Koinōnia. Athēna: Alexandria).

- Stierl, M. (2015). "the WatchTheMed Alarm phone. A disobedient border intervention". *Movements. Journal for Critical Migration and Border Regime Studies*, 1(2).
- Trimikliniotis, N., Parsanoglou, D., & Tsianos, V. (2014). *Mobile commons, migrant digitalities and the right to the city*. Springer.
- Yuval-Davis, N. (2006). Intersectionality and feminist politics. *European Journal of Women's Studies*, 13(3), 193–209.
- Gillespie, M., Ampofo, L., Cheesman, M., Faith, B., Iliadou, E., Issa, A., ... Skleparis, D. (2016). Mapping refugee media journeys: Smartphones and social media networks. *The Open University /France Médias Monde*.

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