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Places of the Holocaust: Towards a Model of a GIS of Place

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Abstract

Progress toward developing a GIS of place can only follow from an understanding of what place is, and this understanding draws on geographical theory. Here—following Agnew, Tuan, and others—we consider place as being made up of three components—location, locale, and sense of place—which are recognizable at multiple scales and vary historically as a product of social and political processes. Using the testimonies of two survivors of the Holocaust, we sketch the components of a model for a GIS of place that allows for this theory of place to be visualized and analyzed. The model is, crucially, both multi-scalar and sensitive to uncertainty, as a GIS of place needs to be able to zoom in and out of the different scales at which place is experienced, as well as capture both uncertain data and uncertainty as data. We see potential in the representations proposed for scaling up from the anecdotal to the general in the sense that any narrative can be grouped and classified according to places and scales as shown here. The challenge in developing a GIS of place along the lines we propose here is to design a new set of functionalities that can do so.

Introduction: on place and scale

In this article, we reflect on how a GIS of place can bridge the epistemological and ontological gap between the humanities and GIScience. We do this using, as an example, a

close reading of two testimonies of Holocaust survivors from Italy and Hungary. Our discussion is framed in the context of the “spatial humanities,” defined as the use of GIS&T, and especially GIS, in the field of the humanities. Among the challenges the humanities present to GIScience are how to deal with relative rather than absolute space and how to manage data uncertainty—two topics that we will return to later in this article. From an epistemological perspective, the major obstacle to the successful integration of GIS&T in the humanities arise from the emphasis of the latter on qualitative data and methods, as opposed to the quantitative data and methods of GIScience; thus, qualitative research is often presented as a narrative rather than an explanatory model as is often the case in GIScience. From an ontological point of view, the humanities tend to be concerned with place rather than space. This point is especially important in the context of a discussion around the GIS of place, because agreement and understanding of what we mean by “place” is crucial in developing a GIS of place; and, conversely, there may be different models and implementation of a GIS of place depending on how place is defined. (See, for example, the concept of “deep maps” in Bodenhamer et al. 2015.) While a full review of the concept of place is beyond the scope of this article (see Adams 2017 for a review), we have been influenced by the work of Yi-Fu Tuan, Donald Meinig, Doreen Massey and, before these, by Hägerstrand, Bakhtin, Braudel, and others in seeing place as the culmination and meeting point of history, geography, and the human experience. Thus, we see place as a dynamic entity, a product of social processes, individually experienced, and constituted by the triad of location, locale, and sense of place (Agnew and Duncan 1989). This definition incorporates the idea of space and the physicality of place (location); the social, cultural, political and economic dimensions of place (locale); and the behavioral and emotional

component of place (sense of place, as theorized by Yi-Fu Tuan 1977). This last component of place is especially important for our argument, as we try to reconstruct place experiences through the use of individual testimonies and narratives of the Holocaust. In our view, the three concepts of location, locale, and sense of place are at the core of developing a GIS of place. Some consensus is developing on the centrality of the location, locale, and sense of place for progress on the research of a GIS of place, as shown for example in Purves and Derungs (2015), Merschdorf and Blaschke (2018), and Purves, Winter, and Kuhn (2019). Purves and Derungs (2015), in particular, draw a parallel between theories of place put forward by human geographers—specifically Agnew’s and Tuan’s understanding of what place is—and the approaches taken by information scientists (see our comments on QSTR below).

Agreeing on the components of place is not enough, though. From an operational point of view, it is important to recognize that place occurs at different scales, in the sense that location, locale, and sense of place are, for example in the narratives of Holocaust survivors, explicitly linked and narrated at scales ranging from the continental to the body and all scales in between. So, anticipating some of the arguments we will make in the next sections, sense of place, locale and location can refer to the city one grew up in, to the experience of being deported in a cattle car across the European continent, or to the bunk bed slept in within a camp. As is the case for place, there is also need for agreement on what scale is, as different perspectives exist. We take scale as an observational prism through which we can examine how an event or phenomenon unfolds geographically. We value scale as a metaphor as in the idealistic tradition, rather than a tangible entity as one can see as in the materialist tradition (Herod 2011); more specifically, in a metaphorical sense, it is useful to conceptualize scale

alternatively as a ladder, a network, or a series of concentric circles (Herod 2011). What is especially attractive in the context of our research is that the various metaphors of scale can be effectively deployed to tackle a variety of research questions and situations. Thus, in Magda Mezei's narrative of the Holocaust, scale is a series of concentric circles of rooms, apartments, buildings, streets, and neighborhoods in which the narrative unfolds, while in Gilberto Salmoni's case, scale is a network in the sense that his story is one of paths of spatialized relationships, more or less deep depending on where he was at a certain time—his home, the prison, the train, the camp, the barrack, etc.

We close this brief introduction by tackling the issue of uncertainty. GIScience methods and tools are especially apt at dealing with accuracy as the measurable characteristics of a certain piece of information or as the probability for a stated result to be correct. This is appropriate when we deal with abstract space, but not as meaningful or significant when it comes to describe how humans experience place. Thus, in Mezei's narrative, whether a certain encounter occurred in this street or an adjacent street is less important than the consequences of that encounter or that this encounter occurred in a certain place at a certain time (Budapest in fall 1944). In the context of the components of place, it is the locale that matters, rather than the location, and positional accuracy is only useful when applied to location. However, scale comes to the rescue in the sense that what cannot be assigned to a specific street can be assigned to a specific neighborhood or, in the case of Budapest, district (Giordano and Cole 2018). When location is uncertain—or time, as the exact day of the encounter is not recalled in the testimony—the topological rather than the topographical becomes relevant: the fact that a triad of relations between the narrator, the person they encounter, and the place and time this

happened is what matters, rather than the exact address where this interaction occurs. We suspect a GIS of place in its most general configuration can only be topological, exactly because of how the ontology and epistemology of place is defined, and this perspective is reflected in the model we present in this article.

Although the term “patial GIS” or GIS of place are relatively new in the GIScience literature (Goodchild 2015), the roots of the discussion date from at least the late 1980s, and in fact it was at this time and under the general umbrella of “critical GIS” that the representation model of GIS and its worldview and origins came under scrutiny. (See Schuurman 2000 and, more recently, O’Sullivan 2006 and Thatcher et al. 2016 for a summary and an historical overview of the debate.) Early NCGIA Technical Papers from this period explore topics that include the language of spatial relations, cognitive science and GIS, the ontology of GIS, and other topics that are being revisited today (Couclelis 1992; Pickles 1995; Curry 1998; Obermeyer 1995; Sheppard 1995; Frank and Mark, 1991; Egenhofer and Mark, 1995; Smith and Mark 2001; for a more recent look at these topics, and specifically at ontological issues, see for example Scheider and Janowicz 2014). More recently, the discourse about space and place and the use of qualitative methods—or, rather, mixed methods—in GIScience have resurfaced in the context of the spatial humanities and the geohumanities, historical GIS, and qualitative GIS (Cope and Elwood 2009; Bodenhamer, Corrigan, and Harris 2010; Drucker 2012; Dear et al 2011). A recent symposium on “patial GIS” (Westerholt et al. 2018) offers several perspectives and approaches to the GIS of place, with emphasis on social media, a focus different from the one in this article. We review this literature and reflect on the history and characteristics of a GIS of place in earlier work (Cole and Giordano 2018). Of this literature, research on qualitative spatio-

temporal representation and reasoning (QTSR) (Cohn and Hazarika 2001; Klippel and Wallgrün 2017) has potential towards the definition of the primitive elements of a GIS of place, as it brings AI methods and tools to geography specifically in the context of the representation and analysis of qualitative and relative spaces. Research at the intersection of GIS and GIScience and literary criticism is also relevant in this context as it provides tools, methods, and a conceptual framework to study narratives. See, for example, Cooper and Gregory's work on the idea of a "literary GIS" (2010) or Travis' (2015) case studies for a "humanities GIS" (2015). For our part (Knowles, Jaskot, Cole, and Giordano forthcoming), we have been experimenting with the use of corpus linguistics (Gregory et al 2015; Gregory and Donaldson 2016; Rayson et al 2017; Donaldson et al 2017) to explore hundreds or even thousands of testimonies of survivors of the Holocaust, in an effort to achieve a "distant reading" of the archive (Moretti 2013). Geonarratives (Kwan and Ding 2008) and Mennis et al's (2013) work on combining qualitative and quantitative data and methodologies within the context of geographic information systems (GIS) provide a broader conceptual framework in the context of qualitative GIS.

Geographical perspectives on the Holocaust

Our own work in rethinking a GIS of place emerges from empirical research into the spatialities of genocide (Burleson and Giordano 2016) and the Holocaust. Within the discipline of geography, pioneering work on the Holocaust was undertaken by the British historical geographer, Andrew Charlesworth (Charlesworth 1992; 1994a; 1994b; 2004a; 2004b; Charlesworth and Addis 2002), who was troubled by the lack of interest in the topic among his colleagues given the key role that geographers played in the Nazi German state (Rössler 1989;

Barnes and Minca 2013; Barnes 2015). Charlesworth's call for geographers to write on the Holocaust was initially taken up in the United Kingdom (Cole and Smith 1995; Clarke, Doel, and McDonough 1996; Cooke 1998; Cole 2003) with works interrogating the centrality of spatial concepts such as *Lebensraum* (literally "living space") to the Nazi imagination and practice and specifically the relationship between *Lebensraum* and *Entfernung*—the removal of undesirables from the space of the Reich (Bassin 1987; Rössler 1989; Clarke, Doel, and McDonough 1996; Barnes and Minca 2013; Barnes 2015; Giaccaria and Minca 2016). More recently, the geographic scholarship on the Holocaust has moved in two rather different directions. One is broadly theoretical, influenced in particular by the work of the Italian philosopher Giorgio Agamben (Agamben 1998 and 1999; Giaccaria and Minca 2011a; 2011b). The other—which informs our thinking in this article—has experimented with the ways that GIScience might uncover spatial patterns within the Holocaust at a variety of geographic scales (Beorn et al 2009; Giordano and Cole 2011; Cole and Giordano 2014; Knowles, Cole and Giordano 2014; Giordano and Cole 2018) and with an explicit focus on "movement," given that the forced movement of targeted individuals, families and communities is key to the implementation of genocide. In the case of the Holocaust, this entailed, for many—if not all—Jews, the experience of forced movement to and through a network of ghettos, transit camps and concentration, labour and death camps. In order to escape from this incarceratory geography, those targeted for arrest and deportation often chose to flee. As a result, stories of "voluntary" and "involuntary" movement, which we define as a degree of agency in the context of forced movement, are central to understanding both the practice and experience of genocide (Knowles, Cole and Giordano 2014; Cole 2016).

One element of our earlier work has been to use GIS to map these spatio-temporal

patterns of movement during the Holocaust. However, during the course of our multi-year research we came to realise that there was far more to say about these journeys, and that the experiential dimension of such movements could not be captured with the traditional tools and methods of GIScience. This realization came as we shifted from working primarily with perpetrator sources that contain basic data about sites of arrest (Italian database) and incarceration (Italian database, Budapest ghetto database) and work with more abstract concepts of space, to victim sources that contain more complex data that reveal “spatial strategies” and experiences of place (Cole 2016). In particular our turn to work with oral history interviews with Holocaust survivors presented us with a number of key challenges and opportunities that led us to re-imagine what a GIS of the spaces AND places of the Holocaust might entail.

In this article we sketch the constituents of a model for a GIS of place that draws on our own work with narratives created by survivors of the Holocaust. We illustrate this through two stories of movement that operate at different scales, the scale of the continent (Gilberto Salmoni) and the scale of the city (Magda Mezei). We have chosen these individuals because they build on our GIS of the Holocaust in Italy and Budapest respectively (Knowles, Cole and Giordano 2014). Drawing on that earlier work, we use these two individuals’ trajectories and spatial experiences to propose a GIS of place that is scalar and reckons with the temporal as well as spatial dimensions of human experience, and simultaneously maps the three components of place discussed in the introduction: that is, location, locale and sense of place.

Gilberto Salmoni is an Italian Jewish survivor of the Holocaust. A native of Genoa, he was arrested by Italian militias in April 1944 while trying to escape to Switzerland with his

parents Gino and Vittorina, his brother Renato, and sister Dora. Deported to Buchenwald in August 1944 with his brother, he survived the Holocaust and returned to Genoa, where he still lives; his parents and sister were deported to Auschwitz and killed upon arrival or immediately thereafter. The map in Figure 1 shows the spatial trajectories of the Salmonis from their place of residence in Genoa to their final destinations in Buchenwald and Auschwitz via several intermediate steps lasting a few days each in Italian prisons (Bormio, Tirano, Sondrio, Como, Milan), followed by a longer (April to August 1944) stay in the Fossoli camp, and then north to Germany or Poland via Verona. Missing from this map is a fateful stop in Innsbruck, where the convoy from Verona was split, with most cars going to Auschwitz, one to Buchenwald (for the “*Mischlingen*—‘mixed race’—of first degree,” as Gilberto and Renato were classified), and one to Ravensbruck (for the women). Gilberto was interviewed for the Shoah Foundation Visual History Archive (VHA) at the University in Southern California in 1998, has written several books (2005, 2013, 2016) on the experience, and has an active social media presence. One of us was also able to interview him in person in Genoa on January 8, 2017.

Magda Mezei (Lapidus) is a Hungarian Jewish survivor of the Holocaust. Like other Jews in Budapest, she was forced to move into a number of ghetto houses during 1944. Broadly speaking, ghettoization in this city involved two stages that took place in the midst of the changing geo-political circumstances of 1944. In the spring and summer of 1944, after the German occupation of their somewhat reluctant ally, the Hungarian state ordered Jews to move into ghettos in the larger towns and cities (Cole 2003). In June, the Budapest Mayor identified just under 2,000 apartment buildings spread across the city for Jewish use. These were marked with a large yellow star of David on the entrance door, becoming known as

“yellow star houses” in popular parlance. Jews had to move into these houses, with one family per room. They were only permitted to leave these buildings for a few hours each day to undertake essential tasks such as shopping for food or receiving medical treatment (Cole 2003). In November 1944, most Jewish families were on the move again. This came after the rise to power—with German support—of the native Hungarian fascist Arrow Cross party. In late November, the Arrow Cross state ordered Jews in Budapest to move into two ghetto areas in the city. One was a walled ghetto established in the streets near to the main synagogue in central Budapest. The other was a looser connection of apartment buildings that were under the oversight of the neutral powers on a number of streets close to the river Danube, that was generally known as the “International ghetto” (Cole 2003). Magda’s family lived in the first and third of these different ghettos in the city. They moved from their home into a yellow star house in June 1944. From here, Magda was called-up for forced labor on the outskirts of the city, but managed to escape and return home. In November they were briefly marched to another house. A few days later they left here and were taken to one of the Spanish buildings in the International ghetto. Magda was interviewed for the United States Holocaust Memorial Museum Oral History Archive in 1990 (USHMM 1990).

From a geographic perspective, Salmoni and Mezei experienced different versions of the same Holocaust. Magda’s was local, ghetto-based, and physically and socially familiar, as she grew up in Budapest. Gilberto’s was continental, as he was uprooted from the city he grew up in, and includes prisons and one internment camp in Italy, deportation, the train experience, and a traumatic separation from his family. What the two experiences have in common are spatial and social strategies of survival, a limited degree of agency centered on alternate

periods of resistance to movement and flight, adaptability to extreme existential conditions, and the ability to preserve and/or renew their social networks as the material contingencies of their experience changed. Looking at this through the triad of location, locale, and sense of place, we can see that when comparing the Holocaust experience of the two victims with their pre-Holocaust experience, location and locale changed more dramatically, and quickly, for Gilberto than they did for Magda, while in both cases sense of place changed dramatically (how could it not?). Recall that location refers to the physical/geometric dimension of place; this is the spatial perspective, typically studied in GIScience with quantitative methods and tools and represented on the map. In the case of Gilberto and Magda, these are the buildings where she lived, the barrack in Buchenwald where he slept, etc. Locale refers to the social/economic/political dimension; this is place intended as a construct of geo-political structures and systems and as the locus of social relations. In the case of Gilberto and Magda, these are personal relations, interactions and events that are historically and geographically determined by the particular context they found themselves in as victims of the Holocaust. Finally, sense of place refers to the emotional/experiential relation individuals have with the places and people they navigate through, live in, and interact with. Importantly, sense of place can have negative or positive connotations that vary depending on when a place is experienced. Thus, pre-Holocaust Budapest was felt differently by Magda than Holocaust Budapest. As we will argue, scale is also important, and in fact the model we will present later in the paper includes three horizontal dimensions (location, locale, and sense of place) and a number of scales on the vertical axis.

The components of place: location

From a spatial perspective, the location component of Gilberto's place experience is depicted in Figure 1. The figure shows the spatial trajectory of his family's Holocaust experience. It is, as we already know, an abstract representation that conveys the physicality and locational dimension of the narrative at the continental scale. Lots of information can be derived from this map concerning the spatial trajectories of the family—in particular the separation of family members along lines of age and gender is striking. Additionally, when we plot and measures the trajectories of the other victims of the Holocaust in Italy, we can scale up from one family to many and acquire an understanding of the spatio-temporal patterns of the Holocaust in Italy (Giordano and Holian 2014). Likewise, with the Mezei family it is possible to map their spatial trajectory from their home on Nefelejts utca through the three different ghetto buildings they lived in (yellow star house on Király utca, briefly in Ó utca and finally in the International ghetto house on Szent István Park) at the scale of the city (Figure 2). As with the case of Salmoni, it is possible to scale up from one family to many to understand the spatio-temporal patterns of the Holocaust in Budapest as an event that saw the multiple forced movement of the city's Jewish population into ghetto houses. It is at the locational level that GIScience, its tools and methods, are especially useful to scale up from the individual to the many—from the single experience of the Buchenwald prisoner or Budapest ghetto inhabitant to the collective.

The components of place: locale

However, a GIS of place requires mapping not simply the longitude and latitude of the places of arrest (Salmoni) or the site of multiple ghetto houses (Mezei). These sites are not only locations on the map, but locales created in the geo-political context of the Second World War. In brief, the first example of the Salmoni family's arrest on the Swiss border is a geopolitical locale that was both site of attempted flight by Italian Jews into neutral territory across the mountains, as well as the focus of hunts for fleeing Jews in particular on the part of the Italian authorities (Giordano and Holian 2014). Similarly, the apartment buildings on Király utca and Szent István Park where the Mezei family were confined in 1944 were created by two different Hungarian political systems that had differing relationships with the occupying German authorities and—in the case of relocation to Szent István Park—were seeking to gain approval from the neutral powers. As these examples show, the places where the Salmoni family were arrested or the Mezei family were housed were not simply points on a map, but places constructed through the practice and rhetoric of geo-political relations.

As well as embodying the systemic, these places were social and not simply political. This emerges strongly in survivors' narratives where the spatial is social (Knowles, Jaskot, Cole and Giordano 2020 forthcoming). One result of the constant dislocations experienced by victims of genocide was the withering away of pre-existing social relations. A clear example of this can be seen in Figures 3 and 4, which show the social networks of Gilberto Salmoni. Figures 3 and 4 describes Salmoni's social networks before and after his arrest. Figure 3 covers a much longer period of time, before the war and up to the moment the family was captured. Once the Salmonis were arrested, the places they went to and the people they interacted with were largely determined by the Italian and German perpetrators, who exercised almost complete

control over them, up to the fateful decision to deport Renato and Gilberto to Buchenwald and the rest of the family to Auschwitz. The striking characteristics of the “involuntary” period in the 1998 VHA interview is the total collapse of Gilberto’s social networks (Figure 4). This, however, is only part of the story, for in his books and the interview with one of the authors of this article, social networks are prominently at the center of the narration (Salmoni 2016).

Not every component of a social network is equally important: some clearly emerge for their central role—in social network analysis, these are called the *ego* nodes. As concerns Gilberto’s narrative, two *ego* nodes emerge: the first is Gilberto’s mother Vittorina, the hero of the first part of his narrative; the second is his brother Renato, especially after the brothers’ arrest and deportation. In Buchenwald, two types of prisoners’ social networks were crucial to Gilberto’s survival, both of which he only had indirect access to, via his brother Renato and via the contacts Renato was quickly able to establish once they settled in the camp. The first network included the so called *Prominenten*, German political prisoners, and the second the mostly French, and also political, prisoners of barrack 14. The first network was more distant, both in space and also in the frequency and intensity of contacts, while the second was spatially defined—the barrack, and especially the half of the barrack they lived in—close and circumscribed, small in physical size, but experienced daily by Gilberto, especially at the end of the day when they returned from work. Both networks were crucial to survival. In his interview, Gilberto remarked on the fact that “your social networks were your barrack.” The atmosphere in barrack 14 was of true “*solidarité*” (Salmoni 2005 and 2013, 80, in French in the text), and Gilberto returns over and over to the concept of a “hierarchy of men.” The prisoners in barrack 14 included prominent French political figures and businessmen, scions of important families,

and other individuals very well-known at the time, or who would become well-known after the war. In the eyes of 16-year-old Gilberto—as well as in the eyes of 89-year old Gilberto—these individuals were of “high stature” not “because of their past, but because of how they behaved in the camp... Sharing the table with them at the end of the day in the barrack was energizing for me... There was so much warmth and camaraderie.”

A similar sense of the importance of place as a locale for social relations emerges in Magda’s story of survival. As is common to many narratives from Holocaust survivors, particularly those interviewed in the United States, the narrative becomes not just a story of survival but also a way to explain survival (Pollin-Galay 2018). Magda is clear in her mind that the pivotal reason for her survival came after a chance meeting in the street with “a professor of mine from the Commercial Academy who was also a Jewish man” who told her of plans to set up a closed ghetto and “a way out from the David Houses” through the paperwork provided by the Spanish legation. As she explained at the end of her interview: “It was crucial to me that I was lucky to meet my old professor ... I didn’t know [about the] Spanish Legation, so this was really, they were our saviours. No question about it. My life and my mother’s and my brother’s definitely” (USHMM 1990). The street just “outside” the ghetto house was the critical place in Magda’s narrative for meeting people and getting hold of the things that they could provide. As she explained, the street was “where I can find some friends or contacts because we needed food ... So we changed with people, or we had friends we could go to some friends and say, ‘Could you give me something because I’m in this house. I have to go back.’ So some friends helped sometime” (USHMM 1995). The “fairly narrow street” that she lived on during the first

stage of ghettoization was significant because it was a potential place for meeting other Jews, as the story of meeting her professor exemplifies.

The components of place: sense of place

It is through their social networks that Mezei and Salmoni were able to exercise a degree of agency over their destiny. Most importantly, geography was a key factor to survival, in the sense that where one found oneself was a great contributor to what might happen. For example, it would be striking to look into how many prisoners from barrack 14 survived as compared to other barracks, all other things being equal, or how many Jews living on streets like Király utca with a high number of yellow star houses were able to access social networks of Jewish friends and acquaintances compared to those living on streets with low numbers of other Jews. Which street, and which apartment building on that street one ended up in could be the difference between life and death because of the heightened significance of social relations during the war. These strike us as the kinds of questions that a GIS of place should be able to tackle, as they involve both a spatial dimension and the lived experience of the victim—the location, the locale, and the sense of place—and have that element of “scaling up” from the individual to the aggregate that is a desirable feature of digital tools and methods, including GIS&T and GIScience. Particularly important in Mezei’s narrative is Anna, the non-Jewish concierge who remained living in the small apartment by the building’s front gate in this house as in all other ghetto houses (Adam 2016). Anna was a “very nice person” (USHMM 1990), and at a number of pivotal points in her story, as the “gatekeeper” to the building she played a critical role in Magda’s survival. With the two examples of the professor and the concierge,

Magda explains her survival in terms of the social relations *inside* and *outside* the first ghetto house she and her mother and brother were sent to live in. In the case of Gilberto, given the importance of building social relations in the locale where he found himself in, it is no surprise that much of his period in Buchenwald was defined by “resistance to movement”: staying put and not going anywhere was crucial to survival, and that is one reason Gilberto was so alarmed by his brief work assignment to Weimar (the town closest to Buchenwald). One characteristic of this resistance to movement was its multi-scalar dimension: staying in the camp as opposed to being sent to a sub-camp (especially to DORA), staying in barrack 14 as opposed to moving to another barrack, staying in his half of barrack 14, and always sleeping in the same bunk bed. In other words, by reducing the immensity and mystery of Buchenwald to the smallest and most manageable geographical units—scale after scale—Gilberto could make sense of, relate to, and survive in the camp.

Scale, place and movement: toward a model of the places of the Holocaust

One of the most interesting aspects of Gilberto’s narrative of Buchenwald was his realization that the camp was in constant movement and was reshaping itself continually, with prisoners daily reassigned to other barracks or to other sub-camps, and being sent out for different and constantly shifting labor assignments. Whether this occurred to him at the time or only years later after reflecting as a mature man on his experiences, remains to be seen: as Gilberto writes (2005 and 2013), “when somebody disappeared, I realize only now, I never asked myself why. Constant change was the normal state of things.” This makes for a quite striking comparison with the “voluntary” period of the Salmonis’ Holocaust experience, when

after leaving Genoa it was exactly change and movement that were needed to survive. Moving from hiding place to hiding place, abandoning their home and the safety of their social networks, trying to reach Switzerland: these were the only ways out of an untenable situation. Once in the “involuntary” stage of the Holocaust experience—after his arrest—staying put and avoiding and actively resisting change became the chosen courses of action to maximize what were already slim chances of survival. As these examples suggest, scale is a key to analyze Gilberto’s narrative of the Holocaust; as such, it is incorporated in the model. In fact, a taxonomy could be built of Gilberto’s different types of interactions and relationships based on the scale of the place where they occurred. In Gilberto’s testimony, the camp, the sub-camp, the *appel* plaza, the barrack, the half-barrack, the table he and other prisoners had dinner at, and the bunk bed, were not only where different things happened, but more importantly they were the *loci* of social relations, and indeed they are explicitly discussed by Gilberto as happening not only “in place,” but “of place,” in the sense that they could *only* occur in those specific places and times.

However, one challenge of working with qualitative sources is that they often lack in the kind of precision that quantitative methods and tools require. As Bodenhamer, Corrigan, and Harris (2010: X) note, compared to the social sciences and the physical sciences, “the humanities pose far greater epistemological and ontological issues [to GIS],” including how to deal with uncertainty, as a distinct and more intractable problem than the accuracy of geographical data, which can be measured. Rather than seeing uncertainty as simply a limiting factor, we argue that a GIS of place can make uncertainty visible given its importance in understanding an individual’s sense of place in the world. At first glance of course, narratives

appear frustrating for their lack of spatial and temporal precision. The result is that even something as simple as mapping out the movements of the Mezei family through the city becomes difficult given that Magda struggled to remember the precise addresses that she lived in during this chaotic and traumatic period. But this can be mapped at the scale of remembered street names: she recalls that the family moved from their home in “Forget me street” to a yellow star house on “King Street” before being taken to “Old Street” in the Pest ghetto and then the Spanish House in “St Stephen’s Park”. However, it is harder to map these precise addresses at the scale of the individual building, which was the scale that ghettoization was first implemented in the city (Cole 2003). Taking simply the first address where the family was moved, Magda struggles to remember if this was “93 or 95. I think it was 95” Király utca (literally King Street), reflecting later, “I am living King Street 95 or 93. I don’t remember exactly” (USHMM 1990). It is possible to check her memory against the list of houses designated for Jewish use in June 1944. However, in this case this does not help much. Both 93 and 95 Király utca were yellow star houses in 1944, as indeed were the neighboring houses from 85 through to 99 (Budapest Mayoral Decree 1944). But, as we mentioned earlier, positional accuracy is not the point of Mezei’s narration, and it is in this sense that we suggest that topology is more important than topography for a GIS of place, with the caveat that scale is the discriminating factor; thus, the exact location of events in Mezei’s narrative is important only at the scale of the street or the neighbourhood, or the district, as these places are the loci of social relations that are significant in the narrative. In doing so, we link place, space and social relations, as one implies and requires the other.

However, the difficulty of remembering is not simply a failure of memory, but can in itself be data that reveals the difficulties of orienting self within a rapidly changing geography of dislocation. It is important to map out uncertainty given the significance of where the certainty of place (and a sense of self in the world) begins to unravel (Pollin-Galay 2020 forthcoming). In the case of Mezei, her story is rather different from other survivors in that her experience of wartime dislocation was located within the city of her birth, with a familiar language that enabled her not only to locate herself physically and linguistically. Telling of being taken to the second ghetto house she explained that she only remembered the name of the street—Ó utca—because it was so distinctive: “we stayed in the ghetto and this street was Old. That’s why I remember the street because it’s a crazy name. Old Street” (USHMM 1990). As Pollin-Galay suggests, such geographical certainty tends to dissipate not only when relocation is sped up, but also when it moves further and further away from home into *terra incognita*. A GIS of place not only has to reflect the uncertainty of the sources because doing so is an honest representation of uncertain data, but also because the degrees of uncertainty is itself the data. When and where, to borrow a phrase from Pollin-Galay, do survivors disappear of the map into the “black hole” and leave a familiar litany of places that can be recalled and mapped and enter into a place that is unknown and unknowable? (Pollin-Galay 2020 forthcoming)

A good example of representing this sense of not knowing where somewhere was comes in the pivotal episode in Mezei’s story when she describes going to the Spanish Legation to get the paperwork that she sees as critical in explaining her survival. “Where it was I don’t remember,” she recalls of this journey to the Legation (USHMM 1990). We can, and have, mapped out the legation buildings and estimated walking times to and from these which were

critical (Cole and Giordano 2014). But in a very real sense, the not knowing where it was is central to Magda's story. Although we can map that she went to the legation building at some time in the late fall of 1944, the not knowing "where it was" is vital to the narrative as it reflects the partiality of knowledge about the Spanish rescue efforts compared to the much-better known efforts of the Swiss and Swedish.

Figures 5 and 6 are an attempt to summarize and represent the logic we expressed above in two implementations, one for Salmoni and the other for Mezei.. Each representational model is composed of three parts. In the top left of Figures 5 and 6 is the trajectory of the victim as it unfolds over time. This representation is a topological version of the spatial trajectory of Salmoni in Figure 1. What is important here are the steps from one location to the other, as they are places in the narrative that the victim describe and are important in term of the place triad of location, locale, and sense of place. The lines connecting the squares describe movement and include "voluntary" and "involuntary" aspects, which refer to the victim's degree of agency. Thus, the reader can observe that Salmoni's agency was exercised, in terms of movement, at the beginning of his Holocaust's narrative, while for Mezei this occurred later. This is a simplified and selective representation of the places described by the victims, and in fact there is no place at scale larger than the camp for Salmoni: no barrack, bunk bed, or table. These additional scales are shown in Figures 5 and 6 on the diagram on the right. A feature of the diagram is the choice, made by the researcher on the basis of their reading of the testimony, of the place from which a certain narrative zooms in or out. Thus, for Salmoni this is Buchenwald, while for Mezei this is the apartment on Király utca. One other feature of this specific representation is its flexibility: as the geographical focus of the narrative changes—for

example, from Buchenwald to Fossoli for Salmoni—one can change the representation to reflect the scales of the new geographic center. One other feature of the diagram on the right is that it incorporates a sense of place, exemplified in Mezei’s quotes, and can be extended to include locale, for example the *Prominenten* network of Buchenwald. It is also possible to attach qualitative statements to the various places in the diagram. Thus, barrack 14 would be recalled in a positive sense by Salmoni, and this in virtue of the stated importance of this specific place in the context of his spatial strategies of survival, as already mentioned (in spite of the fact that Salmoni also had unpleasant memories related to the place for specific events and people). Lastly, the bottom left portion of Figure 5 and 6 is a way of classifying testimonies according to the geographic scales referred to in the narrative for the three elements of place, resolution (in its temporal and positional dimensions), and whether or not these aspects of the narrative can be represented graphically. The cross marks indicate that the testimony contains enough elements to allow the researcher to represent various aspects of place at different scales. Note that the representation can be complete (for example, in the case of Salmoni we can map the location aspect of its testimony in a GIS at most scales, but not as concerns the table), or partial, as is the case for social networks, or selective, as is the case for the testimony. Much could be said about the partial or selective aspects of the model, but this would require another article. Suffice it to say here is that depending on the interviewer, the narrative of the victim can vary considerably (Shenker 2015)—Salmoni, for example, did not talk much about Buchenwald in the VHA interview but does so in his books and during the interview with one of us.

Conclusions

In thinking about a GIS of place, we argue very strongly for an understanding of what place is based on geographical theory. As theorized by Agnew, Tuan, and others, we consider place as being made up of three components—location, locale, and sense of place—which are recognizable at multiple scales and vary historically as a product of social and political processes. Using the testimonies of two survivors of the Holocaust, we have then sketched the constituents of a GIS of place that allows for this theory of place to be visualized and analyzed. The representational model proposed is, crucially, both multi-scalar and sensitive to uncertainty, as a GIS of place needs to be able to zoom in and out of the different scales at which place is experienced, as well as capture uncertain data and uncertainty as data.

We conclude with two observations. We see potential in the model for scaling up from the anecdotal to the general in the sense that any narrative can be grouped and classified according to places and scales as shown here. The challenge is to design a new set of functionalities that can do so. In a publication in preparation, we attempt to do so in the context of the study of the location and locale of Holocaust survivors in post-war Budapest. Second, readers might wonder why we bother with a GIS of place: why not a whole different ontology and epistemology? Why try to adapt the GIS to place? We believe that the quantitative and spatial approach of GIScience and the GIS&T is ideal to study the location component of the triad of place elements we identified, and this is especially important for scaling up. However, in the context of the Holocaust in particular, we recognise that the quantitative and spatial approach tends to privilege the perspective of the perpetrator, its policies and actions as implemented on the ground. Integrating the voice of the victim requires

a new approach that is place-based. To bring place in, we need qualitative methods and tools to summarize and synthesize how humans narrate their experience, one that is as traumatic as Magda's and Gilbertos', as well as others that may be less extreme. We see potential in the use of mixed methods analysis—an explicit feature of qualitative GIS, a still unfulfilled characteristic of participatory GIS, and a hoped-for development for GIS from all those NCGIA technical papers of the 1980s and 1990s. In this sense, a GIS of place can only be a GIS of place AND space.

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Figures

Figure 1. The continental scale: the Holocaust trajectory of the Salmoni family.

Figure 2. The urban scale: the Holocaust trajectory of Magda Mezei in Budapest.

Figure 3. The social networks of Gilberto Salmoni in Genoa and before arrest at the Swiss border ("flight space"). This is the "voluntary" stage of forced movement. 1998 VHA interview.

Figure 4. The social networks of Gilberto Salmoni after arrest at the Swiss border. This is the "involuntary" stage of forced movement. 1998 VHA interview.

Figure 5. A model the GIS of the places of the Holocaust for Gilberto Salmoni.

Figure 6. A model the GIS of the places of the Holocaust for Magda Mezei.