Chapter 4

Place and Meaning in Space

Geography has more than its fair share of interrelated conceptual terms that defy easy definition: space, region, area, locale, network, boundary, neighborhood, and so on. Even in such elusive company, place may be the slipperiest character, almost impossible to pin down. It can be taken as a synonym, antonym, or close relation to almost any of the above, a spectral other when discussing any of them. Since we consider all these concepts elsewhere, it is convenient for now to emphasize the idea of place as a localized concrete expression of abstract space and to see place and space as somehow opposed. Opposing space and place in this way is useful and instructive, but also taken for granted enough that we should question the move. We return to this question at the end of the discussion.

Place and space are clearly closely related concepts, so much so that they are sometimes used interchangeably.[1] A comprehensive survey of philosophical takes on both is Edward Casey's *The Fate of Place* (1997b). He identifies Western notions of universalism as central to the persistent priority given in philosophical thought to space rather than place:

[1] Lefebvre (1991) and Massey (2005) are influential authors whose usage of space is arguably better aligned to thinking about place.

> This universalism is most starkly evident in the search for ideas, usually labeled, 'essences,' that obtain *everywhere* and for which a particular *somewhere*, a given place, is presumably irrelevant. Is it accidental that the obsession with space as something infinite and ubiquitous coincided with the spread of Christianity, a religion with universalist aspirations? (1997a, p. xii)

This hint at a religious origin for universalist ideas notwithstanding, there has been a persistent linking (in Western thought) of space with rational or scientific perspectives and of place with naïve or primitive perspectives. Given how "[p]lace presents itself to us as a condition of human experience" (Entrikin, 1991, p. 1), while abstract space has required significant intellectual labor to be conceptualized into existence, this prioritization is surprising but perhaps inevitable in light of Western thought's fixation on Cartesian dualism and the elevation of mind over matter. This tension is central to many narratives of progress and colonial projects of displacement and conquest (see Massey, 2005, pp. 1–4). Consequently, geographical theory repeatedly returns to the space–place binary, as will be clear even from the overview of these ideas in this chapter.

Taking up the opposition between space and place, it is unusual for a person to think of their location in terms of geocentric (i.e., latitude–longitude) coordinates, or a map grid easting-northing reference, except in very particular circumstances. Instead, we think of ourselves as being in a particular place or places at any given moment. Some of these places are named locations, of lesser or greater specificity, such as Berkeley, California, or Wellington, New Zealand, or Northland in Wellington, New Zealand. Some places are personally meaningful, such as home or *turangawaewae* or work or my local pub, and require more information to be reliably geolocated to a particular point on a map. Again, some other places, even named places, may be ambiguous or vague, such as a particular neighborhood or suburb. For example, Tokyo's Shibuya or San Francisco's Mission District cannot be delineated on maps with certainty.

The concept of place has been and remains a challenging one for giscience, the spatial bias of which often ends up reducing place to the

$\langle x, y, \mathbf{A} \rangle$ geoatom of location in absolute space plus attributes tuple, but this approach drains places of their particular and unique character. As a result, attempts in giscience to be more *platial* necessarily challenge dominant computational representations (Mocnik, 2022). Place has become particularly salient in the realm of information retrieval (or search) and location-based services. Such services are location-based in the sense that the machines involved in their delivery operate using coordinate-based spatial referencing systems, built on the geoatomic logic of Chapter 2, but when people interact with these services, it is human conceptions of place that determine where a location actually is. "Where is the best pizza near 41°16′41″S 174°45′24″E?" is a question rarely asked.[2] "Where's the best pizza in Wellington?" or "in Northland?" or "near my home?" are human-centered questions that require a computational engagement with place and its many meanings. Such mundane questions and the translations between the different ways they can be posed lead to interesting questions at the heart of geography and giscience.

FROM SPACE TO PLACE

The examples already noted point to the dichotomy between space, particularly absolute space (see §The Nature of Space, Chapter 2), on the one hand, and place on the other. Loosely speaking, space, conceived absolutely, belongs in the realm of calculation, coordinate systems, and geodesy; while place belongs in the realm of everyday life and practice, emotion, and meaning. People generally attach little meaning to particular coordinate locations.[3] The North and South poles, the Greenwich Meridian,[4] the International Dateline, and Null Island[5] are exceptions.

[2] Google attempts an answer, but got it wrong at the time of writing.

[3] Confluence hunting is a not-very-notable, if enjoyable (for some), exception. See the degree confluence project at https://confluence.org.

[4] At the 2010 GISRUK Conference dinner on a Thames riverboat, I was bewildered by the joyous reaction of other attendees on crossing the meridian. As a resident of Greenwich for several years in the 1990s, who crossed the meridian almost daily, I had clearly become jaded.

[5] See https://en.wikipedia.org/wiki/Null_Island.

It is interesting that in a virtual world of pure space specific coordinates *can* become meaningful places. Thus Second Life's precursor AlphaWorld, as mapped in Dodge and Kitchin's *Atlas of Cyberspace*, exhibits high-density (virtual) development along lines in the cardinal and ordinal directions from the origin at (0, 0) (see Dodge & Kitchin, 2001, pp. 195–208). In this abstract space, coordinate locations such as (666, 666) in the northeast cardinal direction acquire meaning through their memorability. Nevertheless, even in this setting, what is built at particular locations and the life that then unfolds there eventually supersedes such accidents of labeling.

Making Space Legible: Addressing the World

Returning to the real, physical world, the closest humans come to using referencing systems in everyday life is in street addressing systems. Like many other everyday things, street addresses seem natural and obvious. However, differences in how street addressing works in different countries make clear that this is certainly not the case. Notable exceptions to Eurocentric ideas of the seemingly obvious way for street addressing to work are provided by the hierarchically nested addressing used in Korea and Japan, where

> districts (ku) are divided into neighborhoods (chome) that group together several dozen houses and thus form a block. Houses are numbered according to the block to which they belong and not as a function of the street (Farvacque-Vitkovic et al., 2005, p. 9).

This mode of addressing requires a completely different approach to geocoding (Lee & Kim, 2006). The importance of the development of the street address based TIGER and GBF/DIME formats for the development of GIS in North America (see U.S. Bureau of the Census, 1968, 1970; Holtzheimer, 1983) is further evidence of how much we take such systems for granted. In fact, address systems emerged over long periods of time to render spaces governable, navigable, and legible to commerce (Rose-Redwood, 2006, 2012). Standardized address systems are strongly associated with the emergence of the state and extensive

networks of nonlocal trading under capitalism. They occupy a position somewhere between the cold rationality of coordinate systems and more loosely defined notions of place in everyday life.

The tensions between human-centered and machine-centered indexing of location are clear. Fully geocoded machine-readable addressing systems are still emerging. Geocentric latitude–longitude coordinates are a pre-existing example, but for a variety of technical reasons *geohashing* schemes are favored. For example the geocentric coordinates 55°12′N 7°51′W correspond with the *geohash* code `gcf6j2g` in a system introduced by Gustavo Niemeyer.[6] Geohashes convert two geocentric coordinates to a single alphanumeric address which is more convenient for indexing in databases, and which has the property that locations near one another in two-dimensional space are likely to be close to one another in the index. Some schemes also have the feature that as the code is shortened the precision of the associated geolocation is reduced. This property makes them hierarchically organized orderings of two-dimensional space into a single linear dimension and is typically accomplished by means of fractal space-filling curves or hierarchically nested polygonal schemes as shown in Figure 4.1.

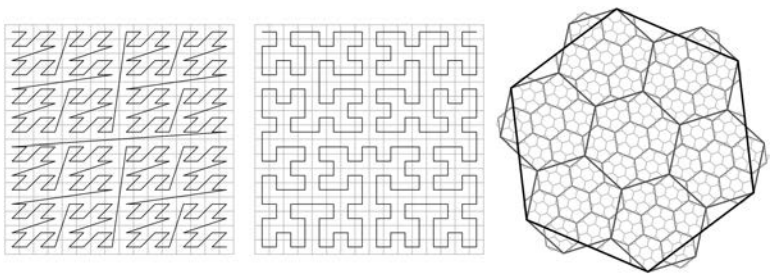

Figure 4.1. Geohash ordering schemes. From left to right are the Morton curve, Hilbert curve, and iteratively scaled and rotated hexagonal grid schemes.

[6] See https://blog.labix.org/2008/02/26/geohashorg-is-public.

Niemeyer's geohashing scheme relies on the z-order curve (the left-hand panel in the figure) first proposed by Morton (1966), which is convenient to program as the codes can be calculated by interleaving bits from the binary representations of the spatial coordinates. Google's S2 index uses a mapping of the Hilbert curve (middle panel in the figure) on to Earth's surface.[7] The hierarchically nested hexagonal scheme in the right-hand panel of Figure 4.1 is based on repeatedly downscaling by an (area) factor of one-seventh while rotating the hexagons to match vertices with those at the next level up. The particular hierarchy illustrated is used in the H3 indexing scheme developed by Uber,[8] and is similar to many discrete global grid (DGG) systems (Sahr et al., 2003). These schemes all have the property that shortening the index reduces the resolution of the associated geolocation. Equivalently, the first part of an index provides information about the approximate location, in a way that is natural for users accustomed to the progressive accuracy provided by a street address: New Zealand (country), Wellington (city), Brooklyn (suburb), and so on.

An example lacking this feature is what3words, which is nevertheless argued to be human friendly (Jones, 2015). This claim rests on the idea that sequences of three words, even meaningless ones, are more memorable to people than coordinate pairs or text indices as ways to index locations on Earth's surface. This logic is deployed to assign a unique and arbitrary three-word index to every location on Earth's surface at a resolution of 3 m. Thus, `mouse.dinner.book` is (at the time of writing) in a field near Esher in southwest London. To minimize the chance of errors, crucially "[t]he system is also non-topological; the three words used to reference any square on the Earth's surface are not dependent on the three words to reference any of the adjacent squares" (Jones, 2015, p. 12). Thus, the easily confused address `mouse.dinner.books` is near Herkimer in upstate New York on the other side of the Atlantic Ocean. This approach makes for unambiguous spatial references to highly specific locations, although it is questionable how human-friendly it really

[7] See https://s2geometry.io/.
[8] See https://h3geo.org/.

is. The lack of hierarchical logic to the index words means that there is no way, other than by using the what3words website or API, to determine the location of a particular word combination, even given the index word combinations of nearby locations. So, while what3words provides potentially more memorable mnemonics for particular places, the disconnection of the mnemonic from any spatial logic makes it less legible, and impossible to reason with. By contrast, street addressing schemes that use building numbers, street names, neighborhood names, and even postcodes embed a logic of place that is legible to most humans, as do the hierarchical addresses used in Japan and Korea. Any of these reflect more closely the rich meanings that people and cultures attach to places, when compared with the emphasis on point location of machine-oriented indices.

A more typical attempt to rationalize the addressing of places is provided by the still relatively recent (c. 2008) development of postcodes in New Zealand's national postal addressing system (the U.S. ZIP code and U.K. postcode systems were introduced much earlier). It is instructive to note that in this case, "postcode boundaries do not necessarily reflect suburb boundaries" (New Zealand Post, 2018, p. 3), a situation also typical of postcode schemes in other jurisdictions. The four-digit codes are formally and unambiguously defined—every address is in one and only one postcode area—but suburbs are less clear, and maintained largely through usage and shared understanding of where they are. For this reason, the suburb name is *not* part of the correct postal address, although it is commonly included as if it were, and is auto-completed in online forms. We can illustrate the ambiguity of suburb boundaries using information collected from the public about their understanding of where their neighborhoods are, as shown in Figure 4.2.

This apparently chaotic situation is not unusual for sub-city level places in urban areas. Surprisingly, meaning-making can attach to seemingly lifeless numbering schemes, so that over time, culture turns codes into recognizable places, like Los Angeles' 90210 or London's NW3. A similar place-based cultural cachet can even attach to only loosely geographical markers such as telephone area codes, like Manhattan's 212 or San Francisco's 415. When London's telephone area code switched in

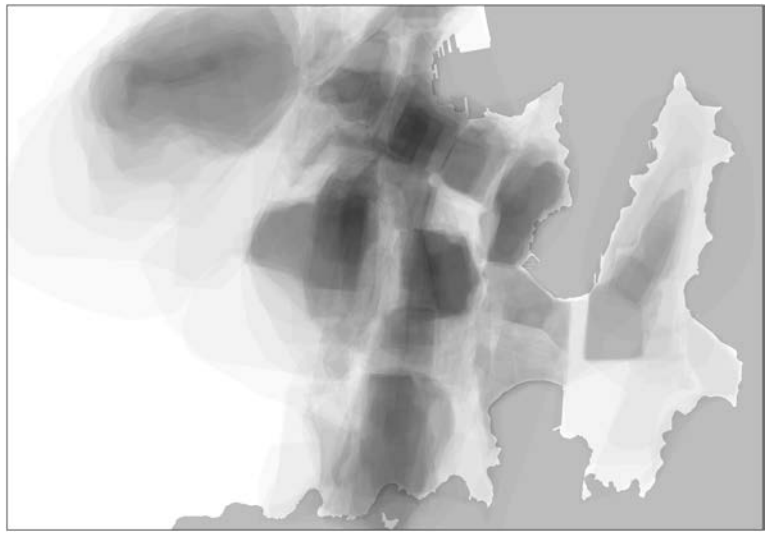

Figure 4.2. Neighborhood areas as delineated by respondents to a web map survey in Wellington, New Zealand. Alignment of some boundaries (often along roads) is evident, but so also are divergences in personal definitions of neighborhoods, which are not consistently aligned with any official postal or administrative boundaries. Neighborhood data from Rickard (2020). See also the Bostonography project at https://bostonography.com/2012/crowdsourced-neighborhood-boundaries-part-one-consensus/.

1990 from 01 for the whole metropolis to 071 for inner suburbs and 081 for outer suburbs, many users, particularly businesses, were disappointed to be assigned the 081 code.[9] Subsequent changes saw London area codes merged back into a single code 020, with an additional digit added to the local numbers, but the extent to which the inner/outer geographical split had become culturally embedded led to a persistence in preference

[9] It was probably only numerological oddballs like me who were excited to (briefly) have the phone number 0171 701 7107 in the midst of all these renumberings!

for 0207 numbers, even though this no longer has any geographical meaning.[10]

Such apparently arbitrary labels, whether the names of neighborhoods or suburbs, postcodes, or telephone area codes, can have considerable impact in the realm of real estate. The late 1960s saw the beginnings of the transformation of the declining industrial area of Manhattan south of Houston Street into the hip neighborhood of SoHo (see Zukin, 1982). While the renaming of the South Houston Industrial Area as SoHo did not *cause* this transformation, the reimagining of the area underpinning the renaming was an important part of the process. The remaking of the place economically and culturally was directly mirrored in its renaming and redefinition. Similar stories have played out in other urban neighborhoods such as the nearby Tribeca (Triangle below Canal), in a process where urban neighborhoods—at least in the United States in the modern era—are routinely produced by the real estate industry and city governments (Molotch, 1979). More recent accounts acknowledge a greater role for local communities, local activists, and others, suggesting that neighborhoods (whether old or new) are "spatial projects" that are both sites and outcomes of contest and struggle (Madden, 2014).

Place: The Intersection of Space With Experience

A recurrent theme of the various schemes for rationally organizing and ordering space touched on above is how they almost invariably become imbued with meaning: Spaces become places. The meanings are not attached to the labels or numbers per se, but to the geographical places those labels signify. Considering such matters brings us closer to an understanding of place as location imbued with meaning through experience, or more completely as both a context for and a product of physical, social, economic, and cultural processes. Places carry meaning not only because of human understanding, culture, and experience,

[10] The ascendancy of mobile phone numbers untethered from geographical referents will presumably lead to less status anxiety around phone numbers, although history suggests this might take some time.

but also because they are sites where the processes that make places are shaped and remade by the particular character of the places themselves.

An influential extended discussion of these general ideas is Yi-Fu Tuan's *Space and Place: The Perspective of Experience* (1977).[11] As the subtitle suggests, Tuan sees experience as central to any understanding of the nature of place. This perspective draws in part on ideas that were dominant in behavioral geography in the 1970s (see Golledge & Stimson, 1997, for good coverage of this literature). Touchstones of this tradition were work by cognitive psychologists on the development of a child's view of the world (Piaget & Inhelder, 1967), and Kevin Lynch's use of nonmetric sketch maps in *The Image of the City* to portray residents' collective and shared overall sense of the organization of their cities. Closer to geography, and taking Piaget and Inhelder, and Lynch as key points of reference is work on the importance of mental maps in understanding human behavior (Gould & White, 1974; Downs & Stea, 1973). This work can be seen in two somewhat opposed ways. On the one hand, it may be an attempt to rescue spatial determinism by establishing that it is not the objective (measured) spatial geometry of the world that drives events, but subjective (perceived) platial, experiential "maps in mind." On the other, behavioral geography is also related to a recognition that relative space cannot be easily measured and a turn toward phenomenology (Buttimer, 1976).

Tuan's insistence on experience as vital to a sense of place is a theme that he repeatedly returns to in *Space and Place*. He discusses, for example, how the body imposes a schema of up-down, front-back, left-right, on space (1977, pp. 12ff, and pp. 34ff). At other scales, such egocentric perspectives give rise to notions such as here and there, this and that, us and them (1977, p. 25). Traditional systems of measurement carry this further when parts of the body form a basis for units of length. Some echoes of this idea are found in the notion of naïve geography (Egenhofer & Mark, 1995), which calls for direct computational representation in giscience of more intuitive or qualitative ideas about spatial relations,

[11] Of course, consideration of the notion of place long predates *Space and Place*. See Glacken, 1967; Casey, 1997a, for extended discussions.

such as "near" and "far" or "up ahead" moving beyond the geometric emphasis that dominates the field (Ligozat, 2013).

The lack of a strong connection between Tuan's (1977) framework and dominant currents in the critical geographic mainstream is surprising in light of his insightful writing on, among other things, "architectural space," "attachment to homeland," and "the creation of place." Perhaps a tendency to focus on the individual rather than on how individual experience relates to larger scale processes of capital accumulation and state formation—dominant themes of contemporary Marxist geographies—explains the disconnect. One point of contact is the suggestion that "place is whatever stable object catches our attention" (Tuan, 1977, p. 161), meaning that landmarks are important, and that place making is about creating such objects of attention, whether widely visible or more local, or ideological and shared (e.g., schoolbook maps). This idea aligns with those in Henri Lefebvre's *The Production of Space*, which was originally published in 1974 but did not much influence English language geography until a translation appeared almost two decades later (Lefebvre, 1991).[12] The emphasis on landmarks also calls to mind *The Image of the City* (Lynch, 1960), which has influenced work on cognitive mapping in behavioral geography (Couclelis et al., 1987), and occasionally informed giscience (see Banai, 1999).

Experience is a tricky idea to pin down. Another potential avenue, perhaps more amenable to computational representation, opens up when we consider that experience can only build through time, a recurrent theme for Tuan. Space becomes place over time, so that when we know a region of space well, it becomes place; consequently, "[s]ense of time affects sense of place" (Tuan, 1977, p. 186). Perhaps the most evocative statement of this idea occurs early in *Space and Place* when place is equated with pauses, or stability and the home, while space is matched with possibility and movement:

[12]Lefebvre also emphasizes experience in his *Critique of Everyday Life* (2005)—work also published decades earlier in French.

> The ideas 'space' and 'place' require each other for definition. From the security and stability of place we are aware of the openness, freedom, and threat of space, and vice versa. Furthermore, if we think of space as that which allows movement, then place is pause; each pause in movement makes it possible for location to be transformed into place (Tuan, 1977, p. 6).

These dichotomies are recurrent in geographic thought, with space often associated with change, movement, and the restless onward march of globalized capitalism, while place is associated with resistance to change and preservation of the familiar (see Massey, 2005, pp. 4–6, and also discussions in §Relational Space, Chapter 2 and §Place in Relational Space, this chapter).

Everything in Its Place

The humanistic approach to place presented by Tuan runs the risk of making place a purely subjective thing. As Malpas argues "[t]he crucial point about the connection between place and experience is not, however, that place is properly something only encountered 'in' experience, but rather that place *is integral to the very structure and possibility of experience*" (1999, 31–32, emphasis in original). This understanding comes to the fore more in cultural geographic treatments of place, where emphasis falls on the question of what is *in place* or *out of place* in particular settings.

In *In Place/Out of Place* Tim Cresswell (1996) considers a number of examples of activities and behaviors whose in/out of place status sheds light on how society is organized and controlled. The most accessible of the case studies is urban graffiti.[13] Cresswell describes how New York graffiti in the 1970s moved from illegal street art to SoHo's commercial art galleries, and suggests that

[13]The other two case studies, of alternative hippy rave convoys, and the Greenham Common Women's Peace Camp at a cruise missile base, both in 1990s Britain, require more specific geographical and historical context than I have space for.

> a kind of geomagic is performed by the simple act of taking graffiti off the streets and (dis)placing it in the gallery—out of the unofficial spaces and into the sanctioned and revered domains of established and commercial art. Crime, with a flick of the wrist, becomes art; the valueless is turned into price-tagged and packaged art ready for your living-room wall (1996, p. 58).

Graffiti is a practice whose meaning is bound up with where and when it is or is not considered appropriate (in place or out of place), so that how it is experienced, whether as artist or as audience is intimately bound up with place. Graffiti is only graffiti if it is out of place for someone; even then it is only graffiti to those people for whom it is out of place. Spray-painted words and pictures in places where they are not considered out of place are not graffiti, they are street art, or simply spray-painted words and pictures. Graffiti may seem a specific example, but the broader argument is that all our behavior is governed by such place-based rules and judgments, and that culture and place are mutually constituted by these relationships.

Cresswell goes on to argue that understanding place is essential to understanding how ideology is created and maintained. Ideological beliefs have effects when they shape and control how people behave in and experience the world. Shared—even if contested—understandings of what actions are allowable or not in particular places mean that place, and how different places are defined, are central to the maintenance of ideology, and therefore of power. This points to an underlying conservatism in the humanistic perspective of experience, concerned as it is with how places are defined by the experiences that unfold in them. This is particularly clear when places such as home and related ideas of belonging are discussed. Equally, returning to the in/out of place perspective, the salience of place to ideology and its maintenance and enforcement also points to the salience of place in relation to resistance. As Don Mitchell puts it, "[s]pace, place, and location are not just the stage upon which rights are contested, but are actively produced by—and in turn serve to structure—struggles over rights" (2003, p. 81). Struggles around what

activities and practices belong, or which people belong in a place and what they may or may not do there, are thus central to social change.

This overall framework helps to shed light on topics as diverse as protest and free speech, homelessness, and migration. Accounts differ in the degree to which the places are clearly defined, particularly those associated with the assertion of property rights (Staeheli & Mitchell, 2008) or jurisdictional boundaries, themes central to Chapter 5. Places are as likely to be ill-defined as not. A recent widely experienced example is provided by mask-wearing during the COVID-19 pandemic under various lockdown provisions where norms around masking and when and where it was expected or not were often unclear and shifting from day to day, often without much direct relation to current quarantine orders. If all the examples noted seem tied to social geography, it is important also to consider topics like pollution and invasive species ecology, where substances and beings that are considered in or out of place are focal. While regulation and management of pollution or invasive species often entails the drawing up of boundaries, the underlying questions of what belongs in a particular place (or not) remain much more ambiguous (see, e.g., Pereyra, 2016).

Place in Relational Space

Clearly, space and place are related: At a minimum, a place is some region in space. Conversely, places create a space within which people can engage in particular practices (this loose definition of *place* is congruent with what Lefebvre, 1991 means by *The Production of Space*). Since Newton and the rise of strong concepts of absolute space, place has tended to be seen as subsidiary to space, either solely to be thought of as an area of space, or even as merely a point location in space (Casey, 1997a; Entrikin, 1991). As we have seen in Chapter 2, pending developments discussed in more detail below, this position has been the default for most giscience.

Assuming that the richer conceptions of place discussed above are of interest, the question arises of what would be a more nuanced understanding of the relationship between these key concepts than "a place is a region of space" or "space subsumes place." Perhaps the most compelling

account is Doreen Massey's (1991a) idea of "a global sense of place," set out with reference to a rich description of an imagined walk along Kilburn High Road, in northwest London. She notices signs of the large local Irish, Indian, and Pakistani communities. She registers planes overhead on their descent into Heathrow and wonders about where they've come from and what life is like in those other places, apart from, but connected to this one. It is the time of the "first" Gulf War, and she chats with a Muslim newspaper seller unhappy about it. In sum:

> People's routes through the place, their favorite haunts within it, the connections they make (physically, or by phone or post, or in memory and imagination) between here and the rest of the world vary enormously (1991a, p. 28).

From this, Massey goes on to argue that places are not singular or unitary, nor are they synonymous with narrow or closed notions of community, which is often a reason for place-based perspectives to be considered inherently conservative. She also suggests that places are *processes*, not things (see also Pred, 1984, and Chapters 7 and 8), that they are constantly unfolding and being made and remade, which means that they are often messy and contradictory, reinforcing their non-unitary nature. Furthermore, places in this sense do not have clear boundaries. They are not defined by boundaries so much as by webs of connection—to other places (see Chapters 5 and 6). Finally, "none of this denies place nor the importance of the uniqueness of place" (1991a, p. 29). Whatever uniqueness places have is not derived solely from a set of local attributes or an internal history, but rather from the geographically specific sets of relations to *other* places and to wider systems that each place has, interacting with the particular history of that place. Based on this perspective, she closes the paper arguing that this

> sense of place, [is] an understanding of 'its character', which can only be constructed by linking that place to places beyond. A progressive sense of place would recognize that, without being threatened by it. What we need, it seems to me, is a global sense of the local, a global sense of place (1991a, p. 29).

In later work Massey reiterates this general account (2005, pp. 130–42) tying it more closely to her thinking on the relational nature of space (see §Relational Space, Chapter 2).

More so even than usual, this paper has to be understood in the context of the academic debates from which it emerged. There are two distinct but related threads. First is the *locality debate* in (particularly British) economic and regional geography in the 1980s, sparked by Duncan and Savage (1989) and nicely covered by a special issue of *Environment and Planning A* (Duncan & Savage, 1991). This debate was concerned with rethinking the nature of economic regions in the context of 1980s globalization, which was implicated in the rapid deindustrialization of regions of the United Kingdom. The extent to which regions could no longer—if they ever could—be usefully understood as relatively bounded, somewhat independent economic spaces was central to the debate, and arguments revolved around how to think about regions differently. The *locality* emerged as a more nebulous concept that didn't carry the same baggage of boundedness as the region, or of being taken as given via some arbitrary administrative division of space. There were few clear attempts to define *locality*, however. Perhaps the most concise is

> those social relations which provide the material base for 'everyday life' in a particular place; local relations through which repeated social interaction occurs and that thus allow people to become attached to and identify with a particular place (Chouinard, 1989, p. 52).

Massey was very much involved in these debates (1991c, 1995) although nowhere does she really define the term either, and she often used it in formulations like "region/place/locality." In any case, the global sense of place seems clearly to draw on the appeal made by notions of locality to a more porous and relational conception of the region, albeit without place having the same, relatively fixed urban scale implied for localities.

Second, and a more proximate prompt to Massey's thinking on a global sense of place, is her response to David Harvey's *The Condition of Postmodernity* (1989). There, Harvey argued that the postmodern or poststructural turn in contemporary social science and political economy

was a consequence of the unsettling ways in which globalizing capitalism was reshaping geographical space. Poststructuralism denies that any one grand theory or metanarrative can explain the world, but Harvey suggested this was a consequence of an accelerating global capitalism compressing space-time in ever more urgent pursuit of profit. Furthermore, Harvey argued that not to recognize this underlying driver and to retreat into the comforting certainties of identity, which he ties to localisms such as place, was (and is) inherently reactionary and conservative.

There is much to argue with in Harvey's book, not least its dubious positions on feminism (Deutsche, 1991; Massey, 1991b). The global sense of place argument is clearly aimed at Harvey also, given the prominence accorded space-time compression and fragmentation of place in the opening paragraphs of the paper (see also Massey, 1991c). From the perspective of thinking on place, it is important to resist a temptation to retreat into a simple dichotomy between a relational space of connections and flows "out there" (or even "up there"), contrasted with more localized concrete concerns grounded (or even stuck) in place. This can easily lead to glibly contrasting abstract and globalized space with concrete and local place, and it is this tendency which Massey is arguing against. She reiterates the danger in later work:

> One cannot seriously posit space as the outside of place as lived, or simply equate 'the everyday' with the local. If we really think space relationally, then it is the sum of all our connections, and in that sense utterly grounded, and those connections may go round the world (2005, p. 185).

Evading this danger is central to Massey's paean to Kilburn High Road. Harvey (1989) frequently counterposes global, dynamic, restless space with local, static notions of place, and the latter is portrayed as tied to reactionary politics clinging to tradition and exclusion, what Sheppard succinctly refers to as "the conservative parochialism of place-based imaginations" (2006, p. 127). Driving home her point, Massey (1991c) directly counters that there is nothing inevitably reactionary about place-based politics. Ultimately her argument, reiterated much later, "is not that place is not concrete, grounded, real, lived etc. etc. It is that space is

too" (Massey, 2005, p. 185). Thirty or more years ago these arguments were urgent. In the 2020s amid a global pandemic and accelerating climate change, with national debates in much of the world dominated by reactionary, nativist politics, they feel urgent still.

Massey's (1991a) recourse to a rich, subjective narrative as the best way to talk about place is itself interesting, and aligns well with arguments made by Entrikin[14] that narrative is necessary to understanding place, because it can "incorporate elements of both objective and subjective reality without collapsing [...] the two views" (1991, pp. 25–26). Entrikin's point is that places exist both in virtue of their being subjectively experienced *and* objectively present in the world as distinctive settings different from other places. This *betweenness* demands that we take seriously both the subjective and objective character of places if we really want to understand them. Narrative approaches allow geographers "to draw together agents and structures, intentions and circumstances, the general and the particular, and at the same time seek to explain causally" (1991, p. 25), something that it can be difficult to do in other ways.[15]

PLACE IN GISCIENCE

This emphasis on narrative in relation to place is superficially troubling for geography, because it might suggest that history trumps geography, although this would be an overly hasty conclusion because it radically underestimates how bound up with one another are time and space (see Chapter 7). More pragmatically, emphasizing plot over setting might be seen as challenging the primacy of the map as geography's story-telling device of choice. It also presents an even more serious challenge for giscience which is heavily committed to maps. A GIS-centric counter to the importance of narrative accounts of place might argue that the layering together of different aspects of a study area is a process of synthesis

[14] But see also Sayer (1989).

[15] If you doubt the power of narrative explanation, I recommend *The Wire* TV show (Simon, 2002–2008) as a primer on postindustrial urban geography in general and Baltimore around the turn of the millennium in particular.

that can give an overall picture of a place. But Entrikin hints at the problem with this argument when he suggests that "[a]s one proceeds toward a decentered, theoretical view, place dissolves into its component parts" (1991, p. 24), a casualty of Haraway's god trick (1988). The GIS problem is actually in some ways the opposite! The layers sit on top of or alongside one another; they are unrelated to one another except incidentally through shared location. They do not combine to form a complex, interlocking, and holistic representation of a place. If one layer is removed, it is simply gone, and the remaining layers are unaffected. Current platforms organized around a logic of thematic layers unavoidably dissolve places into component parts.[16]

Whatever the merits of narrative synthesis relative to GIS or maps or atlases, the dual subjective–objective character of place helps explain why giscientists have struggled with the concept. Most often the struggle manifests as a frustration with the elusiveness of a definition:

> The concept of place has a long history in geography and related disciplines, but has been plagued by a fundamental vagueness of definition: what, exactly, does the term mean? (Goodchild, 2011, p. 21)

Space by contrast offers a clear (if disputed, limited, and partial!) definition at least in its absolute guise (see Chapter 2). Absolute space may not be conceptually adequate to geography, but it is certainly implementable, and sometimes even useful. Even given a widely agreed, unambiguous definition of place, the nature of the concept—its betweenness—would make it difficult to formalize, so that it could be computed with as readily as can locational coordinates.

Rather than tackle head-on the challenge of formalizing the subtleties of place, giscientists have tended to sidestep the issue and focus instead on limited interpretations of the meaning of place that *are* amenable to formalization, and therefore computation. Goodchild (2011) effectively

[16]This is a setting where graph databases (see §Graph Databases, Chapter 2) as an alternative foundation for geospatial platforms might open up richer possibilities.

focuses on just two: place-as-location and place-as-context.[17] We consider these below, along with other more platial approaches in giscience. The more ambitious agenda of such approaches is well covered in recent, more fruitful discussion of the prospects for taking place seriously in giscience (Purves & Derungs, 2015; Hamzei et al., 2020; Mocnik, 2022), although the stumbling blocks highlighted by Goodchild remain the prevalent response.

Place as Vague Location: Gazetteers

As Mocnik notes, "Geographical Information Science scholars [...] tend to use the term 'place' even when, in fact, they presume a paradigm similar to the one assumed for Geometrical Space" (2022, p. 798). Inevitably given this propensity, the troublesome thing about place in much of giscience is that a place is *not* a simple location:

> Whatever we choose to include in the definition, one of the strongest challenges of this place concept for data modellers [...] is the lack of precise locations, crisp boundaries and single universal names for many places that people talk about in everyday life (Davies et al., 2009, p. 175).

Street addressing (discussed earlier in this chapter) is about providing humans with more legible ways to talk about location, often using place names. The challenge of place that giscientists have directed most attention to is the inverse one of translating human ways of talking about location—place names or *toponyms*—into geographical coordinates,

> because capturing the human cognitive notion of place is considered crucial for smooth communication between human users and computer-based geographic assistance systems (Winter & Freksa, 2012, p. 31).

[17]There are five subsections in the article, but the first three, "Ambiguities," "Digital Gazetteers," and "Volunteered Geographic Information," all concern place as vague location, while the fifth, "Place as Spatial Concept," is not fleshed out.

This is in danger of completely missing the point that London is not at all the same thing as its Wikipedia coordinates 51°30′26″N 0°7′39″W. Often, solutions to this problem are not so naïve as to assume that a location refers to a point location, but may return a polygon area representing an administrative boundary or approximate area of interest. In any case, the *gazetteer problem* of translating from toponyms to locations (somehow defined) is technically challenging and of some interest, even if it does not adequately address the concept of place.

Toponyms can be vague in a variety of ways. First, many toponyms occur numerous times across different settings. For example, there are 35 proper places called Springfield in the United States—Virginia alone has two.[18] There are a great many more not-really-proper places going by the name Springfield that a geocoder could possibly return (and *will* return if you really insist on it—see Figure 4.3). Many of these are shops, cafés, or even private residences that have a name in addition to, or instead of a street number. In any particular context it will probably be obvious to a human which Springfield they are interested in, but much less so from a computing perspective, and this is one challenge in the realm of place-as-location. For some toponyms the most likely place being queried might be a shrewd guess almost every time—for example, there are many Londons, but it is likely that London, the capital of the United Kingdom, is the topic of interest most of the time. The priority among other repeated toponyms is less obvious: None of the Springfields in the United States is particularly large, so even narrowing the search to those may not help much. At the time of writing, if I search for Springfield on Google Maps, I get the one in Aotearoa New Zealand, an example of my current geographical context being used to narrow the search.

A second source of vagueness in toponyms relates more closely to the nebulous nature of places, discussed in the previous section. Most obviously, place names often refer to geographical features that cannot be sensibly narrowed down to a singular point in absolute space. The

[18]This is apparently why Springfield was chosen as the everytown name in *The Simpsons*. If it had been further located in a fictional Washington County (of which there are 32), that would have nicely added to the confusion, albeit at the risk of being a bit too specific, since there *is* a Springfield in Washington County, Kentucky.

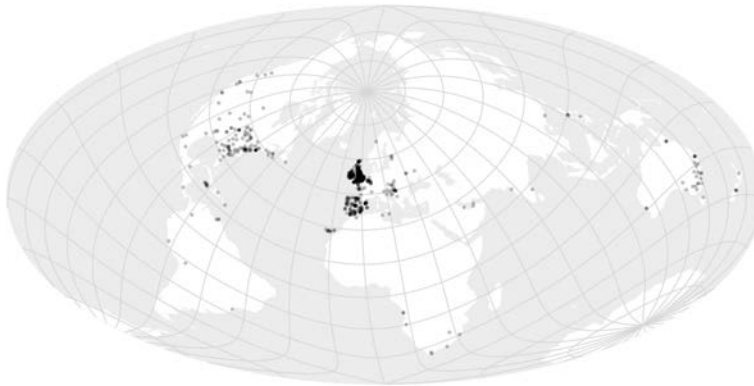

Figure 4.3. The 514 Springfields returned by the `nominatim` geocoder at https://nominatim.openstreetmap.org at the time of writing (August 2022). In addition to the many settlements called Springfield in the United States, there are many streets, street addresses (i.e., residences), neighborhoods and even some cafés called Springfield. The large number of Springfields in Europe are branches of a Spanish clothing store.

Rockies, The Urals, the Desert Road (in Aotearoa New Zealand), and the Midlands are all places, but it is not easy to pin their locations down to a point. Even so, most of the time, a search engine will put a pin on a map in response to a place name query—see Figure 4.4. In one case a polygon area is associated with a road, although the Desert Road shares with Route 66 the sense of it being a place more than a mere road, so this is not entirely unreasonable. In general, this is a difficult problem—one with which a human would also struggle! The map pin in Figure 4.4a has presumably been somehow derived from an area designated as the Rockies, but how exactly that area is defined is not obvious. This mirrors the challenge of something as seemingly straightforward as deciding if a mountain exists (Smith & Mark, 2003) and if so where is its summit (or summits). A slightly frivolous example of the latter problem is the classification of "Munros" in Scotland, mountains above 3,000 feet in height, where some peaks above that height are considered insufficiently

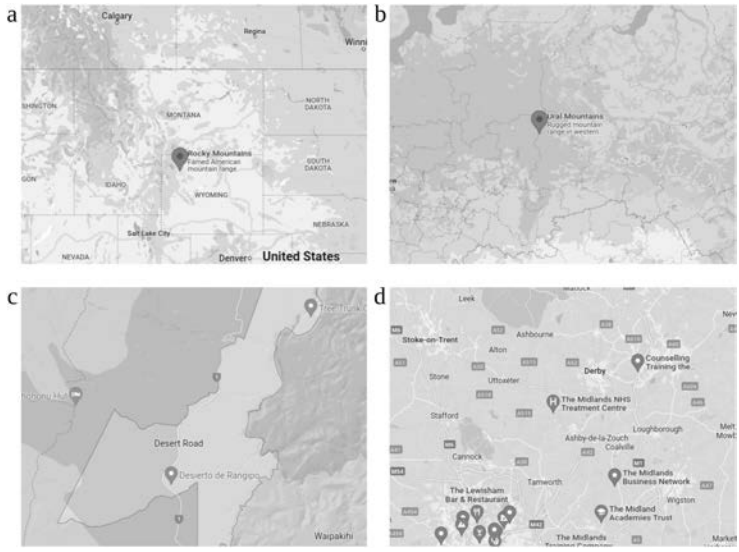

Figure 4.4. Google maps of four vague places mentioned in the text: (a) the Rockies, (b) the Urals, (c) the Desert Road, and (d) the Midlands. Only the last of these does not get a map pin or other delineation.

far from another peak, and are classified not as Munros but as Munro Tops. Uncertainty about the extent of things is equally applicable to more mundane places like urban neighborhoods (see Figure 4.2). We revisit the question of delineating boundaries in Chapter 5.

Yet another source of toponymic confusion is arriving at consensus on the correct name for places. The names of many places are disputed, reflecting contested histories. Even when names appear uncontroversial, there are often long histories of naming and renaming. Paying attention to these often sheds light on the multiple meanings of a place. To take a locally relevant example, that there are many places around the world called Wellington is a consequence of the rapid colonial expansion of the British Empire in the decades after the 1st Duke of Wellington's victory over Napoleon at Waterloo. I grew up in a street called

Waterloo Park in Belfast, a city whose name is a colonial Anglicization of the Gaelic Béal Feirste meaning "mouth of the Farset," the river on which the original settlement was established. Back in Aotearoa, across the Cook Strait (Te Moana-o-Raukawa) and Marlborough Sounds from Wellington, is the Marlborough region, and the town of Nelson—all three named for British imperialists of varying significance. Further south in Te Waipounamu or Te Waka a-Māui—much more satisfying Māori names than the geographically banal South Island—Cook also has Aotearoa's tallest peak named for him, although the Māori name Aoraki is increasingly used, and the mountain's official name is Aoraki/Mt Cook. More toponymic gymnastics are to be found farther south where Dunedin (Ōtepoti) is an Anglicization of the Scottish Gaelic Dùn Èideann (Edinburgh).

Back in Wellington, in addition to its older English name Port Nicholson (yet another imperial luminary), there are at least three possible Māori names: Te Whanganui-a-Tara (a name for the harbor), Pōneke (a transliteration of the early English name), and Te Upoko o te Ika-a-Māui. The last of these means "the head of the fish of Māui" which relates to the Māori name for the—yawn—North Island, Te Ika-a-Māui, "the fish of Māui." Meanwhile, I am writing in a neighborhood, Brooklyn, which has a Central Park, and several streets named for American presidents (Lincoln, Washington, Cleveland, Garfield, McKinley, Taft, Jefferson). To add to the polyglot toponymic riches, Wellington's hippest street is Cuba Street, named for one of the first colonial settler ships, which by word association has spawned a coffee roaster and restaurant called Havana, and a bar called Fidel's (there is also a music venue on Cuba called San Fran).

In short, toponyms are complicated and often surprising. They also matter a great deal and are much more than mere labels (see Figure 4.5). As much or even more so than drawing lines on maps (see §Drawing Lines, Chapter 5), naming a place asserts at a minimum connection, but often ownership or authority—power—over that place (Berg & Kearns, 1996; Eades, 2017; Madden, 2018; Giraut & Houssay-Holzschuch, 2022). The names that are used for places therefore matter a great deal, and are more than accidental. Thus, while a concern for accurately

Figure 4.5. Toponyms in Aotearoa that include at least one word probably in the Māori language. The greater density of Māori names on Te Ika-a-Māui (on the left) reflects both greater settlement of that island before European colonization and continuous Māori presence. Based on a map in *We Are Here* (McDowall & Denee, 2019), resources available here: https://github.com/fogonwater/we-are-here/ including place names from Toitū Te Whenua – Land Information New Zealand and Te Hiku Media's' Ngā-kupu tools to identify Māori words in text, from https://github.com/TeHikuMedia/nga-kupu.

geolocating a named place is not unexpected from a technical perspective in giscience, and also not unimportant from a practical perspective, it misses the possibilities in names—especially toponyms—as geographical data that might be informative of the complex cultural geographies of place. Some of the potential of toponyms for helping us grasp the meanings of places and draw out their connections is explored in tools like Frankenplace (Adams et al., 2015).

Place as Geographical Context

One perspective in giscience that might be considered platial is the *uncertain geographical context problem* (UGCoP, see Kwan, 2012). The UGCoP refers to the difficulty of knowing with certainty the relevant geographical context affecting outcomes in a given study. Geographical context is a catch-all term for the total set of impacts from the surroundings which might affect (usually) social outcomes for different people. The idea emerges most obviously when researchers seek to understand environmental effects on health outcomes, but might equally apply to any work on neighborhood effects (Sampson et al., 2002).

Taking geographical context seriously immediately reveals the inadequacy of simplistic notions of coincidence in space as a way of understanding what it means for things to interact in place. For example, in studies that attempt to link urban design to physical exercise and as a result to health outcomes, it is necessary to somehow define for each subject in the study population what is the environment understood as affecting their behavior. Often this has been done by considering the statistical area (such as a census tract) where each subject lives, and somehow associating with that area relevant factors, like the amount of green space, access to public transport, road density, and so on. This effectively assumes that the activity space of individuals resident in each census tract is confined to the census tract itself, which will only rarely be the case, and furthermore that the census tract is somehow sealed off from everywhere else in the wider region. In reality, depending on personal circumstances (age, employment, and so on), a resident of a particular census tract may stay close to home most of the time when the tract might be a reasonable proxy for their activity space, or they might be there only when they are asleep, and range widely across the city or region they live in for work, education, leisure, and other activities. This means that there is great uncertainty around any study of environmental effects on people's behavior, and it is unclear that any fixed definition of the neighborhood of an individual is valid (Black & Macinko, 2008), or what the effects of choosing different definitions might be on findings (see, e.g., Mavoa et al., 2019). Other approaches using GPS tracking may yield more useful data

as proxies of the activity spaces of individuals, although these methods have their own challenges (see Mavoa et al., 2018).

There is no simple way to resolve the UGCoP short of careful attention to study design, the collection of much more detailed information about individual behavior and life histories (which may raise their own concerns about privacy), and more careful interpretation of research findings. For now, it is notable that geographical context depends on individual movement over time (possibly extending to lifetimes), which again points to the importance of human experience and properly representing time for a comprehensive understanding of place.

Place and Meaning

Much of giscientists' engagement with the notion of place at a level beyond geolocating toponyms revolves around how meaning can be associated with geographical data. The ambiguity and relational fluidity that attaches to place per se is not attached to the cartographic representation of place, which generally remains wedded to the simple locations of points and polygons (Payne, 2017). There has been only limited cartographic work exploring how to map ill-defined areas associated with toponyms (but see Brindley et al., 2018). Most energy has been devoted to working with new attributes—or new kinds of attributes—in the object-attribute tuple, while the geographical objects themselves remain the familiar points or areas in standard spatial relational databases. This often involves adding data such as photographs, sounds, user comments, hyperlinks, and so on to more or less conventional spatial data.

An excellent overview of the thinking behind these approaches is provided by Purves and Derungs (2015) who echoing Goodchild (2011) bemoan the elusive nature of place, but pragmatically settle on three concepts emphasized by Agnew (2011): location, locale, and sense of place. These refer, respectively, to specific locations in (absolute) space; to kinds of place (such as home, work, forest, and so on) which might not be fixed in space; and to feelings of attachment or belonging (or not) relative to meaningful places. The last of these is closely related to the ideas of Tuan (1977) and Massey (1991a), while this threefold notion of place also

closely mirrors theoretical ideas about *where* queries in information theory (Shatford, 1986). Purves and Derungs therefore adopt this threefold definition as "a basic framework to move beyond the much criticized, and still predominant, reduction of place to a name and a set of coordinates" (2015, p. 77).

Taking this approach, Purves and Derungs then explore how a query like "Mountains in the Alps" "contains both location(s) and locale(s) [. . .] and its meaning is modified according to the individual who posed it, thus incorporating notions of sense of place" (2015, p. 78). This involves first noting the vagueness of "mountain" (see Smith & Mark, 2003) and the ambiguity of "Alps"—Europe or New Zealand? A specific mountain range or high-altitude pastureland?—before going on to five case studies that variously explore: the use of digital data to delineate vernacular regions; drawing maps from historical records; mapping vague locales (like mountains); georeferencing texts; and linking locations and locales. In setting out this agenda, of central importance is the introduction of novel sources of digital data about geography, particularly *volunteered geographic information* (or VGI; see Elwood, 2008; Goodchild, 2007) and sources being developed in the *digital humanities*, particularly digitized historical records. That these approaches have "the potential to facilitate the transformation of GIScience from a space to a place based science" (Purves & Derungs, 2015, p. 79) is the optimistic claim.

Work along the lines represented by the five case studies can be found in contexts other than "Mountains in the Alps." Delineating vernacular regions involves searching sources for references to places and associated supposed locations, and then somehow combining those locations to map where the regions are. This is closely related to work on mapping neighborhoods (Brindley et al., 2018), but might also include mapping ill-defined regions like the Midlands, the Highlands, or the Cotswolds (Jones et al., 2008), and areas like the "downtown" of a city (Hollenstein & Purves, 2010). This work, at least in its general intention, updates much earlier examples (see e.g., Hale, 1971; Zelinsky, 1980). On a technical level, the work typically involves assembling collections of point or polygon data tagged with various toponyms or descriptors, then using a

method such as kernel density estimation to produce probabilistic maps of how those toponyms relate to location in a conventional map view. Broadly similar approaches are applicable to mapping places in historical texts and other sources (Cooper & Gregory, 2011), to mapping the locations associated with locale place words like hill, bar, downtown, and so on (McKenzie & Adams, 2017), and to delineating urban areas with particular word associations (Curtis et al., 2016).

Important in many of these examples is the notion of a *geotag*. Geotags are most often social media data that have been tagged with a location, either if tracking is enabled in the relevant app or with hashtags that include platial information such as a place name. More broadly speaking, any text-based descriptive terms that have been, or can be, geolocated in some way, can be considered geotags, so that the concept can be extended to include data extracted from text. Contemporary digital media yield vast amounts of geographically located data of diverse types. In addition to more well understood data types, images, video, and audio are collected on a large scale, often via social media platforms. Large amounts of text of various kinds are also collected by the same platforms. Often, audio, video, and so on also have associated descriptive tags, whether added by humans or automatically generated.

For researchers interested in the texture of places these data present interesting possibilities that go beyond more conventional sources like government censuses of the population. They also often emphasize the activities that can occur at particular places, relating in this way both to Cresswell's arguments about place and to Purves and Derungs's (2015) emphasis on locale as particular kinds of place. This idea is central to arguments for the importance of *affordances*—the activities a place can potentially accommodate—to prospects for moving beyond place as a gazetteer problem (Scheider & Janowicz, 2014), and instead thinking of platial reference systems as capable of identifying locations where specific activities might be possible. In a recurring theme, such affordances usually vary through time, often in more or less regular ways, pointing again to the importance of thinking about place in space-time, not merely as ill-defined location.

Place in Mind: Cognitive Maps

An earlier tradition in quantitative geography that is closely related to recent developments in the mapping of geotags is *cognitive mapping* (Downs & Stea, 1973; Gould & White, 1974). An important aspect of work in this tradition is finding ways to present the metric inconsistencies of individuals' and groups' mental representations of geography in map-like displays. The kinds of metric inconsistency that arise in perceptions of space are that it is farther from location P to location Q than the return trip from Q to P, that a sequence of places P, Q, and R are linearly aligned even when they are not, or that streets in the urban fabric of a city meet at right angles and are arranged in a grid when they are not (see Figure 4.6).

Taken together, such mismatches between a metrically accurate map of an area and the maps in mind that people may hold of that area make it natural to ask if maps can be made that reflect those mismatches, and thus provide a truer picture of the area. An important inspiration for this approach is Kevin Lynch's *The Image of the City* (1960), which included sketch maps of a number of cities based on interviews with residents.

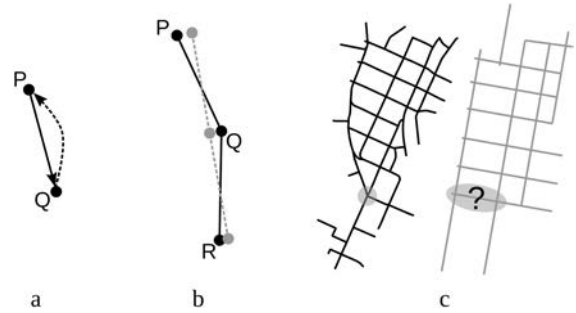

Figure 4.6. Three distortions of metric space that often occur in cognitive maps. (a) Distance from P to Q is not the same as from Q to P, (b) unaligned features are aligned, and (c) a kink in a grid is ignored, often leading to confusion. The last example is based on my own experience of a particular part of Wellington's streets refusing to resolve itself in my head over several years!

The sketch maps included *elements* that are held to contribute to the *imageability* or *legibility* of a city,

> that quality [...] which gives it a high probability of evoking a strong image in any given observer. It is that shape, color, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment (1960, p. 9).

Lynch identified several categories of elements of a city image—paths, edges, districts, nodes, and landmarks—which together structure the overall understanding of a city formed by people living, working, visiting, and moving within it. He argues that carefully managing these elements and how they relate to one another can enable urban planners to design cities that are more livable. Interestingly he relates the problems of designing cities to their scale: "the city is a construction in space, but one of vast scale, a thing perceived only in the course of long spans of time" (1960, p. 1). Cities then, are environmental in their scale (see Figure 3.3), and as places are experienced through time.

The importance of landmarks in Lynch's scheme was taken up in cognitive mapping by using multidimensional scaling (MDS) methods to place known anchor points in urban spaces based on their perceived separation distances, and developing bespoke distorted maps from the MDS results (Couclelis et al., 1987). More recent work describes ways to apply Lynch's approach (Banai, 1999), and to improve automated directions using aspects of his analysis (Winter et al., 2008). The prospects for automating urban image analysis computationally (Filomena et al., 2019) appear promising, offering the prospect of more qualitative approaches to mapping urban places. Tellingly, the resulting representation of an urban place requires several GIS layers: of points (nodes and landmarks), lines (paths and edges), and surfaces (districts with uncertain boundaries), and it is only the combination of all of them that can be considered an adequate (if approximate) representation of the place. Given the underlying perceptual basis of such analysis, it seems likely that the same open-ended and multiple representation would be required for *any* place, urban or otherwise.

TOWARD COMPUTABLE PLACE?

Place, then, is complicated!

Unlike some approaches to space, the concept resists any neat mathematical formalization given its entanglements with power, culture, meaning, experience, and time. There is little doubt that giscientists will continue to improve the capability of information systems to interpret natural language queries about named places and locales. It is much less clear what such developments are likely to add to geographers' tool-kits. The platial questions Mocnik (2022, Table 1, p. 16) suggests might distinguish strong platial information systems from weak ones are those pertaining to the internal properties of places, rather than to their interrelations (whether spatial, quantitative, or qualitative). This seems a rather circular argument, since it immediately prompts questions about what the intrinsic internal properties of a particular place might be, and how we might know what they are. A strong platial information system under this definition sounds like it might be close to a more generalized information system capable of responding to open-ended queries about the nature of anything, spatial, platial, or otherwise! It is good to be ambitious, but more modest attempts to handle place computationally might also lead in interesting directions.

The first step is to consciously incorporate narrative elements into our representations, something that even static maps, given careful design, can already do (Caquard & Cartwright, 2014; Mocnik & Fairbairn, 2018). It is interesting to contrast the synthesis performed by layering in a GIS, with the related but very different experiences offered readers of thematic maps and atlases. In the map *"They Would Not Take Me There,"* "the authors reimagine historical cartography for the representation of *place rather than space* by taking a narrative approach to cartographic language" (Pearce & Hermann, 2010, 32, emphasis added). They accomplish both within the main map by carefully directing the readers' attention to follow particular sequences and by layering on additional sidebars, information panels, and so on. This is certainly more than a single map, but it is telling that taking a narrative approach demands more than merely adding more geospatial layers. Labeling in general and detailed annotation in

particular, both central to Pearce and Hermann's cartography, could be much better supported in geospatial platforms and might make such narrative cartography (a little) easier.

Thematic atlases like *London: The Information Capital* (Cheshire & Uberti, 2014) or *We Are Here* (McDowall & Denee, 2019) also depart from the GIS template. Map spreads are at different scales, on different themes, and with few exceptions each may include several layers carefully combined to tell some aspect of the overall story of their subject place. While many of the maps share layers in common, it is the particular combinations of layers across multiple maps that combine to present stories of these places. Perhaps most instructive of all is Denis Wood's *Everything Sings* (2010a) which portrays his home suburb of Boylan Heights in Raleigh, North Carolina. Here all the maps share a base map, yet the base map is never shown, only the single theme of interest on each map. The effect of leafing through these maps is a cumulative account of the place, where mere location—which the base map would emphasize—becomes irrelevant. By forcing the reader to attend to each theme, rather than visually combining them, paradoxically a more complete picture of the place emerges.

Recent developments in *story mapping*,[19] where a narrative implying a preferred reading order takes precedence over recognizable map elements, make rich annotation much easier. Platforms supporting story maps have developed rapidly from little more than putting time-lines on a (usually) interactive base map (see Caquard & Cartwright, 2014) to the inclusion and linking of various media such as images, audio, and video. Story maps remain wedded to conventional absolute models of space, even though, as Caquard and Dimitrovas argue,

> [g]enerally, space (and even time) is neither Cartesian, nor continuous in narratives. It varies due to the fluid structure of events,

[19]Not to be confused with mapping or diagramming the concepts in a narrative, more often referred to as *semantic mapping*. See, for example, Reutzel (1985), or, for visualizing literature and literary history, Moretti (2007).

> descriptions, memories, and the imaginary. Maps and stories simply do not have the same geography (2017, para. 2).

Given that taking place seriously points to considering space as relational, this may be a significant limitation of story mapping approaches, or indeed of more conventional maps and atlases. More experimental approaches to narrative cartographies of place explicitly recognize this problem (Knowles et al., 2015; Caquard et al., 2022) and even advocate abandoning geospatial platforms or remaking them to escape or "loosen" the Newtonian grid (Westerveld & Knowles, 2021).

A second approach, as in the examples of work on Lynch's image analysis, would be to attempt direct implementations of particular perspectives on place. Pointers toward some facets of place that might be implementable are provided in a structured literature review by Hamzei et al. (2020). An example of a detailed framework relating space and place to nature, social relations, and culture is set out in *Homo Geographicus* (Sack, 1997). This framework is undoubtedly wrong (of course it is!) with its particular quirks and omissions, but Euclidean/Newtonian absolute space is also wrong, and computational representations of that framework have proved fruitful, if limiting. Sack's framework also includes an iconographic symbol system that might help make an implementation navigable.

Or again, Massey's relationally embedded global sense of place appears a promising candidate for formalization, but has attracted only limited attention in the giscience literature. Capineri's "Kilburn High Road revisited" (2016) is an exception that (seemingly inevitably) showcases a reliance on geolocated social media data. The framework adopted to inform this work is again Agnew's (2011) tripartite location-locale-sense of place model. What seems absent relative to Massey's account is the global sense with which the original paper is so deeply imbued. This may reflect the limitations of social media data, which are the everyday thoughts of people passing through the place, not the reflections of a professor of geography.[20] Taking Massey's perspective more fully to

[20]Ironically, the data used in the study are collected by a corporation in California, far removed from north-west London, and in that sense global!

heart would require that the perspective be able to shift from the everyday and local to a more distanced global perspective linking Kilburn High Road to other places elsewhere.

This brings us back to whether place and space should be thought of as somehow opposed: place as the local, concrete, and particular; space as the global, abstract, and general. The binary is attractive, but

> [t]he couplets local/global and place/space do not map on to that of concrete/abstract. The global is just as concrete as is the local place. If space is really to be thought relationally then it is no more than the sum of our relations and interconnections, and the lack of them; it too is utterly 'concrete' (Massey, 2005, p. 184).

Or, as we saw, a little further on, the "argument is not that place is not concrete, grounded, real, lived etc. etc. It is that space is too" (2005, p. 185). The local and immediate feels more concrete, because it is often visible, right there in front of us. But more remote events are no less real, even if they seem that way. Vast global events like pandemics and climate change can seem surreal—and are often described as such—but have tangible, concrete effects that play out in many places all at once. So the space–place binary can be a helpful tool for thinking with, but it is probably more helpful in the long run to recognize that they reflect different experiential aspects of complex and dynamic realities.